Mediating Trans-Boundary Water Conflicts

Issues and Approaches to Long-Term Resource Management and Conflict Resolution

Dorothea Blank
(s1053159)

First Reader: Professor J. Melissen
Second Reader: Professor M. Hosli
MSc International Relations and Diplomacy
Master Thesis
June 2012

Abstract

Trans-boundary rivers are shared by multiple sovereign states, creating conflicting demands on the river's resources and further complicating already difficult political legacies. This combination hinders cooperation over the communal resource and makes trans-boundary river basins areas of conflict. To resolve such conflicts, the involvement of a third party mediator with the capabilities to offer incentives to reluctant riparians, coupled with the creation of a management institution to address conflicts as they arise, offers the best means of addressing both the short term issues of getting states to agree to a cooperative arrangement for the river and the long term commitment problems that would lead states to renege on the agreement. This thesis will explore the utility of the combined short and long-term approach to mediate trans-boundary river conflicts by examining the mediation and resolution of the Indus River conflict between India and Pakistan. The lessons learned are then used to investigate the unresolved conflict between Turkey, Syria, and Iraq over the Euphrates and Tigris rivers and offer ways of managing the conflict.

Table of Contents

Abstract....2
Table of Contents....3
Chapter One
Introduction....5
The Central Problematic....5
The Question....6
The Argument....7
Outline....7
Conclusion....8
Chapter Two
Literature Review....9
Beginnings of the Debate....9
The Evolution of “Conflict” and “Cooperation”....11
Conclusion....13
Chapter Three
Theoretical Framework....15
Is Cooperation Possible?....15
The Mediation....17
The Management Institution....18
Conclusion....21
Chapter Four
Research Design....22
Method of Analysis....22
Case Selection Strategy....22
Scope and Limitations....24
Chapter Five
The Indus River Conflict: Mediation and Management....26
Background....26
The Situation on the Ground....27
The Conflict....28
Mediating the Indus River Conflict....31
The Indus Water Treaty....34
The Permanent Indus Commission....35
Long-Term Cooperation in the Indus Basin....37
Conclusion....39
Chapter Six
The Tigris-Euphrates Rivers Conflict....40
Background....40
The Situation on the Ground....41
The Conflict....42
The Keban and Tabqa Dams....43
The Southeast Anatolia Development Project....44
Attempts at Conflict Management....46
Conclusion....48

Chapter Seven
Long-Term Cooperation in the Tigris-Euphrates Basin.....49
Facilitating a Trilateral Agreement.....49
Potential Issue Linkages.....52
Potential Side-Payments.....54
The Management Institution.....55
Conclusion.....56
Chapter Eight
Conclusion.....58
Bibliography.....60

Chapter One
Introduction

The Central Problematic

Water is a scarce and vital resource needed for all aspects of human existence and production. Unlike other, often fought-over resources such as oil, there is no viable alternative to water. Without a sufficient quantity or quality of water, economic development as well as industrial and agricultural production grind to a halt, human suffering grows, and societal stability becomes increasingly threatened. Humanity's main sources of water are freshwater rivers.[1]

There are 263 trans-boundary rivers around the world, some of which are shared by as many as 17 countries.[2] A trans-boundary river is a river that crosses political boundaries such as international borders.[3] Growing populations, increasing industrialization and pollution, and changing resource and energy needs bring into focus the precarious situation in which riparians[4] find themselves. So long as there is no cooperation over the shared resources, each state must use the water in the river to its best advantage before it crosses international borders and becomes unreachable. The actions of one state, for instance building a dam and diverting part of the river's flow or polluting the water can seriously affect the water security of the other riparians. Because of this, trans-boundary rivers are potential loci for conflict over the use of the shared river. Zawahri explains that "conflict over international rivers arises when states undertake unilateral development of the shared river system to accommodate their own needs and without regard for the impact on their riparian neighbor."[5] While scholars of water conflicts are quick to point out that instances of cooperation over shared freshwater rivers

---

[1] Igor A. Shiklomanov,"2. World Fresh Water Resources," in *Water in Crisis: A Guide to the World's Freshwater Resources* ed. Peter H. Gleick, (New York: Oxford University Press, 1993), 13.

[2] Aaron T. Wolf et al, "5. Managing Water Conflict and Cooperation," *State of the World 2005: Redefining Global Security*, (W.W. Norton & Company: New York, 2005), 82-83.

[3] "Description and Definition of Transboundary Impacts and Resources," *Convention on Biological Diversity*, retrieved from: http://www.cbd.int/programmes/areas/water/toolkit/html/1.11.2_description_transboundary.html, (24. 05. 2012).

[4] Riparian is defined as: "those nations through which the river passes." From: Ali Akanda et al. "The Tigris-Euphrates River Basin: Mediating a Path Towards Regional Water Stability," *Al Nakhlah* (Spring 2007), 1.
Samuel Luzi, "International River Basins: Management and Conflict Perspectives," *CSS Environment and Conflict Transformation* (2007), 1.

[5] Neda A. Zawahri, "Third Party Mediation of International River Disputes: Lessons from the Indus River," *International Negotiation* 14 (2009), 287.

far outnumber conflicts[6], the causes of conflict should not be dismissed, and likewise the need for ways to promote cooperation must be investigated further.

Asymmetric power distribution among riparians, unilateral development and difficult political histories affect the relationship among riparians and make cooperative solutions for the use and distribution of the river's resources harder to achieve. A riparian with first access to the river may, for instance, be unwilling to curtail its use of the river in order to accommodate the needs of its downstream neighbors unless there is some benefit it would derive from such an arrangement. Such situations generate instability and insecurity among all riparians because they cannot overcome the zero-sum mentality in regards to the use of the river and worsen already difficult political relationships.

Conflicts over trans-boundary rivers are also made more difficult because their resolution is not a matter of a one-time negotiation. The river and its resources do not cease to exist once its use and resources are allocated to individual riparians and neither do the needs of the riparians remain constant indefinitely. "The issue at the heart of the conflict for riparian states is a long-term management problem that involves the need to address disputes continuously and compels them to interact indefinitely."[7] These dynamics make the likelihood of building lasting, binding agreements that adequately address the dynamics of trans-boundary river conflicts slim. How then can these conflicts move from zero-sum unilateral use to a win-win situation of cooperation?

The Question

One powerful means of influencing taciturn riparians and promoting cooperation among them is the involvement of a third party mediator. A mediator can both offer incentives to bring reluctant parties to the table and mobilize resources to smooth the way to agreement.[8] This "carrots and sticks" approach to mediation can induce even the most unwilling parties to compromise. The goal of this thesis is to address the following question on the role of mediators in facilitating short and long-term cooperation over the trans-boundary river among riparian states. *Considering the unique characteristics of*

---

[6] Ariel Dinar, "Cooperation in Managing Transboundary Water Resources: Evaluation Approaches and Experiences," *Paper Presented at 4th Rosenberg International Forum on water Policy,* (3-9 September, 2004), 13.

[7] Zawahri, "Third Party Mediation of International River Disputes," 282.

[8] Ibid.

conflicts over trans-boundary freshwater rivers, what can third party mediation offer riparians that would address both the short-term and long-term causes of conflict?

The Argument

Drawing on water conflict and third party mediation literature, this thesis will use a neoliberal institutionalist framework to argue that third party mediation and the subsequent creation of a management institution can help states overcome their zero-sum attitude toward cooperation and provide a means of credibly committing to cooperative river management. The actual mediation process can help states overcome their unwillingness to join negotiations by offering incentives, which make the agreement more attractive to otherwise unwilling parties. A well-designed management institution with a robust mandate and the power to enforce that mandate can help to foster long-term cooperation by providing a means for states to credibly commit to joint management of the river and alleviate their fear of being cheated by other riparians. The following hypothesis outlines the central argument of this thesis that will be investigated in the subsequent chapters. *In conflicts over trans-boundary freshwater river resources, use of incentives such as side-payments and issue linkage by a third party mediator as well as the creation of a management institution can help parties reach an agreement and facilitate their long-term cooperation over the river.*

Outline

The thesis will be divided into the following sections. The first chapter will review the literature on water conflicts, their causes and the likelihood of conflict versus cooperation in order to situate the argument in the relevant social science literature. The second chapter will provide the theoretical framework, outlining the liberal institutionalist framework and the role of the third part mediator in facilitating a lasting resolution to the conflict. In chapter three, a discussion of the methodology, case selection strategy and scope and limitations of this project will clearly define the area of focus of this thesis. The fourth and fifth chapters will illustrate this argument and provide real world examples of the utility of the dual short and long-term approach to the mediation and management of water conflicts by examining two case studies in detail. The Indus

River dispute between India and Pakistan is the first of the two cases analyzed. The Indus dispute serves as a best-case example of a successful mediation of a trans-boundary water conflict and subsequent creation of a management institution that addresses the ongoing issues a shared river presents.[9] The second case study focuses on the unresolved conflict between Turkey, Syria, and Iraq over the Tigris-Euphrates rivers.[10] The concluding chapter will sum up the findings and discuss the transferability of them to other cases of trans-boundary water conflicts.

Conclusion

Trans-boundary water conflicts pose immense difficulties to both the riparians and the mediator. A mediated agreement which does not address the long-term issues that come from the necessity of managing the river and its resources ad infinitum will cause riparians to renege on the signed agreement or to simply wait until the agreement runs out and then continue their unilateral development of the river. The conflict's resolution requires not only a signed agreement among riparians to equitably allocate the river's resources, but also a long-term means of addressing the changing needs of the riparians and any conflicts that might arise. Only this makes joint management of the river possible. Conflicts over trans-boundary rivers benefit from third party mediation because the mediator can provide incentives to bring otherwise uninterested parties to the table, smooth the path to an agreement and ensure compliance with the terms of the treaty. However, the potential for conflict remains, because the river itself is a shared good that does not disappear once riparians reach an agreement, making a management institution with a strong mandate and conflict resolution powers vital to the success of the mediation and future cooperation of the riparians.

---

[9] Aaron T. Wolf and Joshua T. Newton, "Case Study of Transboundary Dispute Resolution: The Indus Water Treaty," Appendix C in, Delli Priscoli, Jerry and Aaron T. Wolf, *Managing and Transforming Water Conflicts*, (Cambridge: Cambridge University Press, 2008), retrieved from: http://www.transboundarywaters.orst.edu/research/case_studies/Indus_New.htm, (13 May, 2012).

[10] Aaron T. Wolf and Joshua T. Newton, "Case Study of Transboundary Dispute Resolution: The Tigris-Euphrates Basin," Appendix C in, Delli Priscoli, Jerry and Aaron T. Wolf, *Managing and Transforming Water Conflicts*, (Cambridge: Cambridge University Press, 2008), retrieved from: http://www.transboundarywaters.orst.edu/research/case_studies/Tigris-Euphrates_New.htm, (14 May, 2012).

Chapter Two
Literature Review

Beginnings of the Debate

Scholarly work on water conflicts gained importance following the end of the Cold War when realist conceptions of security began to give way to more encompassing understandings of "human security" that included the environment and both renewable and non-renewable resources.[11] Within the literature, water comprised one of the renewable resources conflicts might erupt over.[12]

Much of the initial scholarly work on water conflicts focused on the potential for so called "water wars," cases of violent interstate conflict over scarce water resources.[13] Homer-Dixon, argued, "The renewable resource most likely to stimulate interstate resource war is river water."[14] Others compared the link between water scarcity and armed conflict to oil's propensity to cause violence: "Nations go to war over oil but there are substitutes for oil. How much more intractable might be wars that are fought over water, an ever-scarcer commodity for which there is no substitute?"[15] This Neo-Malthusian approach sought to draw direct causal links between the scarcity of resources such as freshwater and violent conflict. Scholars[16] saw resource conflicts as the next nexus of violent, interstate conflicts: "The end-stage of unequal power relations and economic exploitation in the world will be tension and struggle over life-sustaining resources. Fossil fuels, freshwater, farming and fishing have already become the foci of armed struggles."[17]

However, this body of literature could not conclusively establish the causal link between water scarcity and violent interstate conflict. The primary methodological problems with this approach were twofold. First, because the scholars largely based their

[11] Simon A. Mason et al. "Linking Environment and Conflict Prevention: The Role of the United Nations." CSS and swisspeace 2008, 16.

[12] Nils Peter Gleditsch, "Armed Conflict and the Environment: A Critique of the Literature," *Journal of Peace Research* 35 no. 3 (May 1998), 382-383.

[13] Shira B. Yoffe and Aaron T. Wolf, "Water, Conflict and Co-operation: Geographical Perspectives," *Cambridge Review of International Affairs* 12 no. 2 (Spring/ Summer 1999), 198.

[14] Ibid.

[15] Paul Simon, "An Empty Cup, a Threat to Peace," *New York Times* (14 August 2001), pg. A17.

[16] For examples of this trend see: Gleick (1993); Opschoor (1989); Maxwell and Reuveny (2000); Gleditsch (1998); Homer-Dixon (1994)

[17] Anthony J. McMichael, *Planetary Overload* (Cambridge: Cambridge University Press, 1993), 321.

conclusions on a few, select cases, the evidence for the direct cause and effect link between water scarcity and violent conflict presented was far from conclusive and scholars could not come to a consensus on the causal mechanisms.[18] Second, the scholars focused on violence as an indicator of whether or not conflict occurred. The idea that conflict only occurs when there is an outbreak of violence is too conceptually narrow when it comes to water conflicts and therefore overlooks many instances of actual conflict.[19]

In reaction to the alarmist tone of the "war waters" literature and because scholars could not establish a direct causal link between freshwater scarcity and violent, intrastate conflict, another avenue of scholarly research emerged, arguing that trans-boundary rivers were a source of cooperation much more than conflict. Scholars such as Yoffe and Wolfe pointed out that "over 3,600 treaties have been signed over different aspects of international waters."[20] The lack of empirical evidence found by both the statistical and the Neo-Malthusian approaches to link freshwater resources and conflict, together with the number of treaties on water that already existed, led these scholars[21] to conclude that freshwater scarcity would lead to cooperation among affected parties instead of violence.[22] The researchers who developed the *Basins at Risk Database* found that of the 1,800 events they documented, "incidents of cooperation outnumbered those of conflict and none involved any war over water."[23] Zawahri and Gerlak point out that international cooperation over water has spawned global water initiatives and international conferences to promote interstate cooperation.[24] Examples of this include the World Water Council and the World Commission on Dams.[25]

[18] Gleditsch, "Armed Conflict and the Environment," 383.

[19] Another branch of research that sought to find/discount the direct causation between water resource scarcity and conflict used large-N statistical analysis. These scholars ran into their own methodological problems however because this branch of research determined conflict to occur when there were "more than 25 battle deaths per year." Lower levels of conflict and non-violent forms of conflict were not included, thereby discounting many cases that we would consider conflict.
Mason et al. "Linking Environment and Conflict Prevention," 17.

[20] Yoffe and Wolf, "Water, Conflict and Co-operation," 4.

[21] Other examples of this avenue of scholarly research include: Baechler (1998); Postel (2000); Carter and Ndegwa (2002); Wolf et al. (2005)

[22] Tobias Hagmann, "Confronting the Concept of Environmentally Induced Conflict," *Peace, Conflict and Development* 6 (January 2005), 10.

[23] Neda A Zawahri and Andrea K. Gerlak, "Navigating International River Disputes to Avert Conflict," *International Negotiation* 14 (2009), 214.

[24] Ibid., 212.

[25] Luzi, "International River Basins: 3.

This strain of scholarly research suffered many of the same conceptual problems as the "water wars" school of thought. The conceptualization of water as purely a source of cooperation does not provide sufficient nuance to the factors present in trans-boundary river basins which can push riparians towards cooperative or conflictual behavior. Using the existence of treaties or agreements in a basin as the primary means of determining that the relationship between riparians is cooperative is problematic because:

> Management of Transboundary rivers remains in its conceptual infancy. More than half of these treaties lack monitoring provisions; perhaps as a consequence, two-thirds fail to delineate specific allocations, and four-fifths have no enforcement mechanisms… multilateral basins are (almost without exception) governed by bilateral treaties, precluding the integrated basin management long advocated by water managers.[26]

Riparians may sign a bilateral agreement or have some type of management institution but this does not mean they are cooperating. Understanding what conflict and cooperation mean in trans-boundary river basins requires a closer look at the interaction among riparians.

The Evolution of "Conflict" and "Cooperation"

Understandings of what entails conflict and cooperation among riparians of trans-boundary rivers has become more nuanced in the past years. The focus shifted from instances of violence as indicators of conflict or treaties as indicators of cooperation to focus more on the actions of the individual riparians to see if they take a hostile or collaborative stance in their use of the shared river basin. Based on this shift, new ways of understanding conflict and cooperation emerged. The literature also shifted from the deterministic "water conflicts/cooperation are an inevitable consequence of water scarcity" approach towards a more management-oriented way of thinking.

Cases of violence among sovereign riparians are few and far between, meaning that violent hostilities are not an accurate measure of conflict in trans-boundary river basins. The lack of violence does not mean there is a cooperative situation in the basin,

[26] Elizabeth L.Chalecki et al., "Fire & Water: An examination of the Technologies, Institutions and Social Issues in Arms Control and Transboundary Water-Resources Agreements," *Pacific Institute* (June 2002), 4.

however. Instead, Zawahri better conceptualizes water conflict as, "a situation in which the status quo allocation and use of the resource is contested."[27] A tendency towards unilateral action, potentially to the detriment of co-riparians proves a better determinant of whether the riparians are in a state of conflict with each other. Keohane identifies conflict as arising when "states undertake unilateral development of the shared river system to accommodate their own needs and without regard for the impact on their riparian neighbor."[28] Zawahri further explains that:

> Conflict over international rivers exists when… states design, construct and impound hydrological infrastructure to accommodate their own needs, without regard for the impact on their riparian neighbor. When disputes arise, states do not select the path of negotiation but instead rely on military means to resolve their water disputes.[29]

Although, violence is generally not an element of water conflicts over trans-boundary rivers, in some instances, there is military posturing or skirmishes.[30] For the purposes of this thesis, *a conflict over a trans-boundary river exists when one or more riparians act unilaterally to use and develop the river's resources and this is contested by the other riparians, who are negatively affected by the unilateral actions. States may contest the actions of their neighboring riparians in a multitude of ways, but violence does not have to occur for the case to constitute a conflict.*

On the other hand, the existence of a river treaty among two or more riparians does not necessarily mean that they are in a state of cooperation. Because the actions of one riparian are highly likely to affect the other riparian's ability to utilize the river, whether a state takes the need of its co-riparians into account, adjusting its actions to balance its own needs and those of the others, is a better determinant of whether the riparians are cooperating. Keohane argues that riparians cooperate "when states adjust their behavior to the actual or anticipated preferences of others."[31] Brochmann and

[27] Zawahri, "Third Party Mediation of International River Disputes," 287.

[28] Robert O. Keohane, *After Hegemony*, (Princeton: Princeton University Press, 1984), 53.

[29] Neda A. Zawahri, "Stabilizing Iraq's Water Supply: What the Euphrates and Tigris Rivers Can Learn from the Indus," *Third World Quarterly* 27 no. 6 (2006), 1044.

[30] For instance, Iraq threatened to bomb Syria's Tabqa dam because Syria's filling of the dam's reservoir decreased the flow of the shared Euphrates River drastically, impacting Iraq's farmers and industry.

[31] Keohane, *After Hegemony*, 53.

Hensel go into greater detail about the initial position and interests parties have as well as what effect acting in a cooperative manner has:

> Cooperation features an underlying difference of interests that requires policy coordination and making adjustments in each state's behavior… involving a situation where the parties have some sort of diverging interests, in which there is some potential for policy adjustment and coordination that can benefit each of them.[32]

Riparians cooperate over their shared river when they adjust their actions so that they suit not only their needs but also the needs of the other riparians. For this thesis, *cooperation in a trans-boundary river basin entails managing the river and each state's individual needs in such a way that the needs of each riparian are met as far as is possible without causing harm to any of the others and, as a group, they are better off than if they act unilaterally.*

Conclusion

Conflicts over trans-boundary rivers cannot be solved. The river, the source of conflict, will not disappear, and the resources and uses it provides to riparians will not likely become less important. In light of this, scholars have turned their attention to the management of water conflicts, because conflicts over trans-boundary rivers can be, and have been, managed peacefully.[33] At their heart, these are conflicts over the use and management of the shared resource, water, which play out on the political stage because states primarily interact with each other on that level. Here resource and conflict management approaches converge in an attempt to deal with both the immediate causes of conflict while adequately addressing the long-term management problems a trans-boundary river poses for riparians.[34] It is in this framework that the central argument of this thesis is placed. The following section outlines the theoretical framework based in third-party mediation thought and liberal institutionalism to show how the short and

[32] Marit Brochmann and Paul R. Hensel, "Peaceful Management of International River Claims," *International Negotiation* 14 (2009), 395.

[33] Examples of this include: Luzi (2007); Zawahri (2006); Dinar (2009); Zwahri (2009)

[34] Mason et al., "Linking Environment and Conflict Prevention"18.

long-term causes of trans-boundary river conflicts and their management can be addressed and managed peacefully.

Chapter Three
Theoretical Framework

Trans-boundary rivers can be a source of cooperation or a cause of conflict among riparians. Even though such disputes do not often cause armed violence, conflicts over trans-boundary rivers can still cause significant harm to all riparians and strain already tenuous political relationships. Examples of riparians cooperatively managing their shared rivers show that cooperation is a realistic option, but how can states move from a state of conflict to one of cooperation? Despite the breadth of literature dealing with conflict and cooperation among riparian states, and the previous explanation of the nuances of these two types of riparian interaction, it is still unclear what pushes states towards cooperation or drives them to fight over the river.[35]

Mediation and neoliberal institutionalist theory provide a framework to explain how durable, long-term cooperation is possible. Third party mediation can facilitate cooperation by providing incentives for states to join the mediation and sign the agreement. The mediator can also help states address their long-term commitment problems and provide a means of settling future disputes peacefully through the creation of a management institution that gathers information, regulates the use of the river, and possesses conflict resolution mechanisms to settle disputes as they arise. In conflicts over trans-boundary freshwater river resources, the use of incentives such as side-payments and issue linkage, as well as the creation of a management institution by a 3rd party mediator, can induce riparians to join the mediation and to facilitate their long-term cooperation over the shared water resources.

Is Cooperation Possible?

Trans-boundary rivers create tensions between those that share them because the resource in question is frequently scarce; the power dynamic is often asymmetric and there is no viable alternative to the water the river provides.[36] In such situations, states are unlikely to back off from the conflict and let the other riparians do as they wish because this could have immensely detrimental effects for their population and economy. If the

[35] Zawahri, "Third Party Mediation of International River Disputes," 282.
[36] Gleick, "Water and Conflict," 84.

river itself, its resources, and uses are important enough for states to fight over, though, they are likely also important enough to make states willing to compromise if they see that by compromising they would gain more collectively than they would if they continued on their unilateral path. Brochmann and Hensel explain that "in order for states to cooperate over an issue, there needs to be an underlying difference of interest, and the issue must be considered important enough to be worth pursuing one's own interest rather than simply ceding it to the adversary."[37] In water-scarce, arid, or semi-arid regions, trans-boundary rivers often provide the main source of water for consumption, agricultural production, and industry. The more dependent the riparians are on the river, the more their economy and society is held hostage by the actions of their co-riparians, making cooperation that allows for the regulation of the actions of each riparian in relation to the river, even if it requires concessions, the favorable option.

> Cooperation between self-interested parties can emerge even under the condition of anarchy, especially when there is an expectation of long-term benefits. To help facilitate cooperation, states create international institutions- such as river treaties- that spell out the rewards and obligations of the signatories, deal with technical details, and perhaps offer dispute-resolving mechanisms. The treaties can consequently change the states' preferences toward cooperation by providing predictability, decreasing uncertainty and costs of cooperation, and increasing the costs of non-cooperation.[38]

Trans-boundary river mediations that culminate in an agreement between all riparians and the development of a cooperative river management institution can create the basis for long-term cooperation, because it gives riparians an incentive to cooperate in the short-term (via issue linkage and side-payments), overcoming the commitment problem and creating a long-term situation where all riparians profit (or expect to profit) collectively more than they would if they acted unilaterally.

---

[37] Brochmann and Hensel, "Peaceful Management of International River Claims," 396.

[38] Jaroslav Tir and John T. Ackerman, "Politics of Formalized River Cooperation," *Journal of Peace Research*, 46 no. 5 (2009),627.

The Mediation

Mediation is a type of conflict management that involves the intervention of a third party not directly involved in the conflict "for the purpose of abating or resolving that conflict through negotiation."[39] The role of the mediator is to "assist disputants in their efforts at conflict resolution and to supplement these efforts if they are unsuccessful."[40] Because the distribution of power among riparians in conflicts over trans-boundary rivers is often asymmetrical, with one riparian having more access or greater economic means to develop their section of the river, the initial task of the mediator is to induce reluctant parties to take part in the mediation and to sign any resulting agreement. Mediation is also voluntary process; riparians must feel that they will derive some benefit from the mediation or else they do not participate.[41] To "overcome the asymmetry of interests," to bring parties to the table or to make an agreement more enticing and therefore more likely to be signed by the riparians, a mediator can offer incentives such as issue linkage or side-payments.[42]

Issue linkage entails the linking of directly or indirectly related issues to the original batch of issues under negotiation in order to create a "bigger basket" that provides riparians with benefits to compensate for the concessions they have to make if they sign the agreement.[43] By using issue linkage, the mediator gives each party the opportunity to win on some issues, thereby making conceding on others less painful and more likely. Issue linkage also makes it possible to address the underlying insecurities that led to conflict over the trans-boundary river. By using issue linkage the agreement can go beyond water quantity allocations to include fishing rights, dam building, pollution control, water quality, shipping, and other issues that are related to the river itself, its uses, and resources. A riparian will be more likely to join a negotiation and sign an agreement if the issues it values are part of the agreement. Instead of breaking down conflicts and issues, the use of linkage strategy means that the mediator builds on the

[39] Saadia Touval and I. William Zartman, *International Mediation in Theory and Practice*, (Boulder CO: Westview Press, 1985), 7.

[40] 3. Dean G. Pruitt, "Mediator Behavior and Success in Mediation," in *Studies in International Mediation* ed. Jacob Bercovitch, (New York, Palgrave Macmillan, 2002), 41.

[41] Jacob Bercovitch and Gerald Schneider, "Who Mediates? The Political Economy of International Conflict Management," *Journal of Peace Research* 37 no. 2 (2000), 146.

[42] Zawahri and Gerlak, "Navigating International River Disputes to Avert Conflict," 216.

[43] Marwa Doudy, "Asymmetric Power: Negotiating Water in the Euphrates and Tigris," *International Negotiation* 14 (2009), 367.

complexity of the conflict as well as the needs and concerns of the individual parties to reshape perceptions, overcome the unwillingness to negotiate, and create new collective solutions that address both the issues on the table and underlying insecurities that hindered conflict resolution previously.[44]

Side-payments are another way the mediator may use a carrot to induce riparians to join the mediation, cooperate, sign, and uphold the agreement. A *side-payment is financial or technical assistance given to one or more of the riparians to fund or help realize projects that have to do with the river.* For instance, the mediator might organize the donor community to fund the building of new irrigation systems or wastewater treatment plants. Also, "the mediator may co-ordinate the donor community to provide financial and technical assistance to preserve the water's quality… donors can be coordinated to distribute water-efficient technology."[45] A side-payment is a way of encouraging otherwise reluctant riparians to compromise and can be used to get states with more to lose from an equitable allocation of the river's resources to sign and adhere to the agreement.[46] Large river development projects such as the building of Turkey's Grand Anatolia Project (GAP) require foreign investment, which the mediator could get the donor community to provide in exchange for Turkish cooperation in the cooperative management of the Tigris-Euphrates Rivers.[47]

The Management Institution

Issue linkage and side-payments are two ways a mediator can induce otherwise reluctant riparians to join the negotiation and facilitate an agreement. However the source of conflict, the river itself, will never disappear, making it necessary to provide the riparians with a means to settle their disputes peacefully once the mediator departs and the side-payments that guarantee adherence to the terms of the agreement end. Cooperation over shared trans-boundary rivers is a long-term problem requiring continual reevaluation of the riparian's needs and the means to address conflicts as they arise.

---

[44] G. R. Berridge, "Diplomacy and the Angola/ Namibia Accords," *International Affairs* 65, no. 3 (1989), 470-473.
[45] Zawahri, "Stabilizing Iraq's Water Supply," 1052.
[46] J. Michael Greig and Patrick M. Regan, "When Do They Say Yes? An Analysis of the Willingness to Offer and Accept Mediation in Civil Wars," *International Studies Quarterly* 52 no. 4 (2008), 761.
[47] Ibid., 1051.

According to neoliberal institutionalist theory, states exist in an anarchic world, in which each acts in a rational, egoist manner.[48] States within this international system cooperate for one of two reasons. First, they do so when there is an expectation that constructing an institution will provide them with long-term benefits greater than those they could attain on their own. Second, states cooperate "to prevent a pending threat from leading to a costly conflict."[49] According to neoliberal institutionalists cooperation is possible but how is it achieved?

In order to cooperate, states must overcome four problems associated with the enforcement of cooperative arrangements such as river management institutions: monitoring, sanctioning, distribution, and information.[50] Monitoring is a problem because without it, it is difficult to determine if a party is cheating or assess the validity of an accusation of cheating. Unless a party that cheats is then punished through sanctions, there are no consequences to being caught cheating, making cheating more likely.[51] A distribution problem occurs when riparians prefer different solutions, while an information problem stems from the actors being unsure of which solution would be best and not sharing relevant information with each other. Management institutions for trans-boundary rivers offer riparians a way of tackling the four problems to forge long-term cooperation:

> According to neoliberal institutionalists, an institution is needed to facilitate cooperation because states with an interest in cooperation must overcome their mutual fear of being cheated. To accomplish this task, states require an institution to monitor members' activities, make commitments more credible, sanction defectors, lower transaction costs, and gather information.[52]

A properly designed management institution with a strong mandate provides the necessary structure to facilitate long-term cooperation among riparians after the mediator

---

[48] Brochmann and Hensel, "Peaceful Management of International River Claims," 396.

[49] Ibid.

[50] James D. Morrow, "Modeling the Form of International Cooperation: Distribution Versus Information," *International Organization* 48 no. 3 (Sumer 1994), 387.

[51] Ibid.

[52] Zawahri, "Third Party Mediation of International River Disputes," 288.

and donor community departs.[53] River management institutions "create positive-sum situations in which the incentives for cooperation become palatable even in the face of problematic relationships" among riparians.[54]

For the purposes of this thesis, *a management institution is a physical commission tasked with monitoring the river, gathering information, and settling disputes between riparians.*[55] The river management institution is meant to decrease the costs and increase the benefits of cooperation while simultaneously decreasing the benefits and increasing the costs of unilateral action. In order to foster cooperation among riparians, the institution must be imbued with sufficient power to be effective. A river management institution cannot be effective if, for instance, it does not possess the power to sanction a riparian that breaches the river management agreement. Without a strong mandate, the temptation for riparians to stop cooperating rises, because the costs of defection are lowered.

To be effective a river management institution should have the following capabilities. First, the commissioners should collect data on the river and monitor how riparians use the river in order to hinder cheating. Second, the commissioners themselves should be technical experts who meet regularly and have a means of directly communicating with each other. Making river management a technical issue and providing the commissioners a direct means of communication helps keep the riparian's political relationship from interfering. Finally, the commission should have specific conflict resolution mechanisms that operate outside of the political sphere to provide clear avenues through which riparians can settle disputes.

Creating a management institution with a strong mandate, conflict resolution mechanisms, and the ability to gather and exchange information as well as act autonomously of the broader political relationships among the riparians, decreases the likelihood of defection. The better designed it is, the better this institution will manage the river. This in turn reduces cooperation costs and provides long-term benefits. Through the management institution, cooperation becomes routine for the riparians.

---

[53] Ibid., 282.

[54] Tir and Ackerman, "Politics of Formalized River Cooperation," 627.

[55] Ibid.

Conclusion

The theoretical argument bases itself in mediation and neoliberal institutionalist theory to argue that long-term cooperation among riparians in trans-boundary river systems is possible. Although mediation is a voluntary process, a mediator can induce riparians to join and sign an agreement through the targeted use of incentives. A management institution helps riparians overcome the four barriers to cooperation (monitoring, sanctioning, distribution, and information) and promotes compliance to the terms of the treaty.

The following section outlines the research design of this thesis and explains the case selection strategy and scope of this project. The theoretical framework will then be used to examine the Indus river and the Tigris-Euphrates conflicts.

Chapter Four
Research Design

Method of Analysis

This project uses process tracing as the method of analysis for the two cases under investigation. The process tracing method, as explained by George and Bennett "attempts to identify the intervening causal process- the causal chain and causal mechanism- between an independent variable (or variables) and the outcome of the dependent variable."[56] Process tracing makes it possible to examine complex cases in detail and to assess evidence in order to "affirm some explanations and to cast into doubt, through eliminative induction, explanations that do not fit the evidence."[57] The goal of this project is to examine the complexities of trans-boundary freshwater conflicts in the Indus and Tigris-Euphrates basins in order to assess what third party mediation must entail for a long-term solution to be possible. For the purposes of this thesis, process tracing is the best method of analysis because it allows for an in depth examination of the each individual case and a comparison of the two. The causal pathways between the independent and dependent variables of interest are traced in order to determine whether they are both necessary and sufficient to address the issues and solutions hypothesized in this research project.

Case Selection Strategy

A comparative case analysis will asses the validity of the following hypothesis: *In conflicts over trans-boundary freshwater river resources, use of incentives such as side-payments and issue linkage by a third party mediator as well as the creation of a management institution can help parties reach an agreement and facilitate their long-term cooperation over the river.* One best-case example of a successful mediation and subsequent creation of a management body and one case where the dispute over the trans-boundary river has yet to be resolved are examined. Positive and negative aspects of the mediation process and subsequent management of the conflict are drawn from the

[56] Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences*, (Cambridge: MIT Press, 2005), 206.

[57] Andrew Bennett and Colin Elman, "Case Study Methods," In *The Oxford Handbook of International Relations*, ed. Christian Reus-Smit and Duncan Snidal, (Oxford and New York: Oxford University Press, 2010), 503-504.

best-case example and then used to assess the situation in the un-resolved conflict. The assessment of the conflict and its causes makes it possible to then offer a strategy both for the short-term mediation among the parties and the long-term management of the disputed river.

The first case is the conflict over the Indus River System between India and Pakistan (1948-1960). The World Bank acted as mediator and, through the use of incentives, facilitated an agreement between the two parties. The Indus Water Treaty (IWT), facilitated by the World Bank and signed in 1960 by India and Pakistan, created the Permanent Indus Commission to manage the use of the Indus River and address conflicts between the two states as they arise.[58] This case is used as a best-case example to assess the possibilities incentives and a management institution provide in addressing both the short and long-term issues associated with river basin management. The Indus case provides the foundation for the investigation of the second case, where third party mediation and collaborative basin management remains unsuccessful.

The second case study will focus on the Tigris-Euphrates Rivers and the ongoing conflict between Turkey, Syria, and Iraq. This water conflict is characterized by a "lack of communication, conflicting approaches, unilateral development, and inefficient water management practices."[59] Although there are several bilateral agreements between various combinations of the three riparians, a tripartite agreement on the equitable allocation of the waters of the Tigris and Euphrates rivers remains elusive. The situation between the three riparians is politically charged and, according to the Fletcher School's *al Naklah* journal, war was only narrowly avoided in both 1975 and 1998 through external mediation.[60]

The cases were selected based on Gleick's "factors that make water a source of conflict for riparians."[61] The factors determine how vulnerable a state's water resources are and therefore how likely it is that conflict would erupt over them. The first criterion is the degree of water scarcity, the ratio of annual water demand (withdrawals) to annual renewable water availability (supply).[62] The greater the demand is compared to the

[58] Wolf and Newton, "Case Study of Transboundary Dispute Resolution: The Indus Water Treaty,"
[59] Akanda et al. "The Tigris-Euphrates River Basin," 1.
[60] Ibid.
[61] Gleick, "Water and Conflict: Fresh Water Resources and International Security," 99.
[62] Ibid., 84.

available supply, the higher the resource vulnerability of the individual state. The second criterion is the power distribution among the riparians.[63] The more asymmetric the power distribution, the less secure weaker riparians feel. The third indicator is the reliance on water originating outside of the country's borders. The more a state is reliant on outside water sources, the more it is beholden to the actions of the upstream riparian. The final criterion is the ease with which riparians can access other sources of water.[64] If no other sources of water are available, the riparian is significantly more vulnerable to the actions of its co-riparians. Each of these factors can increase a state's sense of insecurity vis-à-vis the other riparians and make a zero-sum attitude towards water use and conflict more likely.

The cases also have other similarities that help control for exogenous variables. Both the Indus and Tigris-Euphrates Rivers flow through states with a history of conflict. The upstream riparian in both cases is the more democratic of the riparians. The upstream riparian (India and Turkey) is also economically more developed and possessing greater military capabilities than its downstream counterparts.[65] Because the basins are in arid or semi-arid areas, the riparians are highly dependent on the river to supply sufficient quantities of water for domestic consumption, agricultural production, and industries.[66] Based on these similarities and the case selection strategy, a comparison of the two cases is possible.

Scope and Limitations

This thesis seeks to highlight how the mediation process and the creation of a management institution address both the short and long-term causes of conflict, providing riparians a way to settle future disputes cooperatively. Theoretically the scope of this research project extends to all water conflicts in any one of the 263 trans-boundary freshwater rivers worldwide.[67] However, the generalizability of the findings is hampered by the uniqueness of each trans-boundary river basin and relations between the riparian states. Precisely because the context is so important, the generalizability of the findings

[63] Ibid.
[64] Ibid.
[65] Zawahri, "Stabilizing Iraq's Water Supply," 1042.
[66] Ibid.
[67] Luzi, "International River Basins: Management and Conflict Perspectives," 1.

suffers. In view of the importance of finding long-term solutions to these conflicts, it would be better to forgo generalizability in favor of properly assessing the causes of conflict in each individual case and creating a long-term solution that fits the situation in the trans-boundary basin. Long-term management is possible. Many trans-boundary rivers such as the Danube (shared by 17 states), the Mekong (shared by 6 states), and the Colorado River (shared by 2 states) already possess management institutions that monitor, allocate, and settle disputes between the riparians.

Selection bias presents a problem in all qualitative case studies. Although the universe of cases is fairly large, using Gleick's factors significantly narrowed the possible cases for this research project. However, using the factors to select cases for more in-depth research ensures that cases are not selected only on the dependent variable but fit independent criteria.

Another limitation stems from the problem of comparing real world cases because there will unavoidably be differences between the cases.[68] Controlling for all outside variables is next to impossible in this situation and must be taken into account when examining cases and testing hypotheses. For instance, the Indus is considered one river while the Tigris-Euphrates are two. However, while the Indus is considered one river, it actually "consists of six relatively large tributaries that flow independently through several Indian provinces before meeting in the Pakistani province of Punjab, to form the Indus River."[69] Similarly, the Tigris and Euphrates each have a number of tributaries and flow independently until they meet in Iraq to become the Shatt al-Arab.[70]

A final limitation of the comparison is the difference in the number of riparians involved in the conflict: two in the case of the Indus and three in the Tigris-Euphrates conflict.[71] It could be argued that a successful mediation and long-term cooperation is easier to achieve when there are less riparians. Considering, however, that trans-boundary rivers with as many as 17 riparians are managed peacefully, the number of riparians involved is likely not as important as the relationship between these riparians.

---

[68] Neda A Zawahri, "Stabilizing Iraq's Water Supply," 1042.
[69] Ibid., 1043.
[70] Ibid.
[71] Wolf and Newton, "Case Study of Transboundary Dispute Resolution," Appendix C.

Chapter Five
The Indus River Conflict: Mediation and Management

Background

The Indus River basin spans 1,138,800 km^2, originating in the Himalayas, passing through China, Afghanistan, India, and Pakistan before emptying into the Arabian Sea.[72] Because of the rugged terrain that surrounds the Indus in China and Afghanistan, neither country has made significant progress in developing the Indus for their country's water needs. India and Pakistan, on the other hand, have developed the river extensively and Pakistan in particular depends on the river for its domestic water needs.[73]

Figure 1: Map of the Indus River Basin
Source: http://www.transboundarywaters.orst.edu/

The Indus is comprised of six main tributaries: main Indus, Jhelum, Chenab, Ravi, Beas, and Sutlej.[74] India utilizes 57.1% of the water available from the Indus river system while Pakistan uses 53.8%.[75] The river is a vital source of water for irrigation, energy production, and domestic consumption for both countries. The northwestern Indian provinces, which use the Indus for irrigation, have become one of the country's main food producing areas. In Pakistan, the Indus provides the only source of water to the arid land.[76]

---

[72] Wolf and Newton, "Case Study of Transboundary Dispute Resolution," Appendix C.

[73] Zawahri, "Third Party Mediation of International River Disputes," 289.

[74] Aaron T. Wolf and Joshua T. Newton, "Case Study of Transboundary Dispute Resolution: The Indus Water Treaty."

[75] Ibid.

[76] Undala Z. Alam, "Questioning the Water Wars Rationale: A Case Study of the Indus Waters Treaty," *The Geographical Journal* 168 no. 4 (December 2002), 342.

The partition of the British-ruled Indian subcontinent into independent India and Pakistan in 1947 turned what were domestic disputes about the use of the Indus River into an international conflict. Relations between India and Pakistan had been troubled before partition, and tensions increased with the formation of the two independent states. Along with the religious divide between Hindus and Muslims, unresolved territorial issues, and problems caused by population displacements, the Indus River system became a central cause of conflict between the two new states.[77] Although partition was carried out in only 73 days, no plan for the Indus basin itself, nor the cohesive system of canals and irrigation that was constructed during British rule to bring water to the agricultural regions in and around the Indus basin were made. Suddenly an international border bisected the irrigation and river system of the Indus basin.[78]

The Situation on the Ground

Once partition was complete newly independent Pakistan became dependent on water from Indus tributaries that flowed through India before crossing the Pakistani border. Alam explains that:

> Pakistan's geography makes it completely dependent upon the Indus basin for its agricultural and municipal uses. Unlike India, which has a number of river systems including the Ganges-Jumna system in the north, or the Cauvery River in the south, Pakistan only has the waters from the Indus basin… If Pakistan was deprived of her canal water from the Indus system, the whole of west Pakistan would really become a desert.[79]

As the downstream riparian and the state more completely dependent on sufficient quantities of water flowing across the border from India, Pakistan was in a precarious position. Pakistani East Punjab was dependent on water from the Upper Bari Doab (UBDC), Dipalpur, and Eastern Grey canals to irrigate its farmlands. The headworks (the structures that control water flow) of these canals now lay across the border in India.[80]

---

[77] Alam, "Questioning the Water Wars Rationale," 342.

[78] "The Indus Waters Treaty: A History," *Stimson Center*, retrieved from: http://www.stimson.org/research-pages/the-indus-waters-treaty-a-history/, (31. 05. 2012).

[79] Alam, "Questioning the Water Wars Rationale," 342.

[80] Asit K. Biswas, "Indus Water Treaty: The Negotiating Process," *Water International*, 17 (1992), 203.

India, on the other hand, controlled the headworks of canals vital to Pakistani agriculture, giving it a position of power vis-à-vis Pakistan. It also gained a means to put pressure on Pakistan by threatening to close the headworks and cut off West Punjab's water supply. India had other sources of water that could be used for consumption, industry and agriculture, making it less dependent on the Indus. Finally, because the Indus river system flowed through India before reaching Pakistani territory, and the country in which the Indus originated, China, could not develop the river, India had unrestricted first access to the river and its resources.

The situation on the ground fulfills each of Gleick's four factors that make water a source of conflict.[81] Water is scarce in the region and must be shared between the two riparians. Pakistan in particular depends on the water the Indus provides. The power dynamic was also asymmetrical since India possessed the relative advantage of being the upstream riparian and had other sources of freshwater. Each of these factors made conflict between the two riparians more likely. As will be seen in the next section, India and Pakistan were in a state of conflict over the Indus river.

The Conflict

Following partition in August 1947, India and Pakistan signed a Standstill Agreement that froze the use and division of the contested canals (the Upper Bari Doab, Dipalpur, and Eastern Grey) to the status quo that existed prior to independence. The agreement favored Pakistan because it required India to leave the canals alone and ensured that Pakistan received sufficient water to irrigate the western Punjab farmlands.[82] Indian leaders were not pleased with this agreement because they wanted to further develop East Punjab[83] and felt that they had a sovereign right to the water.[84]

When the Standstill Agreement expired on March 31, 1948, India closed the headworks that fed the Upper Bari Doab and Dipalpur canals. According to Zawahri"This action deprived Pakistan's important city, Lahore, of municipal water and hydropower. It

[81] Gleick, "Water and Conflict: Fresh Water Resources and International Security," 84.

[82] Zawahri, "Third Party Mediation of International River Disputes," 290.

[83] India received only 5 million acres of irrigated land through partition whereas Pakistan received 26 million. (Ibid.)

[84] Scott Barrett, "Conflict and Cooperation in Managing International Water Resources," *Policy Research Working Paper, The World Bank* (May 1994), 11.

also deprived irrigation water to 1.66 million acres of farmland."[85] Although India reopened the canals on May 4th and signed the Inter-Dominion Agreement (also known as the Dehli Agreement), this was only a temporary solution. The agreement "recognized India's right to increase it's consumption of the Indus River and it required that Pakistan pay India for operating the canals."[86] India further maintained that Pakistan had no right to any of the waters flowing through the Indus before it crossed the border. Although the agreement ended the immediate crisis, the causes of conflict remained. Pakistan was not pleased with the terms of the agreement or their position vis-à-vis India.

On June 16, 1949, the Pakistani government sent a note to India calling for a new conference to "make an equitable appointment of the flow of all waters common to Pakistan and India and resolving by agreement all disputes incidental to the use of these waters," because "the present modus vivendi is onerous and unsatisfactory to Pakistan."[87] Pakistan also suggested that should a bilateral solution not be possible, the conflict should be given to the International Court of Justice for resolution.[88] India was not inclined to hand the dispute over to third party adjudication and suggested a commission of judges from both countries should be formed to resolve the dispute.[89] Bilateral negotiations soon reached a stalemate as political tensions between the two countries grew and each side's position became more entrenched. As Alam notes, "The enormity of the situation struck observers as potentially catastrophic- a powder keg waiting to explode."[90] Not only had political efforts reached a stalemate, but during this time, India and Pakistan also engaged in competitive development of the Indus basin. The following two examples highlight this competitive development and underscore the conflictual relationship between the riparians.

In 1948 India began construction on "the Bhakra Dam, Nangal Barrage, Bhakra Canals, Bhakra Main Line and Perozepore Feeder. Once completed these structures would have the capacity to control and divert waters on which Pakistan depended."[91]

---

[85] Zawahri, "Third Party Mediation of International River Disputes," 290.
[86] Ibid.
[87] Biswas, "Indus Water Treaty," 204.
[88] Ibid.
[89] Wolf and Newton, "Case Study of Transboundary Dispute Resolution." Appendix C.
[90] Alam, "Questioning the Water Wars Rationale," 343.
[91] Zawahri, "Third Party Mediation of International River Disputes," 291.

Indian control over water Pakistan needed heightened Pakistani insecurity significantly and caused it to begin development projects to minimize the potential damage. Pakistan's goal became minimizing its dependence on canals originating in India in order to ensure that Indian threats to shut off Pakistan's water would no longer cause catastrophic damage. Therefore it began construction on the Bhulam Mohammed, Kotri, Gugu and Aunsa Barrages as well as the Balloki-Suleianke Link and Bambanwala-Ravi-Bedian Link canals. The riparians were locked in a race to develop the river first, causing insecurity for both and further fueling the conflict spiral.

The Sutlej tributary was another source of conflict for the two riparians. To hinder India from being able to stop the water flowing into the Dipalur Canal (one of the canals India had previously stopped water flowing into), Pakistan began work to divert the Sutlej River before it could reach the headwork located on the Indian side of the border.[92] This would have made it impossible for India to threaten Pakistan with closing the headwork and stopping water flowing through the canal. However, it "would also have depleted the waters feeding into India's Ganga Canal Colony and the planned Bhakra Canals and bestowed on Pakistan the ability to impose an artificial drought or flood on India by manipulating the Sutlej."[93] Diplomatic intervention by India did nothing to resolve the conflict and in response to the stalemate India unilaterally diverted the Sutlej before it entered Pakistan.

Riparians are in a state of conflict when they act unilaterally to use and develop the river's resources and this is contested by the other riparian, who is negatively affected by the unilateral actions. As can be seen from the above examples, India and Pakistan were locked in a state of conflict. Both riparians unilaterally developed the river and actively attempted to hinder the other riparian from gaining the upper hand. There was also no behavior modification once it became clear that unilateral development harmed the other riparian. Neither India nor Pakistan felt secure in their access or use of the Indus basin, leading both to engage in conflictual behavior. The insecurity surrounding the

[92] Although the river begins in India, it crosses the border into Pakistan before turning back into India and reaching the headworks that allow India to shut off Pakistan's water supply.
Ibid.
[93] Ibid.

Indus basin and the conflict it created persisted until the intervention of the World Bank in 1951.

Mediating the Indus River Conflict

The World Bank's president, Eugene R. Black, offered the Bank's "good offices" to help resolve the conflict in September 1951 after reading an article about the potential for integrated river management in the Indus basin and what role the World Bank could play in facilitating this.[94] Black came up with three "essential principles" that he determined should form the basis for mediation and guide the resolution of the conflict. Both India and Pakistan agreed to negotiate on the basis of the following principles. They agreed that the Indus had enough water to meet all current and future water needs both countries would have from that source. Second, that during the negotiation and in any resulting agreement the basin should be treated as a single entity and its resources should be developed in line with this assumption. Third, the negotiations should remain on a technical instead of political level and previous negotiations or past grievances would not be brought into the discussion.[95] Both India and Pakistan accepted the World Bank's offer, and the first meeting took place in Washington D.C. in May 1952.

In line with the three essential principles, Black suggested that India and Pakistan each pick a qualified engineer who, in collaboration with the other, would create a comprehensive, long-term plan for the use and development of the Indus basin. The World Bank would also provide an engineer to act as a consultant.[96] Together they would form the Working Party. After discussing for three weeks, the Working Party came up with a plan of action for collecting the necessary information to develop a plan for collaborative development of the basin. The Working Party would determine the total water supply of the Indus river system and how much water irrigated agriculture required. The Working Party would also collect data and do surveys as requested by either riparian. Finally, the group would prepare cost estimates and a schedule for the construction of new engineering works that would be needed as part of the comprehensive plan.[97] To

[94] Wolf and Newton, "Case Study of Transboundary Dispute Resolution." Appendix C.
[95] Alam, "Questioning the Water Wars Rationale," 344.
[96] Biswas, "Indus Water Treaty," 205.
[97] Ibid.

avoid conflict, the negotiating parties agreed that no data collected or requested would "commit either side as to its relevance or materiality."[98] However, it proved impossible for the Working Party to agree on a joint approach to developing the basin, so Black suggested each riparian prepare its own plan, which they submitted to the World Bank on October 6, 1953.[99]

The individual Indian and Pakistani plans almost overlapped on the available water supply for irrigation[100] but differed enormously on how these supplies should be allocated. Even after both sides modified their proposals, they were still nowhere near each other. Both the initial and the revised plans are summarized in the table below.

Table 1: Initial and Modified Indian and Pakistani Plans for Water Allocation[101]
(Allocation in Million Acre Feet)

Plan	**Water Allocated to India**	**Water Allocated to Pakistan**
First Indian Plan	29 MAF per year	90 MAF per year
First Pakistani Plan	15.5 MAF per year	102.5 MAF per year
Modified Indian Plan	All of the eastern rivers and 7% of the western rivers	None of the eastern rivers and 93% of the western rivers
Modified Pakistani Plan	30% of the eastern rivers and none of the western rivers	70% of the eastern rivers and all of the western rivers

In the modified Indian plan, India would have sole access to all of the eastern rivers and receive an additional 7% of the water from the western rivers while Pakistan would receive only 93% of the western rivers. Pakistan's modified plan allocated 30% of the water from the eastern rivers to India, while Pakistan would receive the remaining 70% of the eastern rivers and all of the western rivers. Clearly, common ground remained elusive, and it looked like communal development of the Indus basin was an unlikely prospect. At this time, the riparians were not in a state of cooperation because neither side

[98] Ibid.

[99] Alam, "Questioning the Water Wars Rationale," 344.

[100] The Indian plan determined that there were 119 million acre-feet (MAF) available while the Pakistan plan came to 118 MAF available for irrigation.

[101] Wolf and Newton, "Case Study of Transboundary Dispute Resolution." Appendix C.

was willing to modify their demands to ensure that the needs of both parties would be met.

In response to the stalemate, the World Bank came up with its own plan that divided the rivers between the two riparians instead of attempting to find a collaborative settlement. The proposal allocated all of the eastern rivers to India and all of the western rivers, except for a small amount of water from the Jhelum, to Pakistan. The plan also called for the construction of canals and storage dams to divert waters from the western rivers, replacing the water lost to Pakistan in the eastern rivers.[102] India accepted the World Bank's plan as the basis for agreement on March 25, 1954. Pakistan worried that the water flowing through the western rivers would not be enough to make up for the loss of the eastern rivers, in particular since the country had limited capacities to store the water it was allocated. Therefore Pakistan gave only qualified acceptance on July 28, 1954.

In order to alleviate Pakistani concerns over insufficient water or storage facilities, the World Bank added an Aide Memoir that called for more storage facilities on the western rivers to make up for the water Pakistan would be losing in the eastern rivers. The Aide Memoir also suggested that these costs should be borne by India. Unsurprisingly, India rejected the Aide Memoir, while Pakistan accepted it.[103] India further rejected Pakistan's 1958 plan that called for the building of two large storage facilities, three small dams, and expanded link canals on the Jhelum and Indus tributaries, the total cost of which would have been $1.12 billion. India rejected this plan on the basis that, although it had agreed to pay for facilities to replace those lost once the rivers were divided, it would not pay for Pakistani development works.[104]

The World Bank found itself in a predicament. Pakistan needed additional storage facilities to make up for the water they would lose by not being able to use the eastern rivers. These facilities needed to be paid for somehow, but India refused the additional cost of these facilities because it saw them as not replacing what was lost but additionally developing the river to Pakistan's advantage.

---

[102] "The Indus Waters Treaty: A History," *Stimson Center*.

[103] Rahul Reddy, "The Indus Water Treaty: It's Persistence and Prospects," *The Northwestern Journal of International Affairs* 10 no. 1 (Fall 2009), retrieved from: http://groups.northwestern.edu/njia/?p=478, (3 June, 2012).

[104] "The Indus Waters Treaty: A History," *Stimson Center*.

In order to break the stalemate and finally reach an agreement after seven years of negotiations, Black suggested that India pay one fixed sum as a contribution to the replacement works, and the World Bank would organize financial assistance in the form of a side payment to pay for the rest.[105] The Indus Basin Development Fund Agreement provided $541 million in grants to Pakistan, India contributed a fixed $174 million, and Pakistan received another $150 million in loans.[106] By mobilizing the donor community to provide a side-payment, Black was able to break the financial stalemate that hindered the agreement and create favorable conditions for both India and Pakistan. Without the use of side-payments, the negotiations would likely have remained at an impasse, because India felt Pakistan was asking for too much, while Pakistan felt India was offering too little to compensate Pakistan for what it was giving up. By mobilizing the international community to provide outside funding, the issue of the replacement and development facilities became a moot point, and the final roadblock to agreement was overcome. India, Pakistan and the World Bank signed the Indus Water Treaty on September 19, 1960.[107]

The Indus Waters Treaty

Under the terms of the Indus Waters Treaty (IWT), India received the three eastern rivers (the Sutlej, Beas, and Ravi), which equaled 20% of the basin's water, while Pakistan now claimed the three western rivers (the Chenab, Jhelum, and Indus) giving it the remaining 80% of the basin's water.[108] The division of the tributaries did not completely disentangle India and Pakistan from each other, however. The treaty put in place a ten-year transition period to give Pakistan time to build the necessary dams, canals, barrages, and wells to make up for the water previously obtained from the eastern rivers.[109] The countries would have to continue to cooperate, because the treaty further specified that India had the right to use water from the western rivers to irrigate existing

[105] Biswas, "Indus Water Treaty," 208.
[106] Ibid.
[107] Salman M. A. Salman, "International Water Disputes: A New Breed of Claims, Claimants and Settlement Institutions," *Water International* 31 no. 1 (March 2006), 6.
[108] Alam, "Questioning the Water Wars Rationale," 344.
[109] World Bank, "Annexure E- Storage of Waters by India on the Western Rivers," *Indus Waters Treaty*, 19 September 1960.

farmland as well as to develop the hydropower potential of these rivers.[110] India also had the right to develop the river for flood protection, fishing, and navigation[111], while Pakistani farmers along the eastern tributaries were given the right to use water out of those rivers to irrigate their crops.[112]

The riparians signed the treaty and as such were likely satisfied with the terms it outlined for the allocation of the river and its development. However, because neither country was simply trusted the other to adhere to the allocations enshrined in the treaty, it was also necessary to outline how future cooperation between India and Pakistan would work, hopefully ensuring that neither party backed out of the treaty once the money provided by the donor community was gone. To overcome the commitment problem both states faced and lower the costs of cooperation, the riparians needed a management institution "to monitor members' activities, make commitments more credible, sanction defectors, lower transaction costs, and gather information."[113] To make this possible the IWT created a management institution with direct communication, regular meetings, monitoring of both riparians, the exchange of information, and conflict resolution mechanisms.

The Permanent Indus Commission

The Indus Waters Treaty created the Permanent Indus Commission (PIC), tasked with overseeing the river basin and managing disputes between the riparians, if and when they should arise. The PIC was comprised of two high-ranking engineers, one each from India and Pakistan, who acted as "the representative of his Government for all matters arising out of this Treaty, and will serve as the regular channel of communication on all matters relating to the implementation of the Treaty."[114] The decision to make two engineers the commissioners made it feasible that the management of the river and any disputes between the countries could be kept out of the greater political picture, as Eugene Black had hoped. The commission was designed to "promote co-operation

[110] Ibid.

[111] World Bank, "Article III: Provisions Regarding Western Rivers and Annexure C: Agricultural Use by India from the Western Rivers," *Indus Waters Treaty*, 19 September 1960.

[112] World Bank, "Article II: Provisions Regarding the Eastern Rivers; Article III: Provisions Regarding Western Rivers and Annexure B: Agricultural Use by Pakistan from Certain Tributaries of the Ravi."

[113] Zawahri, "Third Party Mediation of International River Disputes," 288.

[114] World Bank, "Article VIII: Permanent Indus Commission."

between the Parties in the development of the waters of the Rivers." To make this possible, the PIC needed a strong mandate and sufficient power. Cooperation would be possible only if the commission could help India and Pakistan overcome the four issues associated with the enforcement of cooperative arrangements: distribution, information, monitoring, and sanctioning.[115]

The riparians overcame the first stumbling block, *distribution*, when they signed the Indus Waters Treaty, thereby signaling that their preferences of how the Indus should be split overlapped. The second hurdle to making long-term cooperation possible was the exchange of *information*. Because the riparians were still tangled together over the river basin, each side required trustworthy and relevant information on which to base their plans for the use and development of the river. The treaty required that each country receive a monthly report on river flow, water withdrawals, reservoirs, etc.[116] If either riparian required information relevant to the river but not already in the reports, the other party was required to provide this information if available. The parties also had to inform one another if they planned to undertake any engineering works and supply any information concerning those works that the other side requested. [117] The PIC also confirmed the accuracy of the exchanged information to ensure that riparians were not lying and submitted their own annual report.

The commission needed to *monitor* the river and the riparians in order to minimize the fears each riparian had of being cheated. To this end, the commissioners were given access to the entire river system and undertook inspections of the entire basin every five years. Either commissioner could also request tours of any relevant site at any time.[118] The commissioners communicated directly with each other, meaning that there was no need to go through the usual political channels, and they met at least once a year, although they could meet more often if a commissioner requested.[119]

The exchange of information and monitoring by the PIC might not have been enough to ensure cooperation were the PIC not also endowed with conflict resolution

---

[115] James D. Morrow, "Modeling the Form of International Cooperation: Distribution Versus Information," *International Organization* 48 no. 3 (Sumer 1994), 387.
[116] World Bank, "Article VI: Exchange of Data."
[117] Ibid.
[118] Ibid.
[119] Ibid.

mechanisms. If either riparian felt that the other had breached the terms of the treaty or was interpreting it incorrectly, the wronged party could bring its case to the commissioners, who would investigate and "endeavor to resolve the question by agreement."[120] If the commission could not agree, the issue was then passed on to the Indian and Pakistani governments for further negotiations. Should they also be unable to resolve the disagreement, a neutral expert whose decisions were binding would be appointed.[121] Upon reviewing the issue, the neutral expert could then to transfer the case to a court of arbitration for final judgment.[122] The PIC's conflict resolution mechanisms gave the riparians a means of settling their differences and *sanctioning* defectors if necessary without involving the broader political context, thereby lowering the transaction costs of cooperation. The PIC's conflict resolution mechanisms and sanctioning powers, along with its monitoring and information gathering activities, addressed each of the problems states must overcome to make cooperation possible according to the neoliberal institutionalist framework.

Long-Term Cooperation in the Indus Basin

Despite fighting wars with each other in 1965 and in 1971, and generally having extremely difficult political relations plagued by hostility and suspicion, India and Pakistan have adhered to the terms of the Indus Waters Treaty. Instead of acting unilaterally, the parties use the Permanent Indus Commission to settle differences and have modified their behavior to alleviate the concerns of the other riparian.[123] Reddy explains that:

> Both India and Pakistan have implemented its provisions faithfully. They made remarkable progress in developing the water resources allocated to them and achieved self-sufficiency in food production. The Indus Waters Treaty is one of the most remarkable examples of a treaty that led to successful management of conflicts between

[120] World Bank, "Article IX: Settlement of Differences and Disputes."

[121] During the ten-year transition period, the World Bank appointed the neutral expert. After 1970, it fell to India and Pakistan to select an expert from a list prepared by the World Bank.

[122] World Bank, "Annexure F: Neutral Expert."

[123] Reddy, "The Indus Water Treaty," 5.

sovereign riparian countries of a large river basin and served to promote development and prosperity in both countries.[124]

Despite occasionally openly violent hostilities between the two riparians, the allocation of water and the development of the river in accordance with the treaty continued. For instance, during the second war over Kashmir in 1965, India was under domestic pressure to cut off the water allocated to Pakistan from the eastern rivers.[125] Despite these pressures, India delivered the water allocated to Pakistan under the terms of the treaty. Indian interest in complying with the treaty was twofold. First, it sought to not damage the good relationship it had with the World Bank, and it had its eye on future gains it would receive when the transition period ended in 1970.[126]

The Permanent Indus Commission continues the monitoring, information collecting, and conflict resolution work it was tasked with in 1960. The PIC has visited the various hydroelectric plants, drains, and flood controls in and around the Indus basin and provided reports to each riparian annually. The conflict resolution mechanisms have also proven effective, as seen in the planned construction of the Salal dam by India. According to the treaty, India must submit the plan for the project to the PIC for Pakistan's approval, which it did in 1968.[127] India argued the dam was vital to agricultural production in Punjab and economic development would falter without it. Pakistan officially objected to the dam's construction in 1974 because the plan did not conform to the specifications laid out in the treaty. The issue moved to the second level of conflict resolution and was passed to the Indian and Pakistani governments for negotiation. The Indian and Pakistani foreign secretaries and the PIC commissioners negotiated, came to the conclusion that the height of the dam should lowered so that it would not hinder the flow of water into Pakistan, and the issue was resolved peacefully.[128]

Cooperation has also taken the form of behavior modification. Pakistan consented to the construction of four dams even though "the existence of these structure bequeathed

---

[124] Syed S. Kimani, "Water, Peace and Conflict Management: The Experience of the Indus and Mekong River Basins," *Water International* 15 (1990), 201.

[125] Zawahri, "Third Party Mediation of International River Disputes," 297.

[126] Ibid.

[127] Nausheen Wasi, "Harnessing the Indus Waters," *IPCS Issue Brief 28* (September 2009), 2.

[128] Shaheen Akhtar, "Emerging Challenges to Indus Waters Treaty: Issues of Compliance & Transboundary Impacts of Indian Hyroprojects on the Western Rivers," *Quarterly Journal of the Institute of Regional Studies* 28 no. 4 (Autumn 2010), 31.

India with a defensive and offensive military advantage during wars because the dams permit India to withhold waters in the Indus tributaries and assure its military safe passage into Pakistan… the dams have also enabled India to control Pakistan's only source or water and threaten the sustainability of its agricultural sector."[129] By allowing India to construct these dams, Pakistan made its position more insecure. To alleviate this insecurity, India modified the designs of its hydrological infrastructure projects to minimize their threat potential for Pakistan. By changing the design, the life expectancy and power-generating capacity of the structures decreased, making them less beneficial to India but, in turn, alleviating a potential source of tension and insecurity for Pakistan.[130]

Conclusion

Although India and Pakistan have not undertaken collaborative development projects in the Indus basin, they each adhered to the terms of the Indus Waters Treaty and use the Permanent Indus Commission to resolve differences. The use of a side-payment by the World Bank gave an otherwise reluctant India the incentive to sign the treaty, and the Permanent Indus Commission has made it possible for the two riparians to overcome their commitment problems and cooperate. Despite frosty relations, India and Pakistan have maintained cooperation in the Indus basin for the past fifty years because the Indus Waters Treaty explicitly spells out their rights and responsibilities and the Permanent Indus Commission surmounts the four barriers to cooperation and provides a means of settling disputes peacefully.

The lessons learned from this best-case example of a mediation and subsequent management of an trans-boundary river basin through a river management institution will now be used to examine the case of the Tigris-Euphrates rivers conflict. Could the combination of an incentivized mediation, coupled with the creation of a management institution, lay the groundwork for cooperation between these riparians?

[129] Zawahri, "Stabilizing Iraq's Water Supply," 1050.
[130] Ibid.

Chapter Six
The Tigris-Euphrates Rivers Conflict

Background

The Tigris-Euphrates river basin stretches 789,000 km^2, from Southern Anatolia, Turkey until the rivers empty into the Persian Gulf. The "Twin Rivers," originate barely 30 kilometers away from each other in the mountains of Turkey, flow independently through Turkey and Syria and meet in Iraq to form the Shatt-al-Arab.[131] Together they constitute a single trans-boundary river system.[132] Four main tributaries form the Tigris: the Great Zab, Lesser Zab, Diyala, and Adhaim, which unite with the main stream in Iraq. The Euphrates is comprised of the main river and five tributaries: the Kasru, Murat, Munzur, Peril, and Khabur.[133]

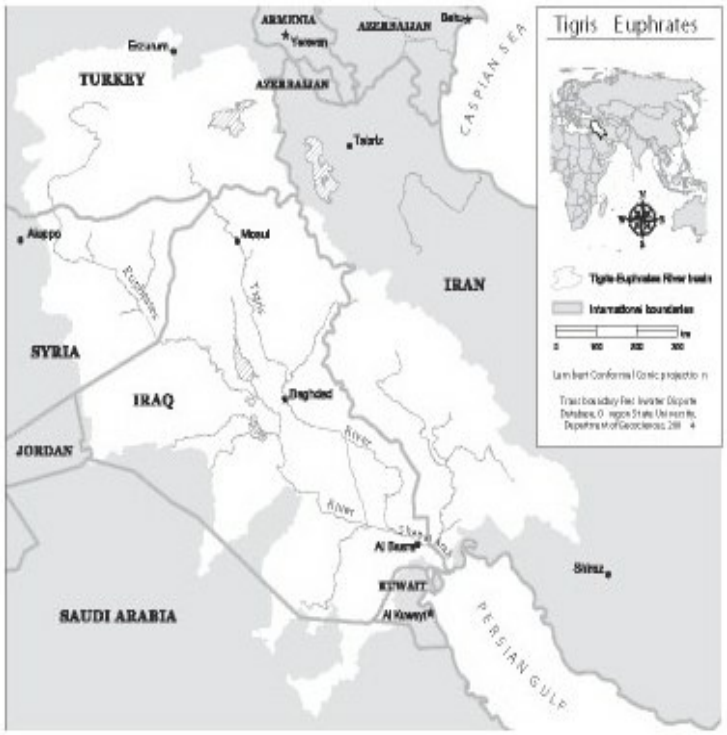

Figure 2: Map of the Tigris-Euphrates Rivers Basin
Source: http://www.transboundarywaters.orst.edu

Although Turkey, Syria, and Iraq each have access to both rivers, the rivers take separate paths and spend varying amounts of time in each of the three riparian states. 40% of the Euphrates lays in Turkey, 25% in Syria, and 35% in Iraq.[134] The Tigris, on the other hand, is found to 20% in Turkey, 78% in Iraq, and only 2% of the Tigris flows along the northeastern corner between Turkey and Syria, forming a 32 km long border

[131] Patrick MacQuarrie, "Water Security in the Middle East: Growing Conflict over Development in the Euphrates-Tigris Basin," *Thesis, M. Phil International Peace Studies.* Trinity College, Dublin. (26 February 2004), 3.
[132] Aysegul Kibaroglu, "Water for Sustainable Development in the Euphrates-Tigris River Basin," *Proceedings of the 2nd Asia Pacific Association of Hydrology and Water Resources Volume II*, Singapore, (5-8 July 2004), 1.
[133] Ibid., 3-5.
[134] Akanda et al., "The Tigris-Euphrates River Basin," 1.

between the two countries.[135] All three countries use the Euphrates extensively and have developed the river to support their irrigation and hydropower needs. The Euphrates, however, does not have enough water to support the demands each of the riparians make on the river unilaterally, and so the riparians look to the Tigris to make up the deficit.[136]

The Situation on the Ground

The Tigris-Euphrates basin embodies Gleick's four factors that make water a source of conflict for riparians. The first two factors are the degree of water scarcity in the basin and the ease of access riparians have to other sources of freshwater.[137] Iraq and Syria are largely desert; both receive little rainfall and therefore rely heavily on the Tigris and Euphrates rivers for irrigation, as well as sources for domestic consumption, industry, and power generation. Gleick explains that, "for Syria, the Euphrates represents 86% of its available water supply and helps meet 50% of its domestic water needs… Hydropower generated along the river provides 60% of the country's energy."[138] Iraq is in an even more precarious situation that Syria. According to Zawahri, "Iraq is the most dependent on the rivers for its existence and it has the most people living along their banks. Because two-thirds of Iraq is desert, it is also the most vulnerable to upstream consumption."[139] Turkey, meanwhile, has a more diverse climate, receives enough rainfall so that intensive irrigation is not necessary, and has access to other sources of water.[140] The disparity between Iraq and Syria on the one hand and Turkey on the other is reflected in the percentage of total water resources the states have that they use. Syria uses 99.76% of the total water it has access to, and Iraq uses 87.28%. Turkey uses only 18.77% of the total water available to it.[141]

The third factor is the power distribution among the riparians.[142] Like the Indus basin, the Tigris-Euphrates basin is characterized by a power asymmetry between the

---

[135] MacQuarrie, "Water Security in the Middle East," 5.

[136] Zawahri, "Stabilizing Iraq's Water Supply," 1044.

[137] Gleick, "Water and Conflict," 84.

[138] Ibid.

[139] Zawahri, "Stabilizing Iraq's Water Supply," 1045.

[140] Kevin Freeman, "Water Wars? Inequalities in the Tigris-Euphrates River Basin," *Geopolitics* 6 no. 2 (2001), 130.

[141] "Water use, by sector and by source," *AQUISTAT online database*, The Food and Agriculture Organization of the United Nations 2010, retrieved from: http://fao.org/nr/water/aquastat/main/index.stm, (04 June, 2012).

[142] Gleick, "Water and Conflict," 84.

riparians. Turkey, the upstream riparian, is also the most democratic of the three countries and has the stronger economy and military.[143] It has first access to the waters flowing in the Tigris-Euphrates Rivers and greater capabilities to develop the rivers for its own needs.

The fourth factor is the extent to which the water supply is shared among more than one riparian.[144] The Tigris-Euphrates Rivers are shared by Turkey, Syria, and Iraq, with the latter two far more dependent on the rivers and therefore affected by Turkey's development of them. Furthermore, Syria depends 83% on water originating outside of its borders, and Iraq's dependence lies at 53%.[145] The dependence of both states on water originating outside of their borders, means that the damming of the river or the rerouting of the river's flow have highly detrimental effects on their population and economy.

The Conflict

Until the early 1960s the Tigris-Euphrates basin was characterized by a relatively harmonious relationship between Turkey, Syria, and Iraq. During this time, none of the countries undertook large-scale development projects, and flooding posed the largest threat to the riparians. Growing populations and the resultant need for increased food and energy production, pushed the riparians to begin development projects in the 1960s. This in turn increased tensions between them and began the continuing conflict over the use of the Tigris-Euphrates basin. Since the beginning of large-scale development along the Tigris-Euphrates river system, development projects have been characterized by their unilateral nature and their focus on the needs, current or projected, of each individual state.

Bearing in mind that a conflict over trans-boundary rivers exists when one or more riparians act unilaterally to use and develop the river's resources and this development is contested by the other riparians who are negatively affected by the unilateral actions, Turkey, Syria, and Iraq are in a state of conflict. The Tigris-Euphrates conflict is characterized by a lack of communication, unilateral development of the river's resources, and primarily bilateral negotiations and agreements that are irregularly

[143] "Democracy Index 2010: Democracy in Retreat," *Economist Intelligence Unit*, (2010), 5-7.

[144] Gleick, "Water and Conflict," 84.

[145] MacQuarrie, "Water Security in the Middle East," 10.

honored by their signatories. Although armed violence or the threat of it does not have to occur for riparians to be in conflict with one another, in this case, the unilateral development of the basin nearly led to armed violence. The major flashpoints of the ongoing conflict are explained below.

The Keban and Tabqa Dams

Beginning in the early 1960s, each riparian began to build infrastructure along the rivers. Both Turkey and Syria announced and then began building dams on the Euphrates River. Turkey constructed the Keban dam between 1965 and 1973 while Syria built the Tabqa dam (1968-1973).[146] At the same time, Iraq began planning the expansion of the irrigation systems along the river to increase food production.[147] The Keban and Tabqa dam projects were meant to generate hydropower and provide water for irrigation to the surrounding Turkish and Syrian areas. Once Turkey announced its plans to build the Keban dam, both downstream riparians but especially Iraq insisted that Turkey guarantee a certain amount of water be allowed to flow while they filled the dam's reservoir.[148] Negotiations took place between Iraq and Turkey in 1964 during which Turkish officials argued that they could not "reach a single and final formula for the pattern of water to be released from the Keban dam reservoir before impounding the dam."[149] Pressure from USAID, the main donor for the project, forced Turkey to guarantee that it would "undertake all necessary measures to maintain a discharge of 350 m^3/second *immediately* downstream from the dam."[150] Turkey was not happy with the intervention of the donor community and did not sign an agreement with Iraq and Syria, communicating the guarantee orally instead.

During the period the dams were built, the three countries met multiple times to discuss the progress of the infrastructure projects, the water needs of each riparian, and how these would be affected by the filling of the two reservoirs. The delegation visited

[146] Aaron T. Wolf, "Middle East Water Conflicts and Directions for Conflict Resolution." *2020 Vision Initiative Monograph #12*, International Food Policy Research Institute, (1996), 7.
[147] Aysegul Kibaroglu and H. Olcay Unver, "An Institutional Framework for Facilitating Cooperation in the Euphrates-Tigris River Basin," *International Negotiation: A Journal of Theory and Practice* 5, no. 2 (2000), 314.
[148] Kibaroglu, "Water for Sustainable Development in the Euphrates-Tigris River Basin," 2.
[149] Ibid.
[150] Emphasis added. Kibaroglu and Unver, "An Institutional Framework for Facilitating Cooperation in the Euphrates-Tigris River Basin," 4.

multiple project sites and gathered technical information on the water requirements of each riparian. The riparians (Turkey in particular) did not trust the accuracy of the information they were given, however. Proposals submitted by the individual riparians, such as Syria's suggestion to investigate whether possible water shortages in the Euphrates could be alleviated by diverting part of the Tigris, were also turned down by the other riparians.[151]

Turkey and Syria completed the Keban and Tabqa dams within a year of each other, and the filling of both resulted in a major conflict flashpoint. The failure of the riparians to come up with a cooperative arrangement during the trilateral meetings meant Turkey and Syria decided how to fill their respective dams themselves. As previously mentioned, Turkey gave an oral assurance to Iraq that it would maintain a discharge of 350 m^3/second *immediately downstream* from the dam. Because Syria was also filling a reservoir however, it was using the flow Turkey had allowed to go through the dam for its own reservoir. Consequently, "the river's discharge as it entered Iraq decreased from its average 920 m^3/second to 197 m^3/second."[152] Iraq asked the Arab League to intervene, but Syria claimed that the drop in water volume was not their fault, since less than half of the volume of water that normally flowed through the Euphrates reached them.[153] Iraq blamed Syria, and Syria in turn blamed Turkey for the crisis. Tensions mounted as the Iraqi and Syrian governments traded verbal hostilities, leading Syria to pull out of the Arab League technical committee formed to mediate the conflict. The conflict peaked in May 1975 when Iraq threatened to bomb the Tabqa dam and Syria and Iraq moved their armies to their common border.[154] It was only through the mediation of Saudi Arabia that the two parties stepped back from the brink of armed conflict.[155] This was the first major example of the potentially violent consequences of unilateral development along the Tigris-Euphrates basin, but it would not be the last.

---

[151] Ibid., 5-7.

[152] Zawahri, "Third Party Mediation of International River Disputes," 302.

[153] Aaron T. Wolf, "Middle East Water Conflicts and Directions for Conflict Resolution." 8.

[154] Ibid.

[155] According to the agreement, Syria would keep 40% of the water flowing through the Euphrates and allow the remaining 60% to pass into Iraq. Ibid.

The Southeast Anatolia Development Project

Arguably the largest source of tension between the three riparians is the Southeast Anatolia Development Project (GAP), which Turkey began in 1977, which at its completion will encompass 22 dams and 19 hydroelectric plants on the Tigris and Euphrates rivers.[156] The $32 billion dollar region-wide project is designed to provide hydroelectric power to the region, increase irrigation, and spur socio-economic development in one of Turkey's least developed and most politically volatile regions; Southern Anatolia. The project should have been completed by 2010, but due to financial constraints the Turkish government pushed the completion date back to 2047.[157]

Turkey sees GAP as a domestic development enterprise, and the project exemplifies Turkey's stance towards the use and development of the two rivers. Turkey argues that the water from the two rivers, while it is within Turkey's national borders, belongs to Turkey, and it is Turkey's sovereign right to do with those resources whatever it pleases.[158] The former prime minister, Suleyman Demirel, summarized his country's position towards their right to develop the rivers regardless of the protests from Iraq and Syria when he said:

> Neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. We have a right to do anything we like. The water resources are Turkey's, the oil resources are theirs. We don't say we share their oil resources and they can't say they share our water resources.[159]

The effects the completion of GAP will have on its downstream riparians have largely not been taken into account during either the planning or execution phase of the project. They are, however, fairly drastic.

> A full implementation of the GAP will ultimately withdraw a maximum of 70% of the Euphrates natural flow, about 40-50% of its observed flow, and 50% of the Tigris river… it is estimated that 40% of waters reaching Syria from Turkey would ultimately carry 40%

[156] Akanda et al., "The Tigris-Euphrates River Basin," 2.
[157] Doudy, "Asymmetric Power," 369.
[158] Helga Haftendorn, "Water and International Conflict," *Third World Quarterly* 21 no. 1 (February 2000), 57.
[159] Zawahri, "Stabilizing Iraq's Water Supply," 1046.

polluted waters, and 25% of Tigris waters reaching Iraq from Turkey.[160]

Both Syria and Iraq fear that the completion of the GAP project will not only harm them in terms of drastic reductions in the amount and quality of water that reaches their borders but will also put them in an even worse position vis-à-vis Turkey. The two riparians worry that the GAP project will bring such high levels of economic growth to Turkey that the power asymmetry in the region will only increase.[161] Iraq and Syria also fear that once completed, Turkey will have the ability to use water as a weapon against them by reducing or completely stopping the flow of the Tigris-Euphrates Rivers at will.[162]

Syria and Iraq both continue to protest the completion of the GAP project and have repeatedly called on international investors to stop funding the project because of the negative effects it would have on both of the downstream riparians. "From 1993 to 2002… Syria has blocked international investment in GAP, appealing to European export credit agencies and the World Bank. Most of all, such efforts have resulted in the withdrawal of several private and public European investors."[163] This has left Turkey in a difficult financial position, because it cannot fund the project itself and international support continues to decline.

The Tigris-Euphrates basin is characterized by unilateral development, a disregard for the needs of the co-riparians and a refusal to modify behavior or plans to alleviate insecurity. Iraq, Syria and Turkey find themselves in a state of conflict over the basin and its contested resources.

Attempts at Conflict Management

Iraq, Syria, and Turkey have been meeting on and off since 1962 to discuss the use and development of the Tigris-Euphrates basin, but the three riparians have not made significant progress in alleviating tensions in the basin or coming closer to finding a long-term way of managing the rivers. The three agreements that exist among them are

[160] Doudy, "Asymmetric Power," 370.

[161] Freeman, "Water Wars?" 133.

[162] Ibid.

[163] Shlomi Dinar, "Power Asymmetry and Negotiations in International River Basins," *International Negotiation* 14 (2009), 337.

all bilateral and created in order to avert crisis instead of to build a cooperative relationship.

A first example of such bilateral agreements can be found in the 1987 agreement between Turkey and Syria that guaranteed a minimum of 500 m^3/second would flow into Syria from Turkey.[164] This was also the exact amount that Iraq had demanded flow across its border in 1967, meaning that the amount Iraq required would not reach it since the water would first be used by Syria.[165] In exchange for the 500 m^3/second from Turkey, Syria "made concessions on border issues that ranged from the smuggling of illegal arms and narcotics to infiltration into Turkey by separatist groups, primarily the Kurdish Worker's Party."[166] A second bilateral agreement was signed two years later between Syria and Iraq. This specified that Syria would keep 42% of the water flowing through the Euphrates and leave the remaining 58% to flow across the border into Iraq.[167] Instead of a trilateral agreement that would regulate the flow from the beginning of the river until it flows into the Persian Gulf, two bilateral agreements were signed. These agreements are honored only when doing so would not impact either Turkey or Syria. Turkey, for instance, did not meet its commitment between December 2000 and June 2001, because a drought decreased the Euphrates flow by 45%.[168] Syrian compliance is similarly patchy and dependent on Syrian needs.

Syria and Turkey signed the third bilateral agreement in October 1998. The agreement attempted to address decades of conflict between Syria and Turkey over Syria's support of the Kurdish rebel group Partiya Karkaren Kurdistan (PKK) and Turkey's unilateral development of the river basin.[169] Throughout the 1990s the conflict intensified repeatedly. "The crises of 1990, 1993, and 1996 were activated by one of two factors—either a significant reduction of water from the Turkish side, or a refusal to reconvene negotiations—and then followed by an intensification of Syria's support of the Kurds."[170] Syria wanted guarantees from Turkey that Turkey would honor the 1987

[164] Ibid.
[165] Ibid.
[166] Dinar, "Power Asymmetry and Negotiations in International River Basins," 336.
[167] Ibid.
[168] Zawahri, "Stabilizing Iraq's Water Supply," 1048.
[169] Meliha Benli Altunisk and Ozlem Tur, "From Distant Neighbors to Partners? Changing Syrian-Turkish Relations," *Security Dialogue* 37 no. 2 (2006), 223.
[170] Doudy, "Asymmetric Power: Negotiating Water in the Euhrates and Tigris," 380.

agreement. Whenever Turkey did not deliver or walked out on negotiations, Syria used its support of the PKK to force Turkey back to the table. Turkey, meanwhile, argued that it was allocating the water "in a rational and timely manner" and Syria had no basis on which to claim more or protest against how Turkey did this, because the water was Turkey's until it crossed the border.[171] By 1998 the Turkish government had had enough and decided that it would, if necessary, use its military to force Syria to end its support of the PKK rebels.[172] War was only narrowly avoided when Syria agreed to end its support of the PKK and expel the Kurdish rebel leader but no sustainable solution for the sharing of the basin's resources was found.

Conclusion

Conflict between Iraq, Syria, and Turkey over the Tigris-Euphrates rivers began in the 1960s and continues today. Unilateral development, regardless of its effect on the co-riparians, characterizes the relationship dynamic among the riparians. As the economically strongest and most developed of the riparians, Turkey has used its upstream position to develop the Tigris-Euphrates Basin as much as possible, arguing that it is its sovereign right to do so. Both Syria and Iraq contest this but, at the same time, execute their own unilateral development projects. Attempts at trilateral basin management have so far been unsuccessful because the riparians do not trust each other and are unable to overcome the barriers to cooperation.

The following chapter outlines the potential for long-term cooperation in the Tigris-Euphrates basin. A needs-based agreement with sufficient incentives to induce riparians to join negations and sign an agreement as well as a strong management institution offer the best means of managing the Tigris-Euphrates basin and addressing the causes of conflict.

[171] MacQuarrie, "Water Security in the Middle East," 53.
[172] Altunisk and Tur, "From Distant Neighbors to Partners?" 225.

Chapter Seven
Long-Term Cooperation in the Tigris-Euphrates Basin

The riparians in the Tigris-Euphrates basin face an unsustainable future due to their unilateral development plans and excessive demands on the shared river system. If each state were to complete their planned development projects, Iraq would require 65% of the water available in the basin, Syria would need 32%, and Turkey would lay claim to 52%. Unilateral development in the Tigris-Euphrates Basin means that the states would require an impossible 149% of the total water available.[173] Once GAP is completed, Turkey will "consume 52% of the Euphrates and 14.1% of the Tigris."[174] At the same time, Syria plans to consume 33% of the Euphrates and 10% of the Tigris.[175] This leaves Iraq, which is already consuming 97.99% of all available water resources, in an incredibly volatile position.[176] Unilateral development needs to be reigned in, available water needs to be used more effectively, and a way of managing conflicts that does not require the threat of military action must be found.

The way the Tigris-Euphrates basin is used today is not sustainable in the long-term and the riparians need to address this situation. As in the case of the Indus river conflict, the combination of a trilateral agreement with incentives to bring the parties to the table and induce them to sign the agreement, coupled with the creation of a management institution that lowers the cost of cooperation and provides a means of settling issues outside of the political sphere, offers the best chance of achieving sustainable, long-term management of the Tigris-Euphrates basin.

Facilitating a Trilateral Agreement

Since cooperative development on the basis of each riparian's development plans is not possible, cooperative management of the basin requires the riparians to adopt a needs-based approach. Instead of Turkey claiming sovereignty over the water as long as it is within its borders and Syria and Iraq claiming rights based on historic use of the river,

[173] Akanda et al., "The Tigris-Euphrates River Basin," 1.
[174] Zawahri, "Stabilizing Iraq's Water Supply," 1044.
[175] Ibid.
[176] Ibid.

the water should be allocated based on an evaluation of the needs of each riparian.[177] Aaron T. Wolf defines "needs" as a combination of "irrigable land, population, or the requirements of a specific project or sector."[178] The Indus case showed that a needs-based approach to cooperative river management is possible. The Indus Waters Treaty divided the river system according to the needs of both riparians, which is why Pakistan got a much larger proportion of water, as the Indus is the only source of water it has, while India can draw from other rivers. Both riparians also have limited access to each other's rivers for specific irrigation or hydroelectricity generation purposes.

A trilateral needs-based agreement has three primary benefits. First, since such an agreement would require a thorough investigation of the needs and capacities of each of the riparians, this would overcome one of the four main obstacles to cooperation: a lack of reliable information. An agreement and long-term cooperation are more likely if riparians can be reasonably sure that the information they receive from their co-riparians is accurate. Second, basing an agreement on an evaluation of needs ensures that the water each riparian requires to sustain its population, irrigate its fields, generate electricity, and execute necessary development projects is balanced with the capacity of the basin. This ensures that the basin is used in a sustainable manner. Third, a needs-based approach to allocating the Tigris-Euphrates water resources provides a basis for negotiation. As long as the riparians insist on their undeniable right to the water, there is no room for compromise, and a stalemate results. A needs-based agreement, on the other hand, makes it possible for riparians to get more out of an agreement than just a set amount of water. The agreement is then about maximizing benefits instead of insisting on unilateral rights. Here issue linkage and side-payments play a large role in making the agreement more attractive to each riparian and compensating them for compromising.

Although Turkey presented a needs-based plan to its co-riparians in 1990, Syria and Iraq rejected it because both sides distrusted Turkish intentions."[179] Despite this unwillingness, creating a trilateral, needs-based agreement is the most effecrtive basis for sustainable management of the river system. The river's resources need to be allocated in

[177] Wolf, Aaron T. "Criteria for Equitable Allocations: The Heart of International Water Conflict." *Natural Resources Forum* 23 no. 1 (February 1999), 10.
[178] Ibid.
[179] Dogan Altinbilek, "Development and Management of the Euphrates-Tigris Basin," *International Journal of Water Resources Development* 20 no. 1 (2004), 16.

such a way that the needs of all riparians are covered. The riparians would also benefit from a management institution that addresses conflicts, gathers information, and provides a means of communication that circumvents their volatile political relationship. The intervention of a mediator with the capability to offer side-payments and issue linkages to make the agreement more attractive to the riparians and facilitate a beneficial outcome offers the best chance of reaching an agreement. The riparians do not trust each other, but they should see the benefit of signing an agreement facilitated by a mediator such as the World Bank.

In order for a mediator to use issue linkage and side-payments to facilitate an agreement, the mediator must be someone the riparians would willingly submit to and be able to offer incentives to the riparians. In the Tigris-Euphrates case, like in the case of the Indus conflict, the World Bank would be a good choice of mediator. It has a history of successfully mediating water disputes and the capacity to act as a strong mediator. It can also take the conflicting approaches to basin division each party submits and either reconcile them or put forward a new agreement. The World Bank did the same in the Indus case and successfully circumvented the mistrust the India and Pakistan had towards each other's plans. Iraq, Syria and Turkey would also likely be interested in the World Bank's mediation, because the resolution of their conflict would open the door to funding for their development projects.[180] Turkey, for instance, is currently struggling to fund the completion of the GAP. For the purposes of this thesis the most important reason why an institution such as the World Bank would be a good mediator is because it has the technical expertise and financial and political resources to make issue linkages and side-payments possible. While there may be other third parties willing to mediate the conflict, the World Bank's previous experience, institutional capacity and technical and financial resources make it a good choice of mediator. There are multiple issue linkages and side-payments such a mediator could use to induce Turkey, Syria and Iraq to come to an agreement on the Tigris-Euphrates conflict.

[180] Akanda et al., "The Tigris-Euphrates River Basin," 6.

Potential Issue Linkages

Issue linkage entails linking directly or indirectly related issues to the original batch of issues under negotiation in order to create a "bigger basket" of issues. This way, issue linkage provides riparians with benefits to compensate for the concessions they have to make if they sign the agreement.[181] Achieving trilateral agreement on the Tigris-Euphrates river system will require each riparian to scale down its demands and make concessions. The goal of linkage strategy is to make sure that while everyone is making concessions, everyone is also gaining something they want. There are multiple issues that could be linked to the Tigris-Euphrates case that would induce the riparians to sign an agreement.

First, Turkey find itself in a difficult position, because it is the upstream riparian, the most developed of the three states and therefore in the strongest position to refuse cooperation. At the same time, because Syria has successfully blocked international investment in the GAP project, including World Bank funding, Turkey is struggling to find the money to complete GAP.[182] Without external funding, it is unlikely that Turkey will be able to finish the project. As it stands today, the EU and the World Bank both require an agreement between the three riparians before any funds are provided. Linking the end of Syrian efforts to block international funding to Turkey's signing of a comprehensive basin agreement would reopen external funding opportunities, making it possible for Turkey to complete the project while also protecting the interests and needs of the downstream states.

Another linkage that could push Turkey towards a more cooperative stance is the linking of a comprehensive river management agreement to Turkey's bid to join the European Union.[183] Turkey's conflict with Iraq and Syria has already affected the country's ability to find international funding for the GAP project and cast a negative light on its regional policies. It is primarily Turkey's human rights record that hinders its EU ascension.[184] A cooperative agreement with the two downstream riparians would

[181] Marwa Doudy, "Asymmetric Power: Negotiating Water in the Euphrates and Tigris," *International Negotiation* 14 (2009), 367.
[182] Dinar, "Power Asymmetry and Negotiations in International River Basins," 337.
[183] Drake, "Water Resource Confclits in the Middle East," 11.
[184] Akanda et al., "The Tigris-Euphrates River Basin," 5.

boost Turkey's image in Europe's eyes and help them in their bid to become a member of the EU.

A third issue linkage could be drawn between energy and water. For instance, this year Iraqi oil exports jumped by 20% to nearly 2.5 million barrels per day.[185] Turkey, as a net importer of energy, would likely be interested in a cooperative arrangement that would provide it secure access to Iraqi oil in exchange for the water Iraq needs.[186] Another possible energy linkage would be to free up funds for Turkey to build the hydroelectric dams it planned along the Tigris-Euphrates rivers in exchange for a percentage of the power generated going to downstream Iraq and Syria.[187] This would provide both downstream countries with a portion of the energy they require and reduce their water needs since they would not need to build as many hydroelectric dams to generate power themselves.

A final issue that could be linked to a comprehensive water agreement is the Orontes River. Here Syria is the upstream riparian while Turkey as the downstream riparian relies on the river as the main source of water for the city of Antioch.[188] Intensive irrigation and industrial pollution in Syria pollute the river heavily and minimize the amount Turkey can actually use the river. Linking the rivers together in the agreement could benefit both riparians. If Syria were to agree to reduce pollution in the Orontes so that Turkey could use the water to a greater degree, Turkey could allow more water to flow into Syria through the Euphrates and calm Syrian water security concerns.

A combination of linkages involving all three riparians would ensure that each side could maximize its benefits as it is conceding ground on other issues. Issue linkage can also be useful in promoting better relationships among the riparians because it requires them to work together and uphold their ends of the bargain.

---

[185] Tim Arango and Clifford Krauss, "Oil Output Soars as Iraq retools, Easing Shaky Markets," *New York Times* (2 June, 2012), retrieved from: http://www.nytimes.com/2012/06/03/world/middleeast/crude-oil-output-is-soaring-in-iraq-easing-markets.html

[186] Akanda et al., "The Tigris-Euphrates River Basin," 3.

[187] Haftendorn, "Water and International Conflict," 57.

[188] Dinar, "Power Asymmetry and Negotiations in International River Basins," 337.

Potential Side-Payments

A side-payment is financial or technical assistance given to one or more of the riparians to fund or help realize projects that have to do with the river. It is another incentive a mediator can use to motivate riparians to sign and adhere to the terms of the agreement. Each of the three riparians is struggling to build or complete its planned development projects along the Tigris-Euphrates river basin, and receiving financial and technical assistance would make completing these projects possible. By expanding the benefits and strategically targeting the projects that the riparians care most about, the mediator makes signing the agreement a smart move for the negotiating parties. Side-payments are also a way of motivating the more powerful riparians, in this case Turkey, to sign an agreement that will restrict their freedom of action.

The side-payment that would provide the most incentive for Turkey to sign a comprehensive basin management agreement would be funding for the GAP project. The GAP project is enormously important for Turkey domestically, because it brings jobs, infrastructure, and development to the under-developed and volatile Southern Anatolia region.[189] Without outside funding, however, the project cannot be completed. Reopening closed funding channels such as the European Union or the World Bank and building the amount of funding Turkey would receive into the basin management agreement would provide a strong incentive for Turkey to sign. Additional development funding for the Southern Anatolia region could also be a useful side-payment since Turkey struggles with the Kurdish population there.

Providing Syria and Iraq with technical and financial assistance to overhaul their irrigation systems would greatly benefit both states and ease some of the pressure on them. Both countries are net food importers and struggle to produce basic agricultural staples. This is partially due to the inhospitable climate and also because of inefficient water use. 95% of the water Syria withdraws from the rivers is used for agriculture while Iraq uses 92% of all available water for its agriculture. To compare, the Netherlands, a major food exporter, uses 67% of available water for agriculture.[190] Funding and technical assistance to set up irrigations systems that reduce water loss to evaporation and

[189] MacQuarrie, "Water Security in the Middle East," 20.

[190] "National Water Footprint: Netherlands," *Water Footprint*, retrieved from: http://www.waterfootprint.org/?page=files/Netherlands, (23. 06. 2012).

minimize fertilizer use would both benefit the river in lowering pollution levels and ease Iraqi and Syrian demands on the river. micro-finance projects targeting irrigation practices in the region already show promise. In Syria, farmers taking part in a drip-irrigation project cut their water use by 30% and increased their production by 60%.[191] On a national scale, such technology, coupled with the financial resources to implement it, would reduce Syrian and Iraqi water use and improve their agricultural output, thereby easing both their water and food security concerns.

Side-payments are one of the more powerful incentives a mediator uses because they have the potential to make an agreement more attractive to otherwise wary riparians. By specifically targeting the projects the riparians care most about, the mediator offers them a strong incentive for agreement and compliance.

The Management Institution

A management institution is crucial to making long-term cooperation possible for Iraq, Syria, and Turkey, because it would help the riparians overcome the four barriers to cooperation: information, distribution, monitoring, and sanctioning. A well-designed management institution with a strong mandate helps lower the costs of cooperation, builds cooperative relationships among riparians, and gives them a means of settling their differences. Without a strong mandate, the barriers to cooperation cannot be overcome and conflict will persist.

The three riparians attempted to create such an institution in 1964, but due to its weak mandate, the Joint Technical Committee (JTC) has so far failed to induce the riparians to manage the river cooperatively. The JTC was created to collect information on water use, development projects, and irrigation measures as well as meteorological data that would then be used to determine the water needs of each riparian.[192] It failed to overcome any one of the four barriers to cooperation, however. There was no way for its members to communicate directly with each other, so every communication became politically charged. Zawahri points out that "the commission also lacked any ability to monitor the development of the shared rivers. Consequently there was no capacity to

[191] "Syria: Ray of Hope for Drought-Affected Farmers," *IRIN Humanitarian News and Analysis*, retrieved from: http://www.irinnews.org/Report/88750/SYRIA-Ray-of-hope-for-drought-affected-farmers , (12 June 2012).
[192] Kibaroglu, "Water for Sustainable Development in the Euphrates-Tigris River Basin," 3.

either confirm the accuracy of the exchanged data or detect potential cheating."[193] Neither did the JTC have any conflict resolution mechanisms built into its mandate. This meant that that when the riparians disagreed, talks stalled, and the commission was unable to do anything about it. With neither sufficient data that could be independently checked nor a system for sanctioning cheating, the JTC was doomed to irrelevance.

To make long-term cooperation possible, the Tigris-Euphrates basin needs a management institution. Like in the Indus case, the riparians have highly problematic relationships with each other. The successful management of the Indus River for the past 40 years illustrates that cooperative basin management is possible as long as the management institution has certain characteristics. First, river management should be a technical issue instead of a political flashpoint and therefore managed by technical experts instead of through diplomatic channels as the JTC was. Only then is it possible to make difficult and domestically unpopular decisions. The management institution should also collect and check information to make sure no one is cheating and then distribute this information to all riparians, overcoming both the information and distribution problems and decreasing the incentive to cheat. By also giving the riparian's technical experts access to all water-related infrastructure sites and development projects, the potential for getting away with cheating diminishes further. Finally, the institution should be endowed with conflict resolution mechanisms to make it possible for riparians to settle their differences without resorting to threatening military action. A conflict resolution mechanism similar to the one India and Pakistan have would be useful for Iraq, Syria, and Turkey, because it would involve an outside party in the resolution process. this would again increase the cost of defection and give the management institution more credibility, especially in the initial years of its existence.

Conclusion

The Indus river conflict mediation and resolution shows that cooperation among riparians with difficult political relationships and incompatible opinions on basin management is possible. Like in the Indus case, cooperation in the Tigris-Euphrates basin would require the combination of mediation with incentives and a management

[193] Zawahri, "Third Party Mediation of International River Disputes," 303.

institution. The mediation provides the necessary side-payments and issue linkages that make the proposed agreement the better, more profitable option. Then, once the riparians have signed the agreement, the management institution keeps them in a state of cooperation by lowering the costs of cooperation and raising the costs of defection. As the states use the institution to monitor the river and manage their disputes, over time this way of managing the shared river hopefully becomes the norm.

Chapter Eight
Conclusion

Working within a neoliberal institutionalist framework, this thesis examined how third party mediation can address the short and long-term causes of conflict intrans-boundary river systems and facilitate cooperation among riparians. Trans-boundary river basins become sources of conflict through the unilateral actions of the riparians who seek to use the water to their best advantage regardless of the effects this has on the other states in the basin. While such water conflicts rarely end in violence, as resources become scarcer and riparians more unwilling to cooperate, the potential for conflict escalation grows. Even without violent hostilities, non-violent forms of conflict over trans-boundary freshwater resources have extraordinarily detrimental effects on the basin and the people living within it. Because the actions of one riparian affect everyone in the basin, the management of the trans-boundary river must be undertaken cooperatively.

This thesis argued that by using incentives such as side-payments and issue-linkage, thereby maximizing the negotiating parties' benefits, a mediator can facilitate an agreement among otherwise cooperation-resistant riparians. Specifically targeting projects riparians care most about or linking the agreement to broader issues makes signing the agreement the better option for riparians. Incentives also induce riparians to adhere to the treaty since noncompliance would result in the loss of the side-payments or linked issues.

Once an agreement is signed and the mediator leaves, a well-designed management institution with a strong mandate to monitor the river, gather information, sanction defectors, and resolve conflicts helps riparians overcome their mutual fear of being cheated and engenders cooperation among them. A well-designed agreement and management institution help riparians overcome the four issues that hinder cooperative solutions: information, distribution, monitoring and sanctioning. Keeping trans-boundary river management in the realm of technical management instead of politics allows riparians with poor political relationships to cooperate outside of the larger political picture. The combination of mediation with incentives and the management institution

provides risk-averse states with a means of avoiding conflict and strengthens their belief that cooperation will provide greater long-term benefits than unilateral action.

The mediation of the Indus river conflict provided a best-case example of successful trans-boundary river conflict mediation and long-term management. The Indus Waters Treaty and the Permanent Indus Commission have regulated the relationship between India and Pakistan over the Indus river for the past fifty years. In this case, the riparians were able to overcome the barriers to cooperation and use the agreement and management institution to build a cooperative relationship. The lessons learned from the Indus case were transferred to the Tigris-Euphrates conflict to examine the possibility for a similar solution to the conflict in this basin. The riparians have come close to armed conflict multiple times in the past fifty years and the relationship between them concerning the river has not improved. Without cooperative management of the Tigris-Euphrates basin, Iraq, Syria and Turkey face an unsustainable future.

Additional research on trans-boundary river management and the relationships among riparians within these basins is needed to assess the broader benefits of third-party mediation, the use of incentives and the creation of cooperative management institutions for conflict management. Cooperative management of trans-boundary rivers may not fix difficult relationships among riparians but it has the potential to normalize communication and serve as a basis to build better relationships. The effect climate change has on the escalation of water conflicts in trans-boundary river basins is another avenue of research worth pursuing. Climate change is a volatile and unpredictable phenomenon especially in regions where water is already scarce and resources are contested, like in trans-boundary river basins.

The trans-boundary river will never disappear and riparians will never stop needing the resources it provides. These rivers can be sources of conflict and of cooperation but only through cooperative management can riparians sustainably use the river and minimize the potential for conflict. Incentivized third party mediation and the creation of a management institution offer the means to foster an agreement among adversarial riparians, create an environment of mutual and sustainable benefits and overcome the barriers to cooperation in order to build a long-term cooperative relationship in the trans-boundary river basin.

Bibliography

Akanda, Ali et al. “The Tigris-Euphrates River Basin: Mediating a Path Towards Regional Water Stability.” *Al Nakhlah* (Spring 2007).

Akhtar, Shaheen. “Emerging Challenges to Indus Waters Treaty: Issues of Compliance & Transboundary Impacts of Indian Hyroprojects on the Western Rivers.” *Quarterly Journal of the Institute of Regional Studies* 28 no. 4 (Autumn 2010).

Alam, Undala Z. “Questioning the Water Wars Rationale: A Case Study of the Indus Waters Treaty.” *The Geographical Journal* 168 no. 4 (December 2002).

Altinbilek, Dogan. “Development and Management of the Euphrates-Tigris Basin.” *International Journal of Water Resources Development* 20 no. 1 (2004).

Altunisk, Meliha Benli and Ozlem Tur, “From Distant Neighbors to Partners? Changing Syrian-Turkish Relations.” *Security Dialogue* 37 no. 2 (2006).

Amery, Hussein A. “Water Security as a Factor in Arab-Israeli Wars ad Emerging Peace.” *Studies in Conflict and Terrorism* 20 no. 1 (1997).

Baechler, Günther. “Why Environmental Transformation Causes Violence: A Synthesis.” *Environmental Change and Security Report* 4 (1998)

Baechler, Günther and Kurt R. Spillman, eds. *Environmental Degradation as a Cause of War Vol. 2: Regional and Country Studies of Research Fellows* (Chur and Zurich: Rüegger, 1996).

Bagis, Ali Ihsan. “Turkey’s Hydropolitics of the Euphrates-Tigris Basin.” *Water Resources Development*, 13 no. 4 (1997).

Barrett, Scott. “Conflict and Cooperation in Managing International Water Resources.” *Policy Research Working Paper, The World Bank* (May 1994).

Bennett, Andrew and Colin Elman, “Case Study Methods.” In *The Oxford Handbook of International Relations*, ed. Christian Reus-Smit and Duncan Snidal. Oxford and New York: Oxford University Press, 2010.

Bercovitch, Jacob and Gerald Schneider, “Who Mediates? The Political Economy of International Conflict Management.” *Journal of Peace Research* 37 no. 2 (2000).

Bercovitch, Jacob and Scott Sigmund Gartner. “Is There Method in the Madness of Mediation?” in *International Conflict Mediation: New Approaches and Findings*. eds. Jacob Bercovitch and Scott Sigmund Gartner. Oxon: Routledge, 2009.

Berridge, G. R. “Diplomacy and the Angola/ Namibia Accords.” *International Affairs* 65, no. 3 (1989).

Biswas, Asit K. “Indus Water Treaty: The Negotiating Process.” *Water International*, 17 (1992).

Brochmann, Marit and Paul R. Hensel, “Peaceful Management of International River Claims.” *International Negotiation* 14 (2009).

Carter, Marielle J. and Stehpan N. Ndegwa, „Environmental Scarcity and Conflict: A Contrary Case from Lake Victoria,“ *Global Environmental Politics* 2 (2002).

Chalecki, Elizabeth L. et al. “Fire & Water: An examination of the Technologies, Institutions and Social Issues in Arms Control and Transboundary Water-Resources Agreements.” *Pacific Institute* (June 2002).

“Democracy Index 2010: Democracy in Retreat,” *Economist Intelligence Unit*, (2010).

De Soya, I. “Ecoviolence: Shrinking Pie, or Honey Pot?” *Global Environmental Politics* 2 no. 4 (2002).

Dinar, Ariel. “Cooperation in Managing Transboundary Water Resources: Evaluation Approaches and Experiences.” *Paper Presented at 4th Rosenberg International Forum on water Policy.* (3-9 September, 2004).

Dinar, Shlomi. “Power Asymmetry and Negotiations in International River Basins,” *International Negotiation* 14 (2009).

Doudy, Marwa. “Asymmetric Power: Negotiating Water in the Euphrates and Tigris.” *International Negotiation* 14 (2009).

Drake, Christine. “Water Resource Conflicts in the Middle East.” *Journal of Geography* 96 no. 1 (1997).

Freeman, Kevin. “Water Wars? Inequalities in the Tigris-Euphrates River Basin.” *Geopolitics* 6 no. 2 (2001).

George, Alexander L. and Andrew Bennett. *Case Studies and Theory Development in the Social Sciences*. Cambridge: MIT Press, 2005.

Giordano, Mark F. et al. “International Resource Conflict and Mitigation.” *Journal of Peace Research* 42 no. 1 (January 2005).

Gleditsch, Nils Peter. “Armed Conflict and the Environment: A Critique of the Literature.” *Journal of Peace Research* 35 no. 3 (May 1998).

Gleick, Peter H. “Water and Conflict: Fresh Water Resources and International Security.” *International Security* 18 no. 1 (Summer 1993).

Gleick, Peter H. *Water in Crisis: A Guide to the World’s Fresh Water Resources*. New York: Oxford University Press, 1993.

Greig, J. Michael and Patrick M. Regan, “When Do They Say Yes? An Analysis of the Willingness to Offer and Accept Mediation in Civil Wars.” *International Studies Quarterly* 52 no. 4 (2008).

Grey, David and Claudia W. Sadoff. “Sink or Swim: Water Security for Growth and Development.” *Water Policy* 9 (2007).

Haftendorn, Helga. “Water and International Conflict,” *Third World Quarterly* 21 no. 1 (February 2000).

Hagmann, Tobias. “Confronting the Concept of Environmentally Induced Conflict.” *Peace, Conflict and Development* 6 (January 2005).

Hauge, Wenche and Tanja Ellingsen. “Beyond Environmental Scarcity: Causal Pathways to Conflict.” *Journal of Peace Research* 35 no. 3 (May 1998).

Homer-Dixon, Thomas. “On the Threshhold: Environmental Changes as Causes of Acute Conflict.” *International Security* 16 (1991).

Homer-Dixon, Thomas. “Environmental Scarcities and Violent Conflict: Evidence from Cases.” *International Security* 19 (1994).

Keohane, Robert O. *After Hegemony*. Princeton: Princeton University Press, 1984.

Kimani, Syed S. “Water, Peace and Conflict Management: The Experience of the Indus and Mekong River Basins.” *Water International* 15 (1990).

Kibaroglu, Aysegul. “Water for Sustainable Development in the Euphrates-Tigris River Basin.” *Proceedings of the 2nd Asia Pacific Association of Hydrology and Water Resources Volume II*, Singapore, (5-8 July 2004).

Kibaroglu, Aysegul and H. Olcay Unver, "An Institutional Framework for Facilitating Cooperation in the Euphrates-Tigris River Basin." *International Negotiation: A Journal of Theory and Practice* 5, no. 2 (2000).

Lodgaard, Sverre. “7. Environmental Security, World Order and Environmental Conflict Resolution,” in Nils Petter Gleditsch ed. *PRIO Report* no. 2 (May 1992),

Lowi, Miriam R. “Bridging the Divide: Transboundary Resource Disputes and the Case of West Bank Water.” *International Security* 18 no. 1 (Summer 1993).

Luzi, Samuel. “International River Basins: Management and Conflict Perspectives.” *CSS Environment and Conflict Transformation* (2007).

MacQuarrie, Patrick. “Water Security in the Middle East: Growing Conflict over Development in the Euphrates-Tigris Basin.” *Thesis, M. Phil International Peace Studies.* Trinity College, Dublin. (26 February 2004).

Mason, Simon A. et al. “Linking Environment and Conflict Prevention: The Role of the United Nations.” CSS and swisspeace 2008.

Maxwell, John W. and Rafael Reuveny. “Resource Scarcity and Conflict in Developing Countries.” *Journal of Peace Research* 37 no. 3 (May 2000).

Mbaiwa, Joseph E. “Causes and Possible Solutions to Water Resource Confclits in the Okavango River Basin: The Case of Angola, Namibia and Botswana.” *Physics and Chemistry of the Earth* 29 (2004).

McMichael, Anthony J. *Planetary Overload.* Cambridge: Cambridge University Press, 1993.

Morrow, James D. “Modeling the Form of International Cooperation: Distribution Versus Information.” *International Organization* 48 no. 3 (Sumer 1994).

Murakami, Masahiro. “The Tigris and Euphrates Rivers,” *Managing Water for Peace in the Middle East: Alternative Strategies*. United Nations University Press, 1996.

Postel, Sandra L. “Entering an Era of Water Scarcity: The Challenges Ahead.” *Ecological Applications* 10 no. 4 (August 2000).

Pruitt, Dean G. “3. Mediator Behavior and Success in Mediation,” in *Studies in International Mediation* ed. Jacob Bercovitch. New York, Palgrave Macmillan, 2002.

Reddy, Rahul. “The Indus Water Treaty: It’s Persistence and Prospects.” *The Northwestern Journal of International Affairs* 10 no. 1 (Fall 2009).

Salman, Salman M. A. “International Water Disputes: A New Breed of Claims, Claimants and Settlement Institutions.” *Water International* 31 no. 1 (March 2006).

Simon, Paul. “An Empty Cup, a Threat to Peace,” *New York Times* (14 August 2001).

Selby, Jan. “Oil and Water: The Contrasting Anatomies of Resource Conflicts.” *Government and Opposition* (2005).

Shiklomanov, Igor A. “2. World Fresh Water Resources.” in *Water in Crisis: A Guide to the World’s Freshwater Resources* ed. Peter H. Gleick. New York: Oxford University Press, 1993.

Tir, Jaroslav and Douglas M. Stinnett. “Weathering Climate Change: Can Institutions Mitigate International Water Conflict?” *Journal of Peace Research* 49 no. 1 (2012).

Tir, Jaroslav and John T. Ackerman. “Politics of Formalized River Cooperation.” *Journal of Peace Research*, 46 no. 5 (2009).

Touval, Saadia and I. William Zartman. *International Mediation in Theory and Practice*. Boulder CO: Westview Press, 1985.

Transboundary Freshwater Dispute Database, retrieved from: http://www.transboundarywaters.orst.edu/database/.

Wasi, Nausheen. “Harnessing the Indus Waters.” *IPCS Issue Brief 28* (September 2009).

Wolf, Aaron T. “Criteria for Equitable Allocations: The Heart of International Water Conflict.” *Natural Resources Forum* 23 no. 1 (February 1999).

Wolf, Aaron T. “Middle East Water Conflicts and Directions for Conflict Resolution." *2020 Vision Initiative Monograph #12*, International Food Policy Research Institute, (1996).

Wolf, Aaron T. et al, “5. Managing Water Conflict and Cooperation.” *State of the World 2005: Redefining Global Security*. W.W. Norton & Company: New York, 2005.

Wolf, Aaron T. and Joshua T. Newton, “Case Study of Transboundary Dispute Resolution: The Indus Water Treaty.” Appendix C in, Delli Priscoli, Jerry and Aaron T. Wolf. *Managing and Transforming Water Conflicts*. Cambridge: Cambridge University Press, 2008.

Wolf, Aaron T. and Joshua T. Newton, “Case Study of Transboundary Dispute Resolution: The Tigris-Euphrates Basin.” Appendix C in, Delli Priscoli, Jerry and Aaron T. Wolf. *Managing and Transforming Water Conflicts*. Cambridge: Cambridge University Press, 2008.

World Bank. *Indus Waters Treaty*. (19 September 1960).

Yoffe, Shira B. and Aaron T. Wolf. “Water, Conflict and Co-operation: Geographical Perspectives.” *Cambridge Review of International Affairs* 12 no. 2 (Spring/ Summer 1999).

Zawahri, Neda A. “Stabilizing Iraq’s Water Supply: What the Euphrates and Tigris Rivers Can Learn from the Indus.” *Third World Quarterly* 27 no. 6 (2006).

Zawahri, Neda A. “Third Party Mediation of International River Disputes: Lessons from the Indus River.” *International Negotiation* 14 (2009).

Zawahri, Neda A. and Andrea K. Gerlak, “Navigating International River Disputes to Avert Conflict.” *International Negotiation* 14 (2009).

Zeitoun, Mark and Jeroen Warner. “Hydro-hegemony: A Framework for Analysis of Trans-boundary Water Conflicts.” *Water Policy* 8 (2006).