COOPERATION AMONG ADVERSARIES: MANAGING TRANSBOUNDARY WATER DISPUTES IN CONFLICT SETTINGS

BY

SHANTARENE SHUNGUR

DEPARTMENT OF POLITICAL SCIENCE
McGILL UNIVERSITY, MONTREAL
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Dissertation Supervisor: Professor Michael Brecher

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ABSTRACT OF THE DISSERTATION

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Intrigued by the observation that enduring, task-based water treaties have, surprisingly, emerged within protracted conflict settings that lock the riparians in a deadly embrace, I constructed an interdisciplinary theoretical framework to explain the causes of riparian conflict, and the conditions for riparian conflict resolution. Drawing on the literature from international relations, comparative politics, resource economics and public choice theory, I explain how the constraints posed by ecological forces in a conflict setting, and the political opportunities presented by a particular economic-developmental context shape the decisions of policymakers during the negotiation process that precedes regime emergence.

Next, a model is developed that first illustrates the causal pathways among five independent variables, (water scarcity mode, critical environmental threshold, riparian position, state power profile and sustainable development of water resources); three contextual variables, (conflict setting, economic-developmental level, economic-developmental crisis) and the dependent variable of riparian conflict. The pathway is then extended with the addition of two more contextual variables (negotiation structure and strategy) to explain the second dependent variable of regime emergence. Eight hypotheses are then theoretically derived and tested with specifics from four cases

covering both developing and developed state riparian conflicts within protracted and non-protracted settings. The Middle East, South Asian, and North American regions are thus studied.

It was evident that the degree of water scarcity has either conflict enhancing or conflict mitigating properties depending upon the patterns of interaction among the variables. Both contextual variable clusters had theoretically significant effects on the nature of the regime. I inferred that the state formation dynamic influenced the economic-developmental context in which water policy is formulated and shaped the domestic configuration of water interests. It appears that the influence of rent-seeking groups opposed to a transboundary water treaty wax and wane once critical environmental thresholds, which aggravate or cause an economic-developmental crisis, are exceeded (especially in the most powerful state). This, along with other economic, international and geographic factors, ultimately, alters the preferences of the policymakers to enable compromise at the international level. A state's institutional capacity to adopt a more sustainable water usage pattern is also relevant in this regard.

ACKNOWLEDGEMENTS

This dissertation is the result of several years of intense research and writing that benefited from the comments and critiques of some very special people. I am eternally grateful for the priceless insights of my mentor, Professor Michael Brecher, whose formidable intellectual stature is rivaled only by his profound wisdom. I remain indebted to him for his tireless and meticulous attention to detail during numerous drafts of the work.

Completion of this work has entailed notable sacrifices on the part of my husband, Ramesh Srinivasan. His support and encouragement throughout this process is cherished.

I am thankful to my friend, Mr. Hari Angepat, P.Eng., who resolved the technical software problems that besieged earlier drafts. Without his timely professional advice, I would still be battling computer viruses instead of analyzing water disputes.

Finally, I am grateful to my parents for lending their ears when I simply needed to think aloud.

LE RÉSUMÉ DE

LA COOPÉRATION PARMI LES ADVERSAIRES : GERANT LES CONFLITS INTERNATIONALE D'EAU

par **SHANTARENE SHUNGUR**

Pour le degré de doctorat, le département de sciences politiques,

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le 2005 OCTOBRE

Intrigué par l'observation que les traités limités sur l'eau qui survive, ont, étonnamment, émergé dans les cadres de conflit prolongés qui enfermes les ennemies riverains dans une étreinte mortelle, j'ai construit une structure théorique interdisciplinaire pour expliquer les causes de conflit riverain, et les conditions pour la résolution. Utilisant la littérature des relations internationales, la politique comparative, la science économique de ressource et la théorie de choix publique, j'explique comment les contraintes posées par les forces écologiques dans un cadre de conflit, et les occasions politiques présentées par un contexte économique-développemental particulier forment les décisions de décideurs pendant le processus de négociation qui précède l'apparition de régime.

Ensuite, un modèle est développé ce qui illustre premièrement les sentiers causaux parmi cinq variables indépendantes, (le mode de rareté d'eau, le seuil écologique critique, la position riveraine, le profil de pouvoir d'état et le développement viable de ressources d'eau); trois variables contextuelles, (le cadre de conflit, le niveau économique-développemental, la crise économique-développemental) et la variable dépendante de conflit riverain. Le sentier s'est alors étendu avec l'addition de deux variables contextuelles (la structure de négociation et la stratégie) pour expliquer la deuxième variable dépendante d'apparition de régime.

Huit hypothèses sont alors théoriquement tirées et évaluées avec les exemples précis de quatre cas des conflits riverains couvrant les pays en voient de développement et les pays développés dans les cadres de conflit prolongés et non prolongés. Le Moyen-Orient, les régions sud asiatiques et Nord-américaines sont ainsi étudiées.

Il était évident que le degré de rareté d'eau peut aggraver ou atténuer le conflit selon les dessins d'action réciproque parmi les variables. Les deuxièmes groupes variables contextuels avaient des effets théoriquement significatifs à la nature du régime. J'ai déduit que la formation d'état dynamique a influencé le contexte du développement économique dans lequel la politique d'eau est formulée et a formé la configuration domestique d'intérêts d'eau. Il semble que l'influence de groupes cherchant-loyer opposés au traité d'eau transfrontalier diminue une fois les seuils critiques de l'environnement, qui aggravent ou provoquent une crise du développement économique, est excédés (surtout dans l'état le plus puissant). Cela, avec d'autres facteurs économiques, internationaux et géographiques, finalement, change les préférences des décideurs pour permettre le compromis au niveau international. La capacité institutionnelle d'un état pour adopter un dessin d'usage plus durable d'eau est aussi pertinente

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CHAPTER 1: INTRODUCTION

During a protracted conflict, which engages states in a bitter and enduring struggle over territory and/or other core values, one tends, erroneously, to dismiss the prospects for even a limited form of inter-state cooperation on the distribution and management of a resource more vital than oil—transboundary water. The fact is, however, that task-based regimes for managing transboundary water have emerged within protracted conflict settings and have, surprisingly, endured despite the periodic outbreak of international crises and wars between the adversarial dyads. To facilitate a clear understanding of how limited cooperation results under conditions that are least conducive to regime emergence, such as the absence of both common values and benign inter-state relations, I shall consider the hydropolitical origins of riparian conflict and its conceptual links to economic-developmental (E-D) and traditional military-security (M-S) crises between states. Only then will we appreciate how the constraints posed by ecological forces in a conflict setting, and the political opportunities presented by a particular economic-developmental context, shape the decisions of policy-makers during the negotiation process.

Implicit in this formulation is the assumption that the E-D context is a function of the state formation dynamic and the resultant trajectory of development. Consequently, the initial configuration of domestic water interests may reflect the country's pre-state alliances. Since negotiation success depends on the state's ability to neutralize the negative effect of rent-seeking coalitions opposed to a transboundary water regime, the economic and environmental impetus for reallocating water to more efficient uses must be examined.

In sum, two research questions will guide this dissertation and the derivation of hypotheses from theory constructed from the literature on international relations. These hypotheses will be grounded in the principles of hydrology and resource economics to explain the causes of riparian conflict and the conditions for regime emergence in a protracted conflict setting:

1. What are the theoretical relationships among riparian conflict, economic-developmental crisis and military-security crisis? Implicit in this question is the assumption that such linkages warrant academic attention because of their policy relevance for dispute resolution.
2. Under what environmental, economic, and political conditions will bilateral or multilateral negotiations over the management of transboundary water result in the emergence of a limited or basin-wide regime?

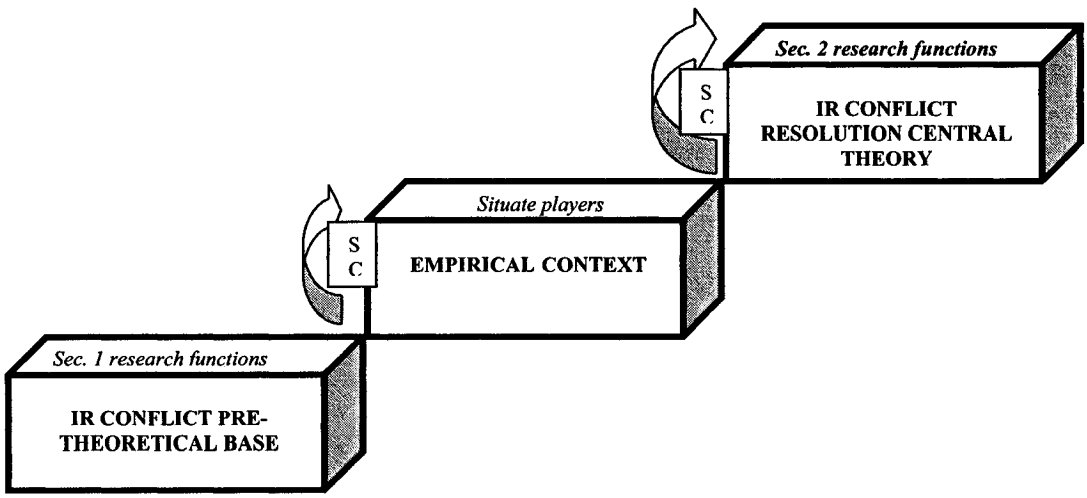
RESEARCH OVERVIEW

Table I: BLOCKS OF THEORY AND THE EMPIRICAL LINKS BETWEEN THEM

Section:	**IR CONFLICT PRE-THEORY** **Section 1**	**THE EMPIRICAL CONTEXT** **Preface to Section 2**	**IR CONFLICT RESOLUTION CENTRAL THEORY** **Section 2**
Research Function:	Explain links among riparian conflict, E-D crisis, and M-S crisis to explain the causes and implications of riparian conflict.	Define and measure hydrological and economic insecurity in order to situate the players influencing the negotiation process.	Determine the conditions for the emergence of a limited water regime in a protracted conflict setting.
Theoretical or Empirical Factors Addressed:	• ICB conceptual domain • ICB application to include riparian disputes as a subset of E-D crisis • Link between hydroclimatic forces and the onset of E-D crisis	• Examine unsustainable and sustainable development trajectories. • Determine critical environmental thresholds	• Alternative perspectives on regime emergence: realism, neo-liberal institutionalism, and modified hegemonic stability theory. • Two-level games: domestic and international game boards • Negotiation theory
Hypotheses Generated:	**H1**	**H2, H3, H4**	**H5, H6, H7, H8**

The independent, contextual, and dependent variables used to construct the hypotheses are derived from the theoretical literature on IR conflict, Comparative Politics and Resource Economics, and IR conflict resolution. Two tasks presuppose the specification of the relationships among the variables: first, the theoretical and empirical structure of the dissertation will be discussed; second, the methodological issues peculiar to the environmental conflict research program will be addressed. This will explain why many variables are involved in the construction of rather complex hypotheses.

Figure 1: THEORETICAL AND EMPIRICAL BUILDING BLOCKS



In this illustration, SC refers to the scope conditions that are generated once the preceding section's research functions are performed. These conditions shape the trajectory of subsequent inquiry represented by the blocks labeled Pre-theoretical base, Empirical Context, and Central Theory in the diagram above. It should be noted that the Base and the Central Theory correspond to the two research questions guiding this study; whereas, the Empirical block, which addresses environmental and economic variables, links the two and is properly regarded as a preface to the Central Theory block. The variables derived from the Empirical block also have theoretical antecedents. Thus, the Comparative Politics and Resource Economics literature will guide the choice of variables focused on here. Each pictorial block has the same volume to reflect the equal weight assigned to each source of explanation. In other words, I do not privilege the insights of one theory of international conflict and cooperation over another. Rather, an

attempt is made to reconcile seemingly divergent insights by grounding the theory in an empirical context. The underlying assumption of this approach is that the development of finely textured theory that still retains some predictive power depends on the encounter between theory and evidence. Theories, conceived of in the abstract, can be made more useful if they are forced to address the complexities of environmental scarcity in a given political and economic-developmental context. Ultimately, the performance of the research functions in Section 2 means that the central dissertation research question is answered.

The rationale for adopting this theoretical edifice is derived from the realization that power centered theories do not adequately account for interstate cooperation during the relatively tranquil phases of a protracted conflict setting and in the post-conflict setting. Moreover, such theories do not explain cooperation initiated by the most powerful state when such a state enjoys both superior power and upper riparian status. Power-centered theories must therefore be augmented with resource economic and public choice theory to account for interstate cooperation during the relatively tranquil phases and in the post-conflict setting. This implies a refusal to be incarcerated in the intellectual prison of either the International Relations or Comparative Politics sub-field. Putnam's two-level game metaphor is employed to that end because it draws attention to the effect of domestic variables on state preference formation during international negotiations. To avoid merely cataloguing a host of domestic variables, I employ the method favored by Historical Institutionalists. I focus on how the state formation dynamic influences the economic-developmental context in which water policy is formulated. By studying the water policy process over several temporal domains, I can

determine how profound economic and environmental change affects the power and influence of sectoral water interests to ultimately alter the policy preference set of the political elite, despite the presence of bureaucratic inertia and bureaucratic capture by vested interests. Although the ability of politicians to implement change is constrained by bureaucratic behavior, the changes at the international level (i.e.) peace processes with adversaries, end of great power rivalry etc., can have positive reverberations in the domestic realm that enable leaders to reduce bureaucratic impediments. This approach is designed to account for change despite the 'realist" structural environment and will reveal how the constraints posed by ecological forces in a conflict setting, and the political opportunities presented by a particular economic-developmental context, shape the decisions of negotiators in the regime formation process.

Having specified the theoretical and empirical structure of the study in the illustration above, let us consider the Methodology and Case Selection rationale.

NAVIGATING TURBULENT METHODOLOGICAL WATERS

The methodological ills plaguing the environmental conflict and resolution research program stems from the multi-collinearity of the independent variables explaining the dependent variables of riparian conflict and regime emergence. As such, none of the causes is sufficient, but all may be necessary. In other words, no single cause can produce the dependent variables. As Thomas Homer-Dixon wrote, this problem is compounded by the very nature of environmental scarcity induced riparian conflict. Since the link between cause and effect exhibits non-linearity, a seemingly peripheral environmental factor can trigger a disproportionately large response in the ecological-

political system by pushing it beyond a critical threshold.[1] Floods and droughts can therefore be important triggers of domestic conflicts that may spread to the international domain if additional factors exist. Ultimately, these features of environmental scarcity and conflict necessitate the construction of complex hypotheses in which several scope conditions in the form of intervening/contextual variables actually form a part of the independent variable cluster.[2] Dixon maintained that, if an adequate number of scope conditions are specified, then it is possible to identify a *jointly necessary* set of causes. I hope to employ this insight in this dissertation by utilizing the process tracing method. While it is true that this approach will not generate covering laws applicable across time and space, it may enable researchers to make contingent, nuanced explanations about the complex linkages among independent, contextual, and dependent variables characteristic of environmental conflict cases.

To illustrate the links among the independent, contextual, and dependent variable clusters, I have constructed the following diagram, labeled Figure 2: Causal Pathways. In the diagram, the dependent variables are riparian conflict, and regime emergence (either limited or basin-wide regime). While some of the independent and contextual variables are a function of the state formation dynamics in each state **(denoted by an asterisk in the corresponding text box)**, the Economic-Developmental Crisis contextual variable is a function of the independent variables as well.

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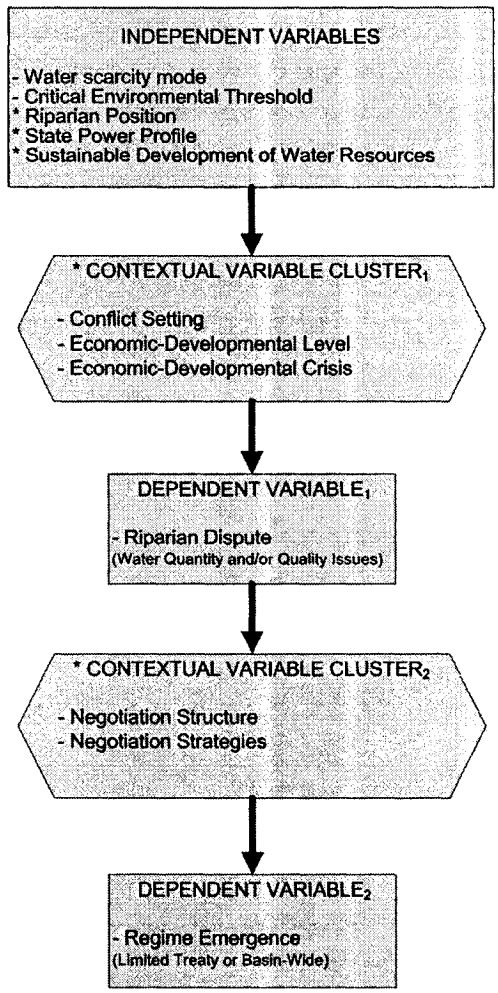
[1] Thomas Homer- Dixon, "Strategies for Studying Causation in Complex Ecological-Political Systems," Occasional Paper, Project on Environment, Population and Security (Washington, D.C.: American Association for the Advancement of Science and the University of Toronto) June 1995, p. 11.
[2] Charles Ragin, The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies (Berkeley, CA: University of California Press, 1987) pp. 23-30. As cited in Dixon, op.cit, p.11.

Figure 2: CAUSAL PATHWAYS



OPERATIONALIZATION OF KEY VARIABLES

Independent Variables:[3]

Riparian Status: Riparian status refers to the state's position relative to other riparians on the waterway. Thus, there are three positions: Upper, Middle, and Lower. The middle and lower riparians are considered downstream states relative to the upper riparian.

Power: In this study, the ICB (International Crisis Behavior) actor level quantitative indices for power will be utilized. According to Brecher and Wilkenfeld, "the index is composed of measures of human, territorial, and material resources available to the actor at the time of an international crisis. It comprises six elements and is computed additively once the following categories are established: population size, GNP, territorial size, alliance capability, military expenditure, and nuclear capability. The relational aspect of power is captured in their power discrepancy measure. It is an index based on the power attributes of a state compared to the power of its principal adversary or adversaries. The scores for power discrepancy are grouped thus: positive PD where state (a)'s power is >than the adversary; negative PD where state (a)'s power is <than the adversary. In addition, it is possible to have high positive PD, low positive PD power parity, low negative PD, and high negative PD."[4]

Independent Variables[5]:

Water Scarcity Mode: Developed by Malin Falkenmark, the modes labeled A-D refer to the mechanisms through which the following natural and human-induced factors result in ecological catastrophe.[6].

A. Absence of green water
B. Intermittent droughts
C. Anthropogenic desiccation of landscape due to soil vulnerability
D. Absence of blue water (endogenous and exogenous) leading to water stress and chronic scarcity due to population explosions.

Critical Environmental Threshold: In this study, the FAO's indicators of high water stress, medium to high stress, and water stress will be used as measures of critical environmental thresholds. Water stress indicators are relative terms. It is expressed as ratio of use to supply. Thus, high stress occurs when the ratio exceeds 40%. Such a usage pattern is unsustainable and impedes economic growth. Medium stress occurs

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[3] Derived from IR Conflict Pre-theoretical Base
[4] Michael Brecher and Jonathan Wilkenfeld, A Study of Crisis (Ann Arbor, MI.: University of Michigan Press, 1997) pp. 54-55.
[5] Derived from Preface to Section 2, and the Empirical Context Block
[6] Jan Lundqvist et al, "Sustaining our Waters into the 21st Century", Background Document Prepared for the Comprehensive Assessment of the Freshwater Resources of the World, Stockholm Environmental Institute, 1997, p. 20.

when use exceeds 20% of supply, and water stress occurs when withdrawals exceed 10% of supply. Absolute shortage, by contrast, is not relative, and is primarily a function of hydro-climatic conditions. There are limited remedies in this case, apart from strict conservation and a dependence on the trade of virtual water. A severe constraint on socio-economic development occurs when there is less than 1000 cubic meters per head per year. At less than 2000 cubic meters, a serious constraint on economic development exists which becomes a major problem in drought years. (FAO, 1993).

Sustainable Development of Water Resources Variable: Sustainable development of water resources implies that renewable water resources are used without exhausting the natural stocks available for future generations and the ecosystem itself. Surface water sustainable flow regimes determine the volume and pattern of water diversions from a river that include social, economic and environmental needs. This variable captures the essence of the resource extraction and allocation policies of the state. "Cumulative withdrawals from a river can be limited to 10% of its daily flow and prohibited during low flow periods for sustainable water management in relatively water abundant areas."[7] This percentage would increase in more water stressed areas up to 20%. A related concept is Groundwater sustainable yield. This refers to the volume of water extracted over a specific time frame (measured as millions of m3/year) that should not be exceeded to protect the higher social, environmental and economic uses associated with the aquifer.[8]

CONTEXTUAL VARIABLE CLUSTER$_1$:[9]

Conflict Setting: protracted conflict, foreign policy crisis, international crisis and war.[10]

Economic-Development Level: The World Bank's criteria for evaluating the development level of a state will be used. Thus, developing states have low ($745 or less) to lower middle gross national income {GNIs} ($746-$2975). By contrast, developed states have either upper middle ($2976-$9205) or high GNI's ($9206+). In addition, ratios of debt to GNI determine the indebtedness of each nation. Hence, severe debt means the debt service to GNI exceeds 50%, the debt to export ratio is 275%, the debt service to export ratio is 30%, and the interest to export ratio is 20%. If three of these four ratios are above critical levels, then the state is coded as severely indebted (SI.) By contrast, if either of two of these ratios exceeds 60% without reaching critical levels, then the state is coded as moderately indebted (MI)

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[7] Sandra Postel and Brian Richter, Rivers for Life: Managing Water for People and Nature, (Washington, DC: Island Press, 2003) http://www.issues.org/issues/20.3/richter.html

[8] {http://www.deh.gov.au/soe/2001/inland/glossary.html}

[9] Derived from IR Conflict pre-theoretical base and the Empirical Context Block.

[10] Brecher and Wilkenfeld, op.cit., pp. 1-7.

Economic-Developmental Crisis:[11]

DEPENDENT VARIABLE$_1$:[12]

Riparian Conflict: Conflict between two more states sharing transboundary water resources. The conflict can be concerned with water quantity and/water quality issues.

CONTEXTUAL VARIABLE CLUSTER$_2$:[13]

Negotiation Structure: A bilateral negotiation occurs between two riparians while a multilateral negotiation occurs among more than two riparians.

Negotiation Strategies in the two-level game scenario: The tactics and/or policies adopted at the international and domestic level by states to advance their preferences and enter a zone of agreement. This idea is operationalized at the international level bargaining arena as:

1. Linkage tactics
2. Incentive Schemes.

At the domestic level, some of the policies that affect the International Level I winset are:

1. Maintain an inefficient status quo
2. Discover new sources of water supply
3. Reallocate Water to more efficient uses with:
4. Water pricing to reflect its true value,
5. Irrigation Management Transfer,
6. Conservation and/or Anti-Pollution measures
7. Water market regulation
8. Virtual water (obtain water intensive goods from the international market)

DEPENDENT VARIABLE$_2$:[14]

Limited Task-Based Regime: A substantive treaty designed to manage the allocation and/or quality of transboundary water between some of the riparian states in conflict.

Pareto-Optimal Basin-Wide Regime: A treaty designed to manage the allocation and/or quality of transboundary water among all basin-wide riparians in an integrated fashion. Pareto-optimal in this context refers to that point on the efficiency curve beyond which no more joint gains can be made by the states involved.

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[11] Michael Brecher, "Toward a Theory of International Crisis Behaviour: A Preliminary Report," International Studies Quarterly, 21, 1 (March 1977), p.44. Also see pp. 28-30 of this dissertation for an augmented definition of the concept, Economic-Developmental Crisis.

[12] Derived from IR Conflict theory and Empirical Context Block. Note that the nature of the Riparian Conflict (water quality versus water quantity) affects the character of the regime that emerges.

[13] Derived from IR Conflict Resolution Theory Block and the Empirical Context Block.

[14] Derived from IR Conflict Resolution Theory Block.

CASE SELECTION CRITERIA AND METHOD OF CASE ANALYSIS

Since a crucial aspect of this study involves an examination of whether economic-developmental crises, aggravated by transboundary riparian disputes, will ultimately result in the emergence of task-based regimes within protracted conflict settings, it is essential that the cases selected cover both developed and developing states, and cases in non-protracted settings as well. To operationalize the dependent variable, task-based regime, I shall focus on the substantive nature of the treaty or cooperative arrangement. In this way, I hope to avoid coding the mere emergence of a treaty without teeth as the emergence of a task-based regime. As such, the following cases will be studied:

Developing States Riparian Conflicts:

- The India-Pakistan dispute over the Indus River and its tributaries in a protracted conflict setting.
- The Israel-Jordan dispute over the Jordan River and its tributary, the Yarmuk, in a protracted conflict setting.
- The Turkey-Syria-Iraq dispute over the Tigris and Euphrates in a non-protracted conflict setting with a threat of war.

Developed States Riparian Conflict:

- The Canada-US dispute over the Great Lakes and St. Mary and Milk rivers in a non-protracted setting without a threat of war.

Each of these cases will be analyzed by focusing on the following dimensions:

1. **The structure of the environmental problem**, i.e., common pool-resource cases where environmental damage is distributed evenly versus upstream-downstream situations in which there is damage in one direction. Special attention will be paid to the human activities shaping the problem

structure. Hence, Thomas Bernauer's typology of water use and effect will be employed:[15]

TYPOLOGY OF WATER USE AND EFFECT:

Water Use Category	Downstream Effects
Hydro-electricity production	Creates peaks, reduces water flow, hinders navigation, and affects migratory species.
Irrigation	Removes water from the system, adds pollution and salinity
Municipal and Industrial water use	Removes water from the system and adds pollution
Agriculture	Adds sediment and chemicals, and nutrients
Forestry	Adds sediments and chemicals, increases runoff
Filling Wetlands	Reduces ecological carrying capacity, increases the magnitude of floods.
Fishing	Reduces fish stock

2. Analysis of the socio-economic effects of environmental deterioration by focusing on the nature of the water scarcity mode involved.[16]
3. Analysis of the international political implications of such environmental and economic deterioration including, a determination of whether the economic-developmental (E-D) crisis has escalated to an international Military-Security (M-S) crisis.
4. Analysis of economic developmental levels that allow policy-makers to solve the problems posed by a given problem structure. This necessitates

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[15] Thomas Bernauer, "Explaining Success and Failure in International River Management," Aquatic Sciences, Spring 2002, p.26.

[16] See p. 21 of this document for an explanation of Falkenmark's water scarcity modes.

an examination of the effect of the state formation dynamic on the E-D context and will reveal the policy preference set of decision-makers.

5. Analysis of the nature of the negotiation strategies employed to overcome structural problems. It is here that Putnam's winset theory will be utilized. One methodological weakness of this approach, however, is the tendency to conflate problem structure with a negotiator's bargaining strategy. Thus, it is difficult to determine whether it was the problem structure, which inhibited regime formation, or whether the strategy of the key negotiator was responsible. To address this issue, therefore, I have chosen cases having similar problem structures, similar economic development levels, and similar institutional settings, yet different negotiation strategies.

BRIEF SYNOPSIS OF EACH CASE

I shall present a comparative study of: the India-Pakistan water dispute, which culminated in the Indus Waters Treaty of 1960; the Israel-Jordan water dispute, which resulted in tacit compliance with the 1953 Unified Plan proposal and the 1994 Treaty of Peace between Israel and Jordan; and the on-going, water dispute between Turkey and the downstream riparians, Syria and Iraq. Finally, a study of the Canada-US dispute over the Great Lakes and St. Mary and Milk rivers, which resulted in the 1909 Boundary Waters Treaty, and the 1987 Protocol that embraces the eco-system approach to environmental management, will reveal the importance of the economic-developmental contextual variable in explaining regime emergence.

While the Indus treaty was the outcome of eight years of discussion and negotiation between the governments of India and Pakistan, carried on under World Bank auspices, the tacit and, later, formal agreement between Israel and Jordan was the result of US mediation efforts. The Indus Treaty was a remarkable achievement considering that the political atmosphere was polluted by strong feelings of hostility and bitterness rooted in the partition of the subcontinent. In several respects, this case exhibits the characteristics of other transboundary water disputes. The larger conflict setting, the emergence of a limited task-based regime, the role of third party mediation, and the fact that the more powerful state, India, did not enjoy both hegemonic status and upstream

riparian status are factors prevalent in the Israeli-Jordan water dispute as well.[17] The India-Pakistan case is thus instructive.

The Euphrates Basin is an interesting case primarily because the riparian dispute between Syria and Iraq led to a full-scale military-security crisis between those states in 1974 that deescalated with Saudi mediation. Since downstream flow to Iraq had dropped precipitously following the construction of dams in both Turkey and Syria from 1973-74, tensions among the riparians threatened to break out in violence. Currently, the development of Turkey's GAP (Southeast Anatolia Development Project) threatens to affect profoundly downstream water allocations and quality. To date, the issue remains unresolved despite numerous meetings among high-level officials from all three states. Nevertheless, I argue that the potential for resolution is aided by the economic changes within Turkey, specifically irrigation management transfer (IMT), which should enable a sectoral reallocation of water to more efficient uses and thus enlarge the Level II winset. The fact that Turkey and Syria have just concluded an unprecedented Free Trade Agreement in December 2004 that has a significant water component concerning Orontes river development suggests additional cooperation could occur. The Turkey-Syria-Iraq case will be studied as the control case since it has an environmental problem structure that is similar to both the India-Pakistan and Arab-Israel cases, but occurs within a non-protracted conflict setting, as defined by ICB.

Finally, the US-Canada negotiations between 1905 and 1909, which resulted in the creation of the International Joint Commission (IJC) under the 1909 Boundary Waters

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[17] See M. Lowi's, Water and Power (U.K: Cambridge University Press, 1995) for an illuminating study of the Israeli-Jordan water dispute, which culminated in tacit compliance with the 1953 Unified Plan proposal sponsored by the United States, and formal accession to the Israel-Jordan Peace Treaty Annex II signed in 1994.

Treaty, and the 1987 Protocol[18] that addresses water quality and water quantity matters, involving all transboundary waters on the US-Canada frontier, will be studied. First, the world's largest body of fresh water, the Great Lakes, will be discussed since its "enormous conflict potential was transformed into a model of interstate environmental cooperation by the International Joint Commission (IJC)."[19] Next, the Mary and Milk Rivers dispute of the 1900s will be examined to illustrate how conflict over these rivers catalyzed transboundary water regime emergence along the entire frontier by moving Level I negotiations to phase II of the negotiation process. Then, the Columbia River dispute will be discussed tangentially to illustrate the effect of irrigation management transfer on the sectoral reallocation of water to more efficient uses and its reverberations on the Level I game of transboundary water cooperation. Thereafter, the 1972 Great Lakes Water Quality Agreement, its 1987 Protocol, and the complexities of the Great Lakes Charter Annex of 2001, developed at the sub-national level to enhance the robustness of the international regime, will be examined. The IJC regime has effectively operated for over ninety years and is a symbol of what can be done to resolve riparian disputes.[20] Since the signatories are both developed states that enjoy peaceful interstate relations, one expects that the process of regime formation is quite different from that in protracted conflict settings involving developing states. In addition, the case warrants attention, for the long frontier has various environmental problem structures.

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[18] A discussion of the Great Lakes 2001 Charter Annex drafted by the eight Great Lakes Governors and two Provincial Premiers will illustrate the complexities of multilateral negotiations at the sub-state level and will reveal how the IJC regime has spawned dense cooperative relationships at the sub-state level between Canada and the USA.

[19] "The IJC and the 21st Century" {http://www.ijc.org/php/publications/html/21ste.htm}

[20] Gerald E. Galloway and Murray Clamen, "The IJC: A Model of Cooperation in Dealing with Boundary Waters and Transboundary Environmental Issues," Water Resource, IMPACT, 3,2 (March 2001) {Http://www.avra.org~awra/impact/0103impact.pdf}

In the final chapter of the dissertation I shall briefly outline the riparian dispute and conflict resolution outcomes in the Nile and Danube River basins to lend additional empirical support to this study. Although the riparians in both basins have "suffered the slings and arrows of outrageous fortune,"[21] the countries along the Danube have utilized their environmental, economic, and political obstacles as stepping stones for integrated basin development. On the other hand, the Nile riparians have been unable to surmount the challenges of transboundary water sharing in a basin characterized by vast natural and economic resource disparity. Rapid population growth, violent ethnic conflict, and staggering poverty, combined with severe water scarcity in the Lower Nile, make this dispute difficult to resolve. In short, both the Nile and Danube cases exhibit the extremes of conflict and cooperation in their international relations.

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[21] I employ these memorable words from Hamlet's "To be or not to be" soliloquy from Act III, Scene I of Shakespeare's play because it underscores the impact of the tough hand dealt by History. The Danube riparians have been at the center of world wars and the dissolution of empires. Similarly, the Nile riparians have suffered from the profound effects of colonialism and ethnic strife. See {http://www.shakespeare-online.com/plays/hamlet_3_1.html} line 60 for the Hamlet citation and lines 54-98 for the entire soliloquy.

CHAPTER 2: THE THEORETICAL FRAMEWORK

SECTION 1: IR CONFLICT, PRE-THEORY

In keeping with the Lakatosian[22] conception of a research program that leads to the cumulation of knowledge and explains new facts not explained by previous theory, I shall extend the ICB domain of conflict developed by Brecher and Wilkenfeld in the ICB project by operationalizing the category of 'Economic-Developmental' crises of which riparian disputes are an important subset. Thereafter, I shall augment the theory with insights from the sustainable development literature relating to the hydrological cycle, and two-level game analysis.

An overview of the ICB conceptual framework presupposes a definition of an economic-developmental crisis (hereafter E-D crisis) because the former establishes the constraints that policy-makers must face when confronting the resolution of riparian disputes within E-D crises at the international level. It should be noted that a crucial theoretical link between the existence of a riparian dispute within an economic-developmental crisis and its partial resolution within a protracted conflict setting is the nature of environmental threats in general. Since limited environmental changes in a

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[22] I. Lakatos and A. Musgrove eds. Criticism and the Growth of Knowledge (Cambridge: Cambridge University Press, 1970).

particular direction, due to scarcity and overuse for example, can have cataclysmic effects (such as Malthusian catastrophe) once critical environmental thresholds are passed, policy-makers are faced with two options: escalate the riparian conflict and risk catastrophe or seek cooperation.[23] Arguably, it is this stark reality that may explain the cooperation-inducing feature of water in riparian conflict. To appreciate this phenomenon, therefore, I shall incorporate this insight from catastrophe theory into the theoretical framework.

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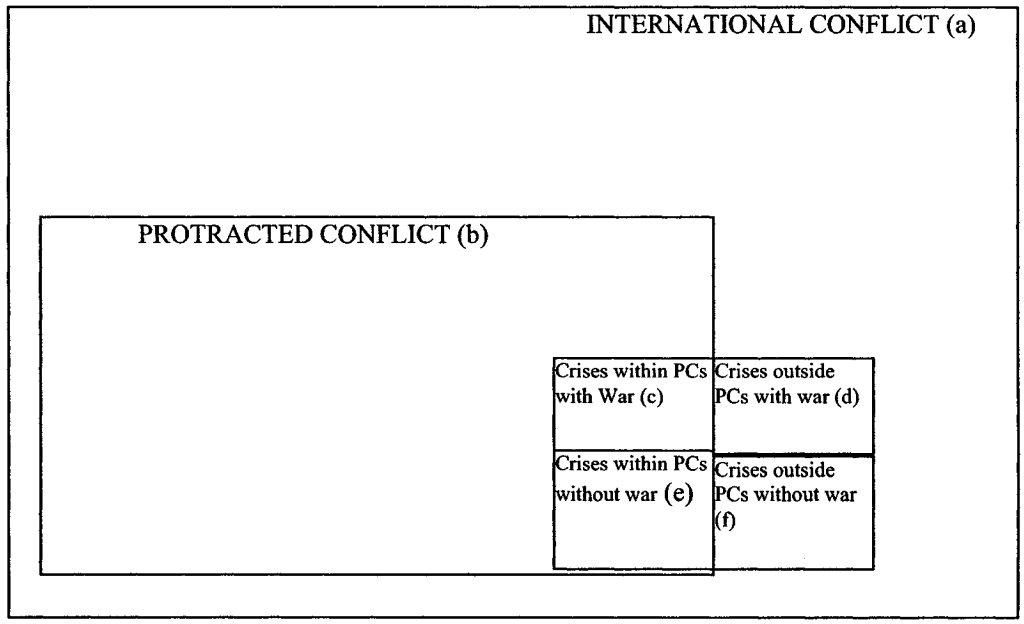
[23]E. Zeeman was one of the first mathematicians to cite the relevance of Rene Thom's catastrophe theory to the study of behavioral science. E.C. Zeeman, "Catastrophe Theory," Scientific American, 234 (April 1976), pp. 65-82, and Rene Thom, Structural Stability and Morphogenesis: An Outline of a General Theory of Models (Reading: Benjamin, 1975). Rudolph Rummel has applied catastrophe theory to his "power kills" project to determine the structure of conflict and cooperation in international relations. He operates from Zeeman's assumption that small perturbations can cause discontinuous effects in a dynamic system. See R.J Rummel, "A Catastrophe Theory Model of the Conflict helix, with Tests," {Http://www.Hawaii.edu/powerkills/CAT.ART.HTM} Similarly, Frederick Frey cites the "Catastrophe Theory" of sociology, which describes how small changes in a social structure, once begun, can develop and increase quickly, much like the effects of resonating sound waves amplifying to shatter a wineglass: The tension and threat (of transnational water shortage) can apparently be resolved either by sharply escalating the conflict or by accepting the necessity of some form of cooperation, as cited in Frey, "The Political Context of Conflict and Cooperation over International River Basins," Water International,, 18, 1993, pp. 54-68.

THE ICB CONCEPTUAL DOMAIN

Figure 3: ICB_1: THE CONCEPTUAL RELATIONSHIPS AMONG CRISIS, PROTRACTED CONFLICT AND WAR.[24]



A protracted conflict is defined as a "condition of prolonged dispute over one or more issues with the spillover effects of cumulative crises between the same adversaries. Operationally, for a conflict to qualify as a protracted conflict, there must be at least three international crises between the same pair of adversaries over one or more recurring issues during a period of at least five years."[25] According to Brecher and Wilkenfeld, an international crisis erupts when there is a change in type and/or an increase in intensity of disruptive, that is, hostile, verbal or physical interactions between two or more states,

[24] Michael Brecher and Jonathan Wilkenfeld, A Study of Crisis (Michigan: University of Michigan Press, 1997), p. 7.
[25] Ibid, p. 6.

with a heightened probability of military hostilities; that, in turn, destabilizes their relationship and challenges the structure of an international system—global, dominant, or subsystem.[26] An international crisis is triggered by a disruptive act or event, which then creates a foreign policy crisis for one or more states. The foreign policy crisis of an individual state occurs when the following necessary and sufficient perceptual conditions are met which derive from a change in the state's internal or external environment:[27]

- a threat to core values
- an awareness of finite time for response
- a heightened probability of involvement in military hostilities.

The fact that a foreign policy crisis can emerge due to a change in the state's internal or external environment implies that economic and developmental deterioration aggravated by riparian conflict could play a role in contributing to such an environmental change. The extension of the ICB domain to address the dimensions of an economic-developmental crisis is, therefore, a logical step since E-D crises can trigger the military-security crises, which are of central concern in the ICB project. Figure 4 below, labeled ICB application, illustrates the extension of the ICB domain: box A represents E-D crises due to, or aggravated by, riparian conflict within PCs without war; box B represents E-D crises due to, or aggravated by, riparian conflict within PCs with war; box C represents E-D crises due to, or aggravated by riparian conflict in non-PC settings with war; and box D represents E-D crises due to or aggravated by, riparian conflict in non-PC settings without war:

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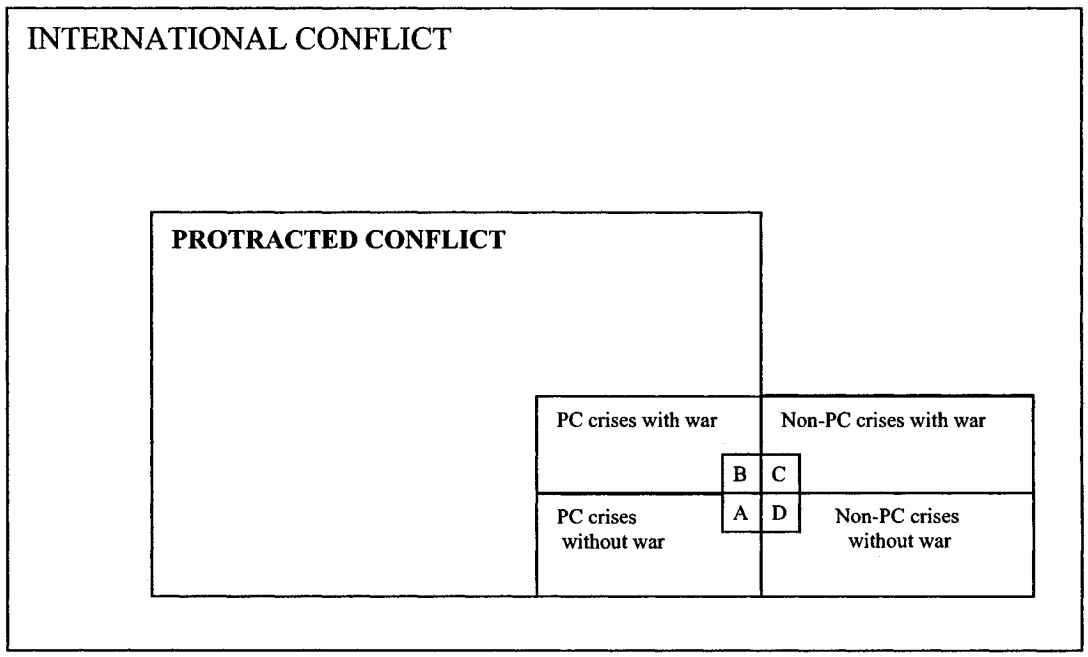
[26] Brecher and Wilkenfeld, op.cit., pp. 4-5.
[27] Ibid., p. 1.

Figure 4: ICB APPLICATION



This is not to suggest, however, that military-security (M-S) crises stemming from E-D crises that are aggravated by riparian disputes will always or often escalate to interstate war. In fact, the evidence suggests quite the opposite. This begs the question of what an E-D crisis entails.

RIPARIAN DISPUTES AS A SUB-SET OF ECONOMIC-DEVELOPMENTAL CRISES:

According to Brecher, the transition from an E-D crisis to a M-S crisis may occur if three conditions are met:[28]

1. There is a change in the external and/or internal environment which generates
2. A threat to basic values with

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[28] Michael Brecher, "Toward a Theory of International Crisis Behaviour: A Preliminary Report," International Studies Quarterly, 21, 1 (March 1977), p.44.

3. The expectation of adverse material consequences unless the response were drastic and effective given the finite time for such a response.

Riparian disputes, as a subset of E-D crises, are also shaped by hydrological and political realities, which may contribute to the environmental change stipulated in condition A above. Geographically, water is unevenly distributed. Attempts by states to increase flow through dam construction and ground water extraction can lead to over-exploitation of extant water sources, resource collapse, and can ultimately affect downstream flow. Riparian position is thus a significant factor when a state's exogenous water supply (overexploited sources in other states) exceeds its internal supply.[29]

HYDRO-CLIMATIC FORCES AND THREATS TO BASIC VALUES:

Natural forces interact with these facts to increase the threat to basic values. It should be noted that the causal chain is also shaped by a state's current phase of economic development. In arid zones, more water is lost through evaporation and plant transpiration than falls.[30] Consequently, the total usable portion of the water is negligible. Hence, irrigation is not viable due to water loss from evapotranspiration. In developing economies, with booming populations, the need for resource extraction to feed the people and generate hydropower for industrial uses is great.

According to Allan and Karshenas, during the pre-industrial phase of economic development, environmental capital will be depleted in agrarian economies.[31] Although

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[29] This is the consensus finding in the water politics literature. See Lowi (1995), Ohlsson (1995), Allan (1996).

[30] A. Turton, "Sea of Land, Land of Water," (London: School of Oriental and African Studies, SOAS Water Issues Study Group, Occasional Paper 6, 1999) p. 1.

[31] J.A. Allan, & M. Karshenas, " Managing Environmental Capital: The Case of Water in Israel, Jordan, the West Bank and Gaza, 1947 to 1995", in Allan, J.A. & Court, J.H, (eds.) Water, *Peace and the Middle East: Negotiating Resources in the Jordan Basin* (London: IB Tauris, 1996). p. 130.

some economic growth occurs, it must be weighed against the high costs of using a scarce and valuable resource inefficiently. In industrialized economies, by contrast, water is used efficiently so that maximum economic growth occurs without degrading the water resource. Arguably, it is the state's adaptive capacity defined as its ability to mobilize social capital (intellectual, technical, and material sources) that enables it to adapt to resource scarcity.[32]

In sum, less-developed political economies lack the adaptive capacity to deal with resource scarcity. Instead, such states try to meet increased water demand by extracting unsustainable amounts from a depleted resource base.

HYPOTHESIS GENERATED:

The following hypothesis can be deduced from the discussion above:

H1: If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor, and the downstream state is pursuing unsustainable development of its water resources, then either an economic-developmental crisis develops or an extant E-D crisis is aggravated for the downstream riparian.[33]

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[32] When employing the term social capital, note the methodological problems associated with its use. For example, mafia organizations are also able to utilize technical and material sources to achieve their goals. Arguably, in failing states it appears these extra-legal groups have more "adaptive capacity" than the state and use their skill for the benefit of their parochial interest at the expense of the public good. For an elaborate discussion of such methodological problems see, Genviève Jolly, "La Gestion Sociale de l'eau," Production de Connaissances du Groupe GSE, 1992-2002, Tome 1, Juin 2002, p. 24. I maintain that even in industrialized states, the mobilization of social capital to adapt to resource scarcity is not necessarily rapid. This was painfully evident in the failure of US Federal and State authorities to craft a swift and meaningful response to the Hurricane Katrina disaster in the Gulf Coast on August 29, 2005. In addition, similar to the policy decisions of developing states, the Louisana governmental authorities failed to invest in water and environmental safeguards in their quest to develop a rapidly shrinking coastline. The distinction is, however, that the US does have the economic capacity to invest in such measures had the political will to do so been apparent. In developing countries, by contrast, the paucity of funds hinders the state's ability to mobilize social capital.

[33] See page 36 of this document for an explanation of what unsustainable development of water resources entails.

This crisis intensifies due to the presence of a second natural force, the breeding cycle of biota, which is influenced by the seasonality of flooding.[34] In the natural environment, floodwater nourishes plants when they require it the most. This system can be rather inconvenient for humans in arid zones who wish to cultivate the most crops during a short growing season. To achieve this end, extensive irrigation works are developed. Ultimately, water scarcity and desertification result as the natural cycle is disturbed. Should unlined canals be extended into the desert, more water per hectare will be inefficiently extracted. This will have major economic and ecological effects for states sharing scarce water supplies. As Falkenmark argues, hydroclimatic conditions combined with human activity pose finite constraints on the population-supporting capacity of rain fed agriculture.[35]

An important distinction must be made between green and blue water production in order to appreciate the effect of scarce water on GDP.[36] According to Falkenmark, green water is the water sustaining the plants at the root level. Obviously, in arid climates, there will be less green water available for this purpose. Green water does not therefore contribute to the agrarian economy in an easily quantifiable way.[37]

Blue water, by contrast, is the surface water in rivers and ground water aquifers. Its highly prized contribution to the economy can be quantified and so can its availability

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[34] A. Turton, op.cit. pp.2-10. Read Turton's paper for a technical elaboration of the effects of natural forces on water quantity and quality.

[35] M. Falkenmark, " The Dangerous Spiral: Near-future Risks for Water Related Eco- conflicts," in ICRC. 1994. *Water and War. Symposium on Water in Armed Conflicts.* Montreux, 21-23 November 1994. Geneva: International Committee of the Red Cross (ICRC), 1994, p. 10.

[36] Turton, op.cit., Turton relies heavily on Falkenmark's distinction between green and blue water to develop his scientific argument about why a green drought results in a short growing season. He notes that plant transpiration also results in water loss.

[37] Falkenmark, op.cit, p. 13. Also cited in J. Allan, The Middle East Water Question: Hydropolitics in the Global Economy (London: IB Tauris Publishers, 2002), pp. 115-119.

for plant use at the root zone. Decreasing levels of blue water, both endogenously and exogenously, in arid zones due to drought and overexploitation leads to water stress and chronic scarcity in the face of increasing demands placed by expanding populations.[38]

As a common standard, water experts have determined that water availability of less than 1000m3/capita will pose a severe constraint on socio-economic development. Should water levels be less than 2000m3/capita, the FAO contends such water scarcity is a serious constraint on development. According to Postel, 26 countries with 232 million people suffer from water stress, among them: Algeria, the Arabian Peninsula, Egypt, Libya, Tunisia, Kenya, Israel, Jordan, Syria, Netherlands, Belgium, and Hungary.[39]At an individual level of analysis, the UN Comprehensive Assessment of the World's Freshwater Resources, has stipulated a basic water requirement (BWR) for drinking water and household uses of 50 liters per day.[40]Anything above that figure is a demand rather than a need. Falkenmark has teased out the following water scarcity modes and has linked them to illustrate the relationships among natural forces, unsustainable development and ecological catastrophe.[41] :

A. Absence of green water
B. Intermittent droughts
C. Anthropogenic desiccation of landscape due to soil vulnerability
D. Absence of blue water (endogenous and exogenous) leading to water stress and chronic scarcity due to population explosions.

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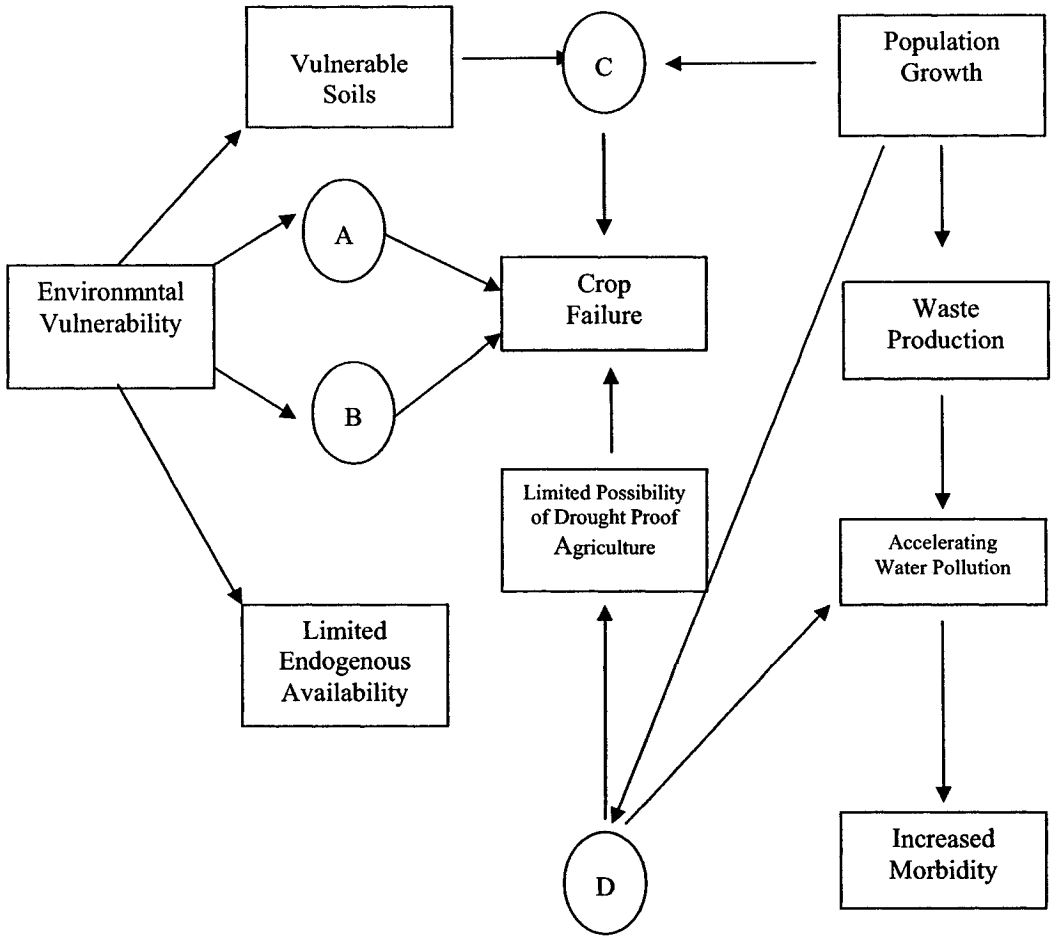
[38] Falkenmark, Ibid., p. 13.
[39] Sandra Postel, "Last Oasis: Facing Water Scarcity," (NY: The Worldwatch Environmental Series, Norton and Co., 1992) Appendix.
[40] Jan Lundqvist et al, "Sustaining our Waters into the 21st Century", Background Document Prepared for the Comprehensive Assessment of the Freshwater Resources of the World, Stockholm Environmental Institute, 1997, p.19.
[41] Falkenmark, Ibid, p. 18. Also cited in Turton, op.cit., pp. 2-10. For an excellent application of these modes to the Okavango Basin in Southern Africa see Turton's paper.

Figure 5: The Combined Effect of Water Scarcity Modes.

N.B. The Nodes labeled A, B, C, and D below is described on page 31.



Although this diagram illustrates the complex feedback mechanisms leading to crop failure, it does not indicate which sectors of the economy would resist environmental reform. In the following discussion, an attempt will be made to identify sectors of the economy benefiting from a particular water use pattern.

PREFACE TO SECTION 2: EMPIRICAL CONTEXT, ENVIRONMENTAL AND ECONOMIC INSECURITY:

In this empirical inquiry the environmental and economic context will be defined in order to situate the players influencing the negotiation process. To achieve this end, let us suppose that all four modes depicted in Falkenmark's illustration labeled Figure 5 interact to create a precipitous decline in food production endogenously in a developing economy. In addition, let the downstream riparian's water supply be decreased exogenously due to the upstream riparian's extraction policies. What emerges is a bleak socio-economic picture.

Arguably, we can consider these factors along with the ICB index of economic conditions related to crisis, which is composed of six indicators--cost of living, unemployment, inflation, food prices, labor disruption, and consumer goods shortages to determine whether economic conditions were deteriorating prior to the onset of a foreign policy crisis. We would also have to determine whether the E-D crisis was due primarily to general economic decline captured by the ICB indicators or due to unsustainable development related to water over-use and pollution in particular.[42] Assuming that the latter is true, such an economic-developmental crisis could trigger the perception that an international security crisis would occur.[43] Should this security crisis erupt within a protracted conflict setting, one would be inclined to dismiss the prospects for resolving the riparian dispute: people having a strong cultural tie to water, who are also engaged in

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[42] In addition to the ICB economic indicators, I will be considering two factors: The Surface Water Sustainable Flow and the groundwater sustainable yield (defined on page 15) to determine whether the E-D crisis is primarily due to general economic decline or due to unsustainable development of water resources in particular.

[43] For an in depth explanation of the necessary and sufficient conditions that trigger an international crisis, see Brecher and Wilkenfeld, A Study of Crisis, pp. 4-10.

a bitter protracted conflict, will not view water rationally as a mere economic commodity that can be traded for other values unless the cost of having unfettered access to dwindling water supplies in a perpetual state of conflict becomes too high. To explore this theme further, we must determine which sectors of the economy benefit from a particular sectoral allocation of water.

SCARCE ENVIRONMENTAL CAPITAL, OVEREXPLOITATION, AND ECONOMIC DEVELOPMENT:

An adequate understanding of the relationship between the overexploitation of scarce environmental capital and economic development will reveal which sectors of the economy benefit from a particular allocation of water. In this regard, let us consider the contributions of the British economist, M. Karshenas. In the following graph, labeled trajectory of unsustainable development, Karshenas models the relationship between scarce environmental capital, overuse of that capital, and economic development:[44]

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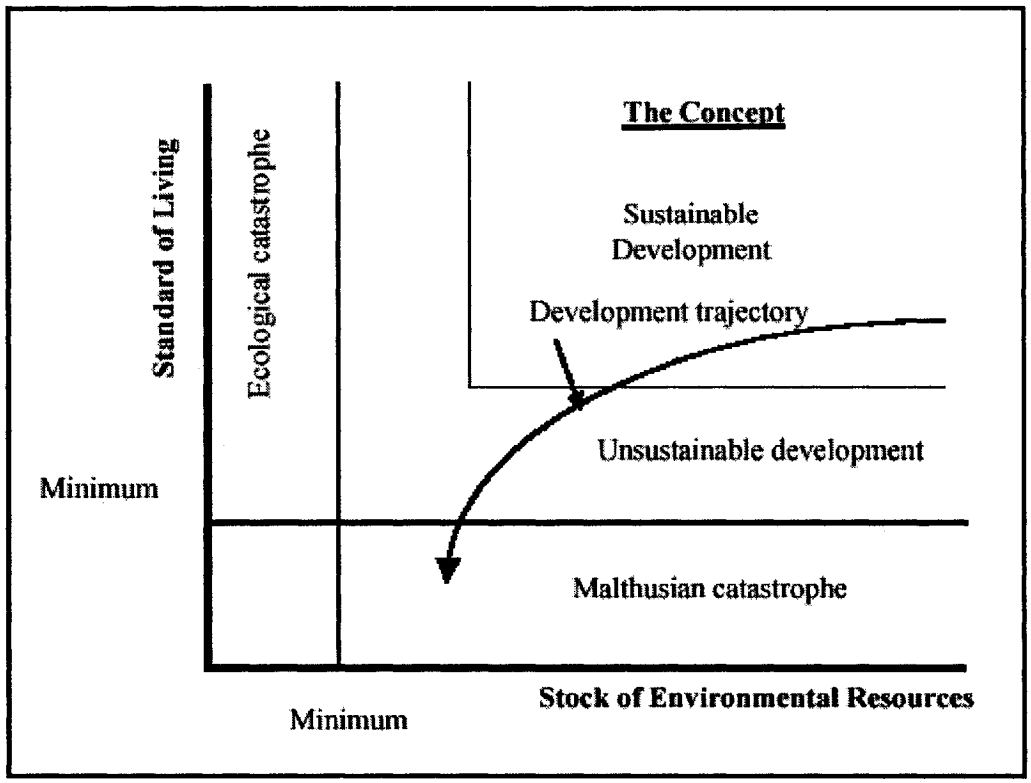
[44] J.A. Allan, op.cit, (2002), p. 147.

Graph 1: Trajectory of Unsustainable Development



The top right hand quadrant of the graph represents the sustainable use of scarce resources to meet developmental objectives. In this study, I shall adopt the definition of sustainable development related to water resources. Thus, two factors must be considered:

1. *Surface water sustainable flow regimes*: the volume and pattern of water diversions from a river that include social, economic and environmental needs
2. *Groundwater sustainable yield*: the volume of water extracted over a specific time frame that should not be exceeded to protect the higher social, environmental and economic uses associated with the aquifer.

Sustainable development of water resources occurs when a state avoids upsetting the flow regime of a river and prevents over extraction of scarce ground water. Implicit in

this definition is the assumption that the state has sufficient stocks of human and produced capital.[45]

By contrast, the zones below and beside the sustainable quadrant in Karshenas' graph represent the unsustainable use of scarce resources. Finally, the areas next to the axes represent severe environmental and economic decline. According to Karshenas, "politically and economically tough water regulation and pricing policies can be introduced when an economy is strong and diverse."[46] Conversely, in a pre-industrial phase of development, where water is used primarily for agricultural growth, states often pursue unsustainable development trajectories. Consequently, the agricultural sector of the economy develops a vested interest in preserving the existing pattern of sectoral use.

THE STATE FORMATION DYNAMIC, IRON TRIANGLES, AND THE PERSISTENCE OF UNSUSTAINABLE AGRICULTURAL WATER USE

I would add that the state formation dynamic is a factor in explaining why unsustainable agricultural development could persist in the industrial phase. Some nationalist movements that emerged during the independence struggle from colonial rule relied excessively on the support of the rural oligarchy to consolidate power. After independence the new state remained beholden to the patron-client relationships that formed in the pre-independence period. It should be noted that regime type becomes an important consideration at this stage. A heavily bureaucratized and overly centralized, authoritarian regime is less likely to cultivate the comprehensive vertical links that enable the articulation of a broad cross-section of societal preferences. Hence, such a regime is less likely to respond to the legitimate social, economic, and political preferences of civil

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[45] According to Rand economists, human capital is defined as human resources, skill sets, and knowledge of a population; whereas, produced capital refers to buildings, machines, and infrastructure in general.
[46] J.A. Allan, op.cit, (2002) pp. 146.

society. Only the interests of a few clients are addressed by the state. Since many post-colonial states are burdened with poor economic statistics and suffer from nation-state disjunction, agricultural expansion becomes a tool for state survival. Ultimately, the institutional structure in which water policy is formed reflects the inordinate amount of influence wielded by the agricultural sector. Thus, high level cabinet members and bureaucrats in charge of water resource development may be drawn from the agricultural sector. This policy network comprised of politicians, bureaucrats, and the agricultural interest group forms an iron triangle that subverts the implementation of efficient water policies. Such states appease powerful agricultural elites by investing in grandiose, inefficient agrarian water projects that may lead to the crises of governance and economy. At the international level, grandiose water projects often negatively affect the quality and quantity of water available for downstream riparians and may aggravate extant economic-developmental crises and contribute to riparian hostility.

Since deficit financing is often used to fund the projects, the state becomes insolvent. Nevertheless, the presence of vested agricultural interests and their bureaucratic patrons, opposed to the redistribution of water to more efficient uses, impedes restructuring of the bloated public sector. Severe economic crisis and pressure from international financial institutions may force a change. Poor Operations and Management (O&M) of water resource infrastructure due to the paucity of funds could trigger devolution and decentralization of power away from the center to local governmental levels and eventually Water User Groups.[47] At the behest of International Financial Institutions, states would be required to decentralize the water sector and

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[47] {http://www.fao.org/ag/agl/aglw/waterinstitutions/overview.stm}

allocate scarce resources to more productive avenues during the process of Irrigation Management Transfer.[48] When the farmers have management and payment responsibility for their irrigation water they develop an incentive to use the resource efficiently. This form of decentralization may also sow the seeds of democratization. On the other hand, there are several pitfalls associated with complete public divestiture from water management and allocation and reliance on market allocation.[49] These are discussed at length in Chapter 5 as a philosophical aside.

With technological advances and greater economic diversification, the trajectory of unsustainable development can be changed. The implementation of demand side management policies, which allocate water to more efficient uses, and an increased reliance on virtual water[50] from the international market, would be vital to avoid extreme environmental and economic deterioration. Implicit in this argument is the assumption that critical environmental thresholds can be identified before they are passed. In fact, in the case of water a critical threshold is expressed as high water stress, where the ratio of use to supply exceeds 40% and less than 1000 cubic meters per person per year is available. It is entirely possible, therefore, for a state with sufficient adaptive capacity to alter its policy and adopt a more sustainable usage pattern before Pandora's Box is opened.

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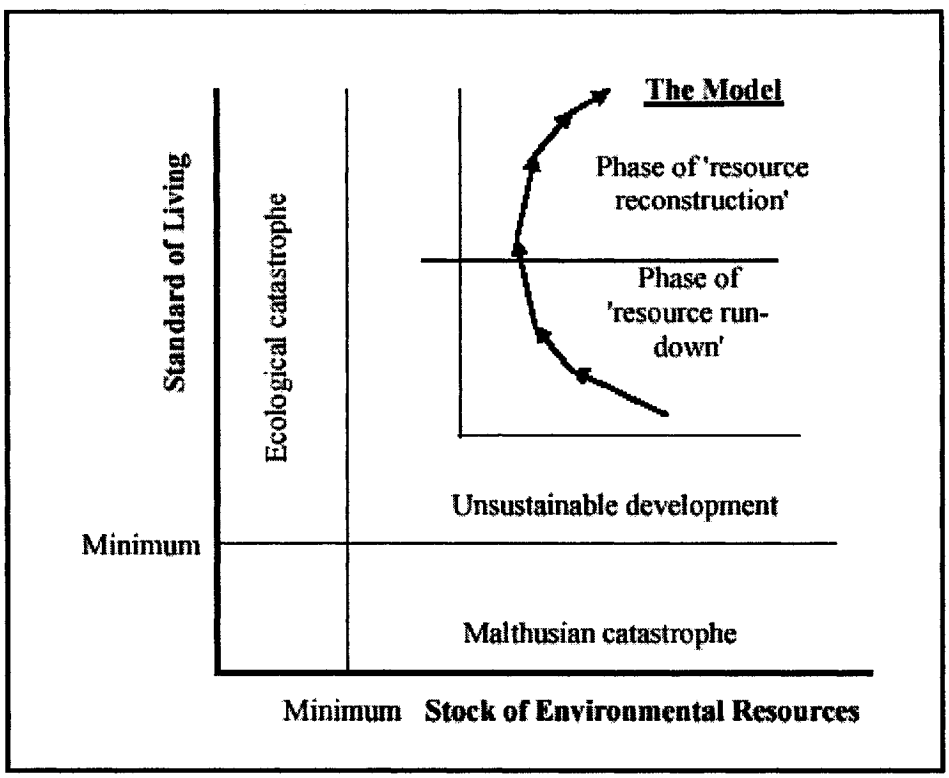
[48] The process of Irrigation Management Transfer is discussed at length in Chapter 5.

[49] For a concise description about the negative aspects of raising the costs of agricultural water consumption and the methods of offsetting the negatives see Heba Handoussa et Jean-Louis Reiffers, "Le Partenariat Euro-Mediterranéen en l'an 2000," (Institut de la Mediterranée, France, Juilliet 2000) {Http://www.femise.org/PDF/07_00_fr.pdf}Voir aussi, Mort Rosenblum, À qui appartient l'eau? A Suez, A Vivendi, A RWE, A vous, ou A moi?" {Http://www.france.attac.org/a626 (le September 2002) for the dangers of water privatization.

[50] Virtual water refers to the amount of water required to make one ton of grain. Since it is more expensive to produce one ton of grain in a water scarce country, than it is to import an equivalent amount of grain from water abundant countries, it is advisable to rely upon the grain import, a form of virtual water. This term was coined by J.A Allan, The Middle East Water Question: Hydropolitics and the Global Economy (London: IB Tauris, 2002).

The graph below depicts the developmental trajectory of a diversified economy. For Karshenas, resource reconstruction occurs when policy makers reallocate water to more efficient sectors.[51] By contrast, resource rundown occurs in the initial struggle to develop an economy. In this case, the stock of environmental capital continues to deplete as the state strives to achieve a desired standard of living.[52]

Graph 2: Developmental Trajectory of a Diversified Economy



From these graphs, we can infer that treaty negotiators are more likely to enter a zone of agreement with their international counterparts without long-standing talks when their economies are sufficiently diversified. At that stage, a state can manipulate its sectoral allocation of water to neutralize the effect of rent-seeking coalitions. Moreover,

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[51] Allan, op.cit., (1996), pp. 127-128.
[52] Allan, op.cit., (2002), p. 147.

the downstream riparian can induce the upstream riparian to restrict water diversions by raising the upstream riparian's level of material interest to do so. The downstream riparian can reinforce the political power of upstream hydropower consumers (who benefit from releases of water downstream) relative to irrigators (who benefit mainly from diversions of water away from the river) by accepting the upstream state's offers to sell hydropower.[53] Unfortunately, in many parts of the developing world downstream states that are economically weak would find it difficult to offer such material inducements to upstream states. In these cases, international funding assistance becomes a crucial factor.

HYPOTHESES GENERATED:

From the above passage, the following hypotheses can be deduced:

H2: If two states with diversified economies engage in negotiations over the allocation of transboundary water in a non-protracted conflict setting, then the likelihood of regime emergence increases without long-standing talks.

H3: If, in the course of negotiations between a lower riparian and an upper riparian, the former agrees to rent water from the latter, the upper riparian is more likely to agree to a regime.[54]

H4: The likelihood of the emergence of a limited water regime will vary with conflict setting and level of development: a higher probability for developing states in arid zones in a protracted conflict setting, which approach critical environmental thresholds; a lower

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[53] S. Tekeli, "Turkey Seeks Reconciliation," Water International, 15, 4 (1990), pp. 206-16. See also Paul Williams, "Water Usually Flows Downhill," {Http://www.earthscape.org/p1/ria01/ria01.ae.html}

[54] The assumption here is that the lower riparian must be prepared to make concessions to avoid continuing on an unsustainable development trajectory to the point of catastrophe. Nevertheless, one must guard against the tendency to assume that the lower riparian is automatically weaker due to its riparian position. It is possible for the lower riparian to have other indications of power.

probability for such states in a non-protracted setting since they are more likely to opt for a Pareto-optimal, basin-wide sharing regime; and a higher probability that industrialized states are more likely to opt for a basin-wide regime in a non-protracted conflict setting.

Having discussed the environmental and economic reasons why parties to a riparian dispute would opt to negotiate with their international counterparts instead of escalating the dispute to a crisis level and risk ecological catastrophe, we can now assess the intricacies of the negotiating process itself. The central assumption upon which the argument in Section 2 rests is that the parties would try to resolve the riparian dispute by utilizing side-payments since a secure supply of water is indispensable for state survival. To strengthen this assumption further, we need only glance at the empirical record. According to Aaron Wolf, in the last fifty years, 157 treaties have been negotiated and signed governing most of the world's 261 international waterways.[55] It should be noted, therefore, that international security crises, which have been triggered by riparian disputes, have rarely culminated in war. In fact, one has to go back 4500 years to find the single historical example of a true water war, in a dispute between the city-states of Lagash and Umma on the Tigris-Euphrates.[56]

This does not mean that we should reject explicit calls to include environmental concerns within definitions of security. My contention throughout this study has been quite the opposite, namely, that resource scarcity, compounded by population growth and an unfavorable hydro-political landscape involving transboundary waters, may provide the breeding ground for an intrastate economic-developmental crisis to develop into an

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[55] Aaron T. Wolf, "Transboundary Waters: Sharing Benefits, Lessons Learned (Bonn: SECRETARIAT OF THE INTERNATIONAL CONFERENCE ON FRESHWATER, 2001) p.3.
[56] Ibid, p. 8.

interstate, military-security crisis.[57] In 1983, Richard Ullman argued that focusing exclusively on military threats carries the high opportunity costs of neglecting the menacing dangers correlated with environmental stress, economic decline, and interstate competition over scarce resources.[58] From this perspective, we can infer that environmental problems with a transboundary dimension require cooperative models of behavior to advance security in what ought to be regarded as a collective-sum game.[59] It will become clear in the theoretical discussion that follows that moving from the zero-sum conceptions, which dominate many riparian disputes, to collective-sum conceptions is an extremely difficult, though not impossible task.

In the following section, titled Section 2, it will become evident that the economic-developmental context to which I alluded earlier will either impede or further the goals of each party to the negotiations over the management and allocation of transboundary water.

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[57] By writing thus, I am not advancing a crude Malthusian argument. Water wars are not the inevitable consequence of transboundary riparian conflict. This view is supported by the Large N statistical study conducted by Wollebaek, Toset, Hegre and Gleditsch, "Shared Rivers and Inter-state Conflict," Political Geography, 19, 8 (Nov. 2000) pp. 971-996. These authors found that "although a joint river increases the probability of a militarized dispute and armed conflict over and above mere territorial contiguity, the risk factor was comparable in size to standard control variables. and had a much smaller effect than the effect of contiguity itself."

[58] Richard Ullman, "Redefining Security," International Security, 8 Summer, 1983, p. 133. As cited in Dabelko {www.wilsoncenter.org/topics/pubs/ECSPI.pdf} p. 4.

[59] Heather L. Beach, Aaron Wolf et. al.,Transboundary Freshwater Dispute Resolution: Theory and Practise and Annotated Bibliography (NY: UN University Press, 2000) p. 60. A significant body of literature has emerged which substantiates this view. See Brown, 1977, Gleick, 1989, Mathews, 1989, Mische, Gleick, 1989 and Thomas, 1992.

SECTION 2: IR CONFLICT RESOLUTION LITERATURE REVIEW

To facilitate a clear understanding of why two states embroiled in "enduring, hostile interactions with several breakpoints punctuated by sporadic outbreaks of open warfare fluctuating in frequency and intensity," [60] would attempt to reach the negotiating table to resolve a water dispute, let us consider two alternative perspectives on the conditions required for regime emergence: Realism and Liberal-Institutionalism.

From a Realist perspective, cooperation is rather unusual in an anarchic states system in which purposive, rational actors pursue those goals that maximize their power and status vis à vis other state actors. Moreover, the absence of a Leviathan implies there is no way of enforcing sanctions against states that may harm others. Mistrust and perpetual competition thus predispose actors to conflict with one another. State concern that cooperation would result in relative gains for other states also diminishes the willingness to cooperate. Even if rule based cooperation exists, it would not endure during power shifts due to the fear of relative gains.

Firmly placed within this power-centered tradition is hegemonic stability theory. It was developed within the discourse of International Political Economy and became associated with the writings of Kindleberger (1973, 1978), Gilpin (1975, 1987), Krasner (1976, 1983), and Keohane (1984). These scholars employed the concept of hegemony to explain the dependent variable of regime emergence and maintenance. Their hypothesis is that stable regimes depend upon a preeminently powerful state in a regional or global context establishing norms and rules and then superintending their functioning by

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[60] Edward Azar et al., "Protracted Social Conflict: Theory and Practice in the Middle East," Journal of Palestine Studies, 8, 1 (1978), pp. 41-60.

enlightened use of its capability to encourage other members to work the regime under its hegemonial power.[61] The most powerful state is defined as the state possessing sufficient capability to fulfill its leadership role. In crude realist terms, capability is a function of the more powerful state's military and economic strength. Nevertheless, an adequate understanding of hegemonic stability theory necessitates a broader definition of capability, which includes an ideational component. Thus, the values espoused by the more powerful state also have a bearing on its ability to maintain the regime.

In sum, limited cooperation is possible provided the most powerful state views regime creation as a way of maximizing its power, preserving its image as a legitimate leader, and maintaining its security in its strategic relations with other states.[62] Under these conditions, the hegemon can create the infrastructure in which non-excludable public goods are made available.[63]

According to the liberal-institutionalist perspective, by contrast, international relations are characterized by significant levels of cooperation. Since the anarchic system makes compliance to regime norms and rules difficult, efforts by state and non-state actors to alter the payoffs in bargaining situations are instrumental in facilitating cooperation and may even contribute to the resolution of protracted conflict. State behavior is thus a function of actor preferences instead of underlying power capabilities alone. Rational utility maximizers will therefore reach agreement on mutually beneficial institutional arrangements, including international regimes, whenever a zone of agreement exists.

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[61] Graham Evans, Penguin Dictionary of International Relations (London: Clays Ltd, 1992) p.220.
[62] Lowi, op.cit., p. 10.
[63] Andreas Hasenclever, Peter Mayer, Volker Rittberger, "Interests, Power, Knowledge: The Study of International Regimes, " Mershon International Studies Review, 40, 2 (October 1996), p.197.

However, the problem with the liberal-institutionalist perspective is that it fails to account for the many instances in which cooperation is rejected by rational, purposive actors. The desire to secure a win at the expense of an opponent may override acceptance of win-win, compromise solutions. Moreover, the liberal-institutionalist perspective downplays the constraints imposed on bargainers with differential capabilities.

In this dissertation, a modified version of hegemonic stability theory[64] will be employed and augmented with conceptual insights from Negotiation Theory, Two-Level game theory, public choice theory, and the sustainable development literature. Pure realism fails to account for the role of complex bargaining in regime emergence. The fact that bargaining tactics can affect the ability of weaker parties to obtain preferred outcomes undermines pure realist notions that the most powerful player always achieves its goal. Thus, bargaining power conceived as a party's ability to hold out for the terms it prefers in the course of negotiations must be factored into an analysis of interactions marked by power asymmetries among participants. In addition, pure realism does not address the domestic sources of policy preference during the negotiation process. To appreciate the character of the regime which emerges, one must acknowledge that profound economic change can reconfigure the sector allocation of water from rent-seeking groups opposed to transboundary water sharing by altering the preference set of decision-makers and bureaucrats.

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[64] **Miriam Lowi in her work, Water and Power, op.cit., is one of the first scholars to employ hegemonic stability theory in riparian conflict study. Few scholars since have explicitly tied riparian study to social science theory.** Lowi's analysis, however, fails to account for those cases in which the more powerful upstream state initiates cooperation and negotiation processes for reasons quite different than those proffered by realists. In other words, profound social, political, and economic changes within states enjoying a superior power and riparian position, can induce the more powerful state to opt for compromise on transboundary water use. This is not explained by Lowi's framework because according to the core tenets of realism the more powerful, upstream state truly has no desire or incentive to cooperate as it enjoys an abundant water supply.

On a philosophical note, purists from either theoretical camp may take issue with this form of theoretical eclecticism. My contention is, however, that both realism and neo-liberal institutionalism belong to the same positivist research program. As such, if I can find empirical support for two clusters of hypotheses drawn from seemingly 'divergent' theoretical traditions, then I could argue that both paradigms are commensurable. Conflict and cooperation could then be given equal theoretical importance.

HYPOTHESES GENERATED:

From this discussion the following hypotheses are generated:

H5: If a state is more powerful and is the lower riparian in an international conflict, then such a condition is conducive to the emergence of a basin-wide regime. Conversely, if a state is more powerful[65] and is the upper riparian, then such a condition is not conducive to the emergence of a basin-wide regime.

To understand the effect of intervening variables on regime emergence, let us consider the dynamics of the negotiation process itself.

THE NEGOTIATING PROCESS: THEORY

Three phases of the negotiating process will be analyzed: pre-negotiation, negotiation, agreement and implementation. Each of these phases will be further

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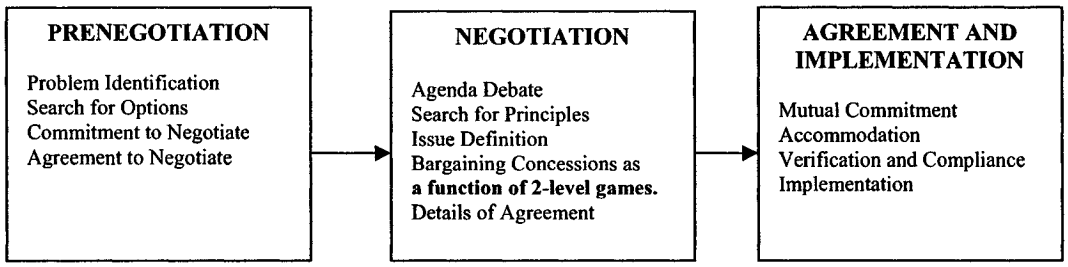
[65] See the Methodology section in which these variables are operationalized. If the more powerful state has upstream riparian status, which does not guarantee an invulnerable water supply, such a condition is conducive to regime emergence. For example, it is possible for the downstream riparian to bypass canal headworks by digging side canals thereby diminishing supply for the upstream state.

disaggregated into stages.[66] Hampson, in his book Multilateral Negotiations, has illustrated the phases of negotiation thus:[67]

Figure 6: PHASES OF NEGOTIATION



The pre-negotiation phase triggers and structures the negotiations by defining boundaries, identifying the parties and shaping the agenda. The decision to enter this phase is influenced by three considerations:

1. The disputants believe the status quo is unacceptable because of a mutually damaging stalemate or recent crisis.
2. The disputants anticipate high costs of not negotiating because a crisis would follow.
3. The disputants have an earnest desire to change the direction of their relationship by decreasing the intensity of hostile interactions.[68]

It should be noted that power parity between the disputants is not necessary for pre-negotiation: as long as the more powerful state believes the status quo is

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[66] The material for this section is obtained from Janice Stein (ed.), Getting to the Table (London: John Hopkins University Press, 1989). Direct quotes are utilized as much as possible to preserve the original meaning of the contributing authors: William Zartman, Brian Tomlin, and Janice Stein. In the case study chapters, I shall apply their negotiation framework after augmenting it with Putnam's two-level game concept.

[67] Fen Hampson, Multilateral Negotiations (London: John Hopkins University Press, 1999) p.26. Note that I have amended Hampson's diagram by including 2-level games in the bargaining section in the Negotiation phase.

[68] Janice Stein, "Pre-negotiation in the Arab-Israeli Conflict: The Paradox of Success and Failure," op.cit., p. 180.

unacceptable and that the costs of not negotiating would outweigh the costs of doing so, it is possible for the more powerful state to persuade the weaker party to enter phase I.

Moreover, the more powerful state has much to gain from the pre-negotiation phase because it lowers the risks associated with cooperation and leaves an escape route if talks do not proceed as anticipated.[69] As Janice Stein noted, uncertainty and risks of eventual concessions are reduced in this phase due to information exchange. Exit costs are lower because no engagements are made and parties tend to state their maximum terms and real interests clearly.[70] Consequently, phase I talks enable the parties to evaluate the costs of concession, agreement, and of failure. It also provokes the parties to determine their own motives for negotiating and permits each party to convince the other that concessions will be requited.[71] In protracted conflict settings, the need to build confidence in terms of demonstrating a commitment to the principles of good faith bargaining and reciprocity is crucial. Moreover, pre-negotiation can moderate hostile inter-state perceptions, tactics, and definitions thus producing a temporary suspension of conflict activities.[72]

Phase I usually occurs in the aftermath of an international crisis because of the changes induced by that crisis. These changed conditions restructure the values attached to alternative outcomes and expand the array of options considered by including negotiation as an option. By setting the parameters of potential negotiation and non-negotiation scenarios[73] (bilateralism, multilateralism, adjudication, or third party mediation), uncertainty is reduced. At the Commitment to Negotiate stage, however,

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[69] William Zartman, "Phases and Functions," Stein (ed.) op.cit, p.8.
[70] Stein, op.cit., p. 181.
[71] Zartman, op.cit., p. 9
[72] Stein op.cit, p. 183.
[73] Ibid., p. 181 and p. 249.

each party states its preferences for a minimal solution and considers alternative negotiating scenarios. [74]

Finally, at the Agreement to Negotiate stage, each party communicates its desire to negotiate with the other.[75] The transition to each stage within the Pre-Negotiation phase is not as smooth as this narrative suggests. At every step, there is a high probability that incommensurable value preferences, aggravated by a deterioration in the political climate, may impede progress.

Once parties get to the negotiating table, the outcome of the agenda debate determines whether the agenda will be enlarged or narrowed.[76] While delimiting the agenda, reduces uncertainty and risk, enlarging it leaves opportunities for future negotiation. At this point, the leadership demonstrated by third parties and the chief negotiators on each side is vital. As Oran Young instructed, good leaders are instrumental in seizing opportunities generated by exogenous events, structuring bargaining processes to focus on integrative issues, and creating terms which embroil the parties in a larger set of interests.[77]

Next, the Search for Principles stage enables the parties to develop the criteria by which the issues will be evaluated. Arguably, if facts and figures are used to corroborate arguments, instead of opinions and views, then the likelihood that a negotiated solution will be achieved is higher. For this reason disputes, which have a scientific dimension, such as water use and development are more amenable to agreement.

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[74] Brian W. Tomlin, "The Stages of Pre-negotiation: The Decision to Negotiate North American Free Trade,"Stein (ed.), op.cit., p. 23.
[75] Ibid., p. 24.
[76] Stein, op.cit. p. 254.
[77] Young, op.cit., p. 235.

In later rounds of the Negotiation phase, bargaining over the actual details of the agreement under consideration takes place. It is here that the weaker party can try to wrest some concessions from the more powerful state. The more powerful state may acquiesce to some demands because the marginal costs of doing so are sufficiently low so as to outweigh the costs of rejecting the demand outright. Moreover, third parties can create incentive packages to induce the more powerful state to accept the demand. Finally, the more powerful state is constrained by domestic political and hydrological realities as well as its normative standing in the international community. Consequently, the more powerful state would be more likely to accommodate the reasonable demands of weaker parties.

I shall now consider the nature of domestic constraints in more detail by focusing on the interactions between the domestic and international game boards and their effect upon regime emergence. In this regard, let us consider Putnam's theory on the logic of two-level games.

TWO-LEVEL GAMES: DOMESTIC AND INTERNATIONAL GAME BOARDS

As Robert Putnam argues, the calculus of foreign policy decision-makers is influenced by domestic interests. Thus foreign policy negotiators of each state negotiate with domestic factions as well as international counterparts until a zone of agreement approaches in which international agreements are domestically ratified. To alter the preferences or composition of the opposing party's dominant factions, the negotiator can

use pressure or side payments.[78] Domestic support is consolidated by offering internal side payments and redefining narrower economic issues as national security concerns. Only then can the central government achieve domestic ratification despite the presence of rent-seeking coalitions opposed to the redistribution of transboundary water.

Implicit in this argument is the assumption that the center must mobilize the majority of the taxpayers who have, at best, a tangential interest in using transboundary water.[79] Moreover, the center must be able to exploit the distributional conflicts among rent-seeking coalitions. This is possible since rent-seekers, by definition, capture subsidies to benefit themselves at the expense of the common good. The institutional structure and composition of the water policy network may influence the government's ability to neutralize the effect of rent-seeking coalitions. Regime type, whether democratic or authoritarian, and the bases for regime support may also shape the government's response to rent-seekers.

Having explored the intricacies of domestic games, I return to the explanation of the negotiating phases. In the third and final phase, the parties reach a preliminary agreement and seek to translate that agreement into a concrete package of mutual commitments and undertakings.[80] This stage has a stop/start quality about it because parties may seek to delay implementation in anticipation of an imminent crisis or to wrest even more concessions from the opponent at the last minute. It is here, therefore, that third party mediation leaders and scientific personnel are of vital importance. They can re-orient the parties to the final status talks of regime implementation and verification by

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[78] Robert Putnam, "Diplomacy and Domestic Politics: The Logic of Two-Level Games," International Organization, 42, 3 (Summer 1988), pp. 427-60.
[79] David Lake, Power, Protection, and Free Trade (Ithaca: Cornell University Press, 1988) p.67.
[80] Hampson, op.cit., p. 28.

stressing the high costs of eschewing the "negotiation formula". According to Zartman, an effective formula must be framed by a relatively simple definition or conception of an outcome that encompasses the essential demands of the parties concerned.[81] Since the parties had agreed to the formula prior to entering phase three, it is possible to point out the benefits of implementing it and the unthinkable costs of not doing so.

The inescapable conclusion, which emerges from this inquiry, is that if negotiations are initiated during a period of relative tranquility during a protracted conflict setting and the parties perceive that the substantial gains from mutual cooperation outweigh the gain from unilateral defection, then the prospects for regime emergence increase. This perception could be triggered by:

1. a hurting stalemate during a crisis, or
2. a fear that a costly crisis is imminent and
3. an attitudinal change among leaders that encourages them to reduce the intensity of hostile interactions.

HYPOTHESES GENERATED:

From the above discussion on the negotiating process and the logic of two-level games, the following hypotheses can be deduced:

H6: If the negotiating parties successfully win both the international and domestic game boards simultaneously, the prospects for regime emergence increase.[82]

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[81] William Zartman, The Practical Negotiator (New Haven: Yale University Press, 1982) p. 284.

[82] Robert Putnam, "Diplomacy and Domestic Politics: The Logic of Two-Level Games," International Negotiation, 42 (Summer 1988), pp. 427-60.

"If the parties have goals and constraints that are consistent with domestic political configurations in each state, then the outcome of the international bargaining game will fall within the domestic win-sets of both states. In this strategic interaction, the parties target (persuade) their own domestic actors as well as their rival's domestic actors in order to ratify regime options at the domestic level." In this case, the central government must be able to neutralize the negative effects of domestic rent-seeking coalitions opposed to transboundary water redistribution.

H7: If water issues are linked to non-water issues that are of vital importance to both parties then negotiators can foster success.[83]

H8: Multilateral negotiations, which impose higher transaction costs on coalition members, are less likely than bilateral negotiations to lead to regime emergence.[84]

SUMMARY OF HYPOTHESES DERIVED FROM THEORY

The hypotheses generated from the theoretical framework will be tested by evaluating each corresponding null hypothesis against the case study evidence. Only if the null hypothesis is rejected, will the research hypothesis be tentatively accepted. In the table below, each research hypothesis and its corresponding null hypothesis are listed for reference. The null hypothesis is denoted with a subscript "$_0$".

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[83] Oran Young, Resource Regimes (L.A: University of California Press, 1982) p.235.
"The leaders of third party mediation teams are successful in "seizing opportunities generated by exogenous events, structuring bargaining processes to focus on integrative issues, and creating terms which embroil the parties in a larger set of interests." Consequently, both parties will be induced to comply with the regime.

[84] In this context, high transaction costs are due to the problems of free riding and monitoring.

TABLE II: LIST OF HYPOTHESES

RESEARCH HYPOTHESES	NULL HYPOTHESES
H1: If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor, and the downstream state is pursuing unsustainable development of its water resources, then either an E-D crisis develops or an extant E-D crisis is aggravated for the downstream state.	$H1_0$ If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor, and the downstream state is pursuing unsustainable development of its water resources, then neither an E-D crisis develops, nor is the extant E-D crisis for the downstream state affected.
H2: If two states with diversified economies engage in negotiations over the allocation of transboundary water in a non-protracted conflict setting, then the likelihood of regime emergence increases without long standing talks.	$H2_0$ If two states with diversified economies engage in negotiations over the allocation of transboundary water in a non-protracted conflict setting, then the likelihood of regime emergence either decreases or is unaffected.
H3: If, in the course of negotiations between a lower riparian and an upper riparian, the former agrees to rent water from the latter, the upper riparian is more likely to agree to a regime.	$H3_0$ If, in the course of negotiations between a lower and upper riparian, the former agrees to rent water from the latter, then either the upper riparian is less likely to agree to a regime or the upper riparian will not agree to a regime.
H4. The likelihood of the emergence of a limited regime will vary with conflict setting and the level of development: a higher probability for developing states in arid zones in a protracted conflict setting, which approach critical environmental thresholds; a lower probability for such states in a non-protracted setting since they are more likely to opt for a Pareto-optimal basin-wide sharing regime; and a higher probability that industrialized states are more likely to opt for a basin-wide regime in a non-protracted conflict setting.	$H4_0$ The likelihood of the emergence of a limited regime is unrelated to the conflict type, the environmental setting, and level of development.
H5: If a state is more powerful and is the lower riparian in an international conflict, then such a condition is conducive to the emergence of a basin-wide regime. Conversely, if a state is more powerful and is the upper riparian, then such a condition is not conducive to the emergence of a basin-wide regime.	$H5_0$ If a state is more powerful and is the lower riparian in an international conflict, then such a condition is not conducive to the emergence of a basin-wide regime. If a state is more powerful and is the upper riparian, then such a condition is conducive to the emergence of a basin-wide regime.
H6: If the negotiating parties successfully win both the international and domestic game boards simultaneously, the prospects for regime emergence increase.	$H6_0$ If negotiating parties win both game boards simultaneously, then the prospects for regime emergence are either unaffected or decrease.
H7: If water issues are linked to non-water issues that are of vital importance to both parties then negotiators can foster success.	$H7_0$ If waters issues are linked to non-water issues, which are of vital importance to both parties, then there is either no effect on the negotiation outcome or is there is a negative effect on the outcome.
H8: Multilateral negotiations, which impose higher transaction costs on coalition members, are less likely than bilateral negotiations to lead to regime emergence	$H8_0$ Multilateral negotiations are more likely than bilateral negotiations to lead to regime emergence.

CONCLUSION

In this dissertation, I have developed an eclectic theoretical framework to explain the causes of riparian conflict and the conditions for regime emergence in a protracted conflict setting. Although such an approach does not generate a parsimonious theory, it does have analytic purchase. It facilitates understanding about a multi-faceted problem that clearly does not admit of an easy solution. Since riparian disputes are complicated by political, environmental, and economic factors, a useful theory must account for all of these elements. It is for this reason that I utilized the illustration of the theoretical and empirical building blocks at the outset of this dissertation in which each block provides the foundation for the next block until the central research question is answered. If we recall, the two main theoretical blocks in the structure are constructed from insights from the conflict and cooperation literature in international relations and are grounded in an environmental and economic context.

My rationale for adopting this theoretical edifice stems from the following realization. Power centered theories are especially useful in explaining international riparian conflicts and the regimes that emerge during the escalatory phases of a protracted conflict, but require augmentation with resource economic and public choice theory to account for interstate cooperation during the relatively tranquil phases and in the post-conflict setting. This theoretical enterprise involves the transcendence of the disciplinary divide between International Relations and Comparative Politics. Putnam's two-level game metaphor is employed to that end because it draws attention to the effect of domestic variables on state preference formation during international negotiations. To avoid merely cataloguing a host of domestic variables, I employ the method favored by Historical Institutionalists. I focus on how the state formation dynamic influences the

economic-developmental context in which water policy is formulated. By studying the water policy process over several temporal domains, I can determine how profound economic change affects the power and influence of sectoral water interests to ultimately alter the policy preference set of the political elite despite the presence of bureaucratic inertia and bureaucratic capture by vested interests. Although the ability of politicians to implement change is constrained by bureaucratic behavior, the changes at the international level (i.e.) peace processes with adversaries, end of great power rivalry etc., can have positive reverberations in the domestic realm that enable leaders to reduce bureaucratic impediments. This approach is designed to account for change despite the 'realist" structural environment and will reveal how the constraints posed by ecological forces in a conflict setting, and the political opportunities presented by a particular economic-developmental context, shape the decisions of negotiators in the regime formation process.

Without belaboring the obvious, a solid theoretical foundation must be augmented with a sound methodology in order to answer the central research question. To this end, I shall test the hypotheses delineated earlier with evidence from four riparian disputes covering the regions of South Asia, the Middle East, and North America. Although such a small-N study will result in provisional findings, the intensive nature of the inquiry will yield valuable insights about the theoretically derived causal pathways. Ideally, all of the regions of the world should be examined in order to test the validity of rather complex hypotheses and map out all the causal pathways to regime emergence. Unfortunately, an enterprise of such great scope is just not feasible given the budgetary and time constraints of a doctoral student. Despite this fact, I have selected cases that share many of the

political, environmental, and economic characteristics of some of the basin countries in the omitted regions of Africa, South America, and Europe. This small measure will hopefully yield better results. In addition, I will outline the main aspects of the riparian dispute resolution outcomes concerning the Nile River in Africa and the Danube River in Europe in the concluding section of Chapter 7 to give a general idea about the cases omitted from my study.

Another methodological point that warrants attention is what appears to be a developing area bias in case selection. However, the fact is that most of the riparian conflicts bedeviling inter-state relations are found in the developing world. As such, there is little that a researcher can do to address this problem besides analyzing a developed state's riparian conflict from different temporal perspectives. In this way, a single case is treated as if it were two cases, each having different economic and political contexts.

Apart from such methodological caveats, I do believe this dissertation will make a much-needed contribution to the literature on environmental security in general, and the management of riparian conflict in particular. The extant literature on the subject focuses on the intricacies of environmental pathways to conflict without explicitly tying these paths to social science theory. Moreover, few researchers[85] have endeavored to develop a theoretically robust framework that would account for the timing and reason for regime formation in the riparian issue area. By incorporating the theoretical insights alluded to earlier, I hope to fill this lacuna in the field.

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[85] See the works of Rainer Durth (1996), Frank Marty (2001), and Aaron Wolf (1997) for attempts at multi-case comparison within a single theoretical framework.

In the dissertation, the chapters will be based upon the analysis of each riparian dispute along the dimensions specified on pages 17-18 above. It should be noted that these dimensions are theoretically derived and, therefore, follow the research sequence discussed earlier. The final chapter will be based upon a cross-comparison of cases in order to evaluate the validity of the hypotheses and put the findings into a proper International Relations theoretical perspective. Each riparian dispute chapter will begin with a geographical map indicating the main rivers and tributaries in question. This should make the document reader friendly. Next, the nature of the riparian dispute within the particular conflict setting will be discussed. Special emphasis will be placed on the state formation dynamic to explain how the constraints and opportunities presented by the resultant economic-developmental context shape the water policy decisions during the negotiation process. This approach is designed to enhance the explanatory value of the study and highlight future avenues of research.

In sum, the dissertation comprises seven chapters:

Chapter One: Introduction, Methodology

Chapter Two: Theoretical Framework and Literature Review: (IR conflict pre-theory) (Empirical Context) and (IR conflict resolution central theory)

Chapter Three: The India-Pakistan dispute over the Indus River and its tributaries.

Chapter Four: The Israel-Jordan dispute over the Jordan and Yarmuk rivers.[86]

Chapter Five: The Turkey-Syria-Iraq dispute over the Tigris and Euphrates rivers.

Chapter Six: The Canada-US dispute over the Great Lakes and St. Lawrence River, and the dispute over the St. Mary and Milk rivers.

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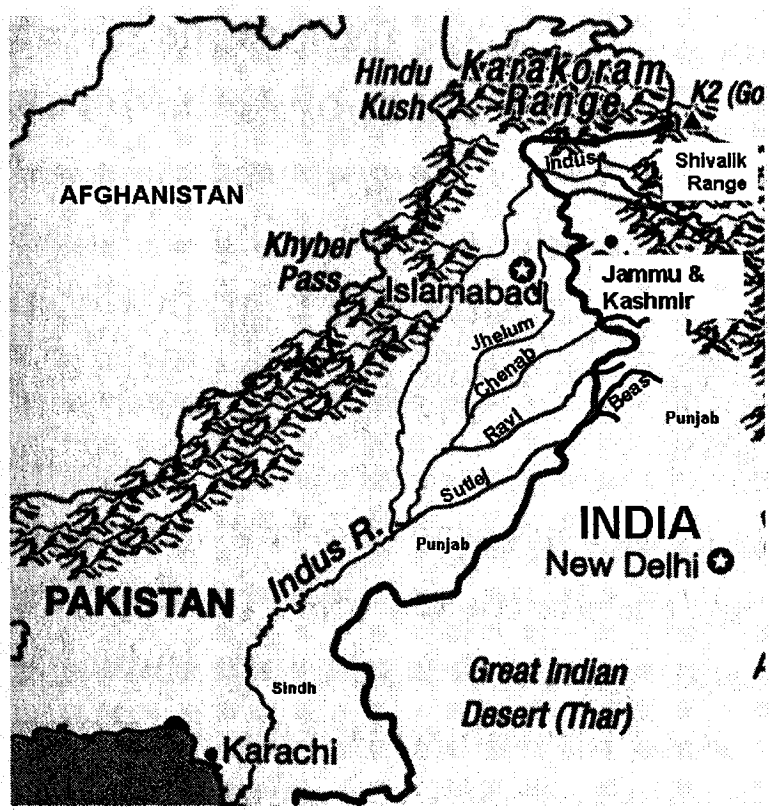
[86] Although the headwaters of the Jordan river rise in Syria and Lebanon, these countries are not dependent on the Jordan for their primary water supply. As such, the role of these riparians in the Jordan waters dispute is considered in a secondary fashion. Note also that although the Palestinian Authority is a core riparian, it has not been an independent sovereign entity exercising its riparian rights on the Jordan river and underground aquifers. As such, it is beyond the scope of this work to consider its role in the dispute.

Chapter Seven: Case Cross-Comparison and Conclusion

CHAPTER 3: THE INDIA-PAKISTAN CASE

THE GEOGRAPHY OF THE INDUS BASIN

Figure 7: MAP OF THE INDUS BASIN[87]



It is useful to begin the India-Pakistan case study with an overview of the hydrological and political geography of the Indus Basin. The Indus River has five major

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[87] Map source adapted from: Joseph Gonzalez, The Complete Idiot's Guide to Geography, 2nd ed. (N.Y.: Penguin, 2004) p. 303.

tributaries- the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej, which have an aggregate length of 4506 km and drain an area of 1,165,500 square kilometers.[88]

The Indus rises in Mount Kailas in Tibet and traverses many miles through the Himalayas before it is joined by its tributaries in the Punjab. Thereafter, it passes into Sind (present day Pakistan) to fall into the Arabian Sea.

As illustrated in the map above, the headworks of the Indus canal tributaries are located in the perimeter of the Shivalik range and the sub-Himalayan ranges of India. This political and geographic reality makes India the upstream riparian vis à vis Pakistan.

It is important to note that, prior to the partition of the Indian sub-continent in 1947, the British Raj expanded a system of canals linking the tributaries in order to cultivate the vast areas of arable land. The two largest link canals that were built at the height of British power in the 1850s were the Upper Bari Doab Canal (UBDC) on the Ravi and the Dipalpur Canal (DC) on the Sutlej.[89] The Indus basin was thus an integrated basin that was coterminous with British political authority.

After partition of the sub-continent in 1947, however, the hydrological unity of the basin was severed. Thus, the headworks of the two largest canals remained in India while the vast tracts of land irrigated by the canals were awarded to Pakistan by Britain's Radcliffe Commission in 1947.[90] This was problematic for both states since, prior to partition, the canal system was more heavily developed in what was then West Punjab than in Eastern Punjab. In undivided India, West Punjab was the bread basket for most of

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[88] Jagat S. Mehta, "The Indus Water Treaty: a Case Study in the Resolution of an International River Basin Conflict," Natural Resources Forum, 12, 1, 1988, p. 70.
[89] See Figure 8 below for a map of the Indus Basin canals.
[90] "Out of the total waters carried in the canals, 64.4 million acre feet were committed to the irrigation of land that would later fall within Pakistan, whereas 8.5 million acre feet were earmarked for land that would fall within of India." Note that 1 acre foot=1233cubic meters. Mehta, opcit., p.71.

Northern India. Once West Punjab became part of Pakistan, the area drained by the eastern tributaries had to be developed by the new Indian government in order to compensate for the loss of food production afforded by the Western canal system. For the new state of Pakistan, the prospect of having its enemy, India, control the headworks to canals that irrigate its most arable land was disturbing. As a temporary measure, the Chief Engineers of West and East Punjab signed a Standstill Agreement on 10 December 1947 which would maintain the prepartition allocation from the headworks at DC in India to the branches in UBDC in Pakistan until March 31, 1948.[91] According to the agreement, Pakistan and India would have to renegotiate prior to the expiration of the March deadline, to determine the cost and nature of subsequent water delivery. To appreciate the concerns of both states, it is necessary to account for the nature of the India-Pakistan protracted conflict. Only then can we understand why India on April 1, 1948 discontinued water delivery from the headworks at the DC to the branches of the UBDC in Pakistan. It was on that date that the formal dispute between India and Pakistan over the sharing of the Indus water system began.

To sum up, the environmental problem structure in this case fits the upstream-downstream scenario where environmental damages are largely one- directional. This is not to suggest, however, that India was invulnerable. The fact is that she lost a vast expanse of irrigated land in West Punjab and was forced to develop the river system in East Punjab to meet the needs of an impoverished and ever-growing population born in the aftermath of partition. In the following section, I shall discuss the factors that led to

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[91] Asit K. Biswas, "Indus Water Treaty: the Negotiating Process," Water International, 17, 1992, p. 203.

the partition and how they shaped the riparian dispute within the larger protracted conflict.

THE INDIA-PAKISTAN PROTRACTED CONFLICT

Why did India and Pakistan fail to achieve a Pareto-optimal solution in the form of a basin-wide water-sharing regime? In other words, why did the two countries ratify the Indus Waters Treaty of 1960, which allocated the waters of the Eastern rivers-Sutlej, Beas, and Ravi-to India for unrestricted use, and the waters of the Western rivers-the Indus, Jhelum, and Chenab-to Pakistan?[92] To answer this question, let us consider the historic pattern of enmity between the two states. A theoretical review of the dimensions of a protracted conflict precedes such an inquiry. Throughout this section I shall focus on three factors:

1. The nature of the perceived threat to core values.
2. Hostile inter-state perceptions in general.
3. The frequency and intensity of outbreaks of open warfare.

The nature of these factors defines that species of conflict called, "protracted conflict." According to Brecher and Wilkenfeld, a protracted conflict is characterized by:

> hostile interactions of at least three international crises between the same pair of adversaries over one or more recurring issues for a period of at least five years. These conflicts may move from war to partial accommodation and back to violence, or they may be characterized by continuous war of varying severity.[93]

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[92]" Note that India's use of the Eastern rivers was unrestricted except during the transition period of 1 April 1960 to 31 March 1970, during which time water had to be supplied to Pakistan (see Annexure H of the Treaty). This would allow Pakistan to develop replacement works for water that she previously received from the Eastern rivers. In a similar vein, Pakistan would permit India to use the waters of the Western rivers to irrigate existing areas and develop 701 thousand acres of irrigation from these rivers subject to specific conditions." Ibid., p. 208.

[93] M. Brecher and J. Wilkenfeld, A Study of Crisis (Ann Arbor, MI.: University of Michigan Press, 1997) p.5.

In either case, the protracted conflict locks the adversaries in a deadly, serpentine embrace in which the historical issues in dispute are fundamental, and seep into the societal domains of all parties. Thus, the hostile, inter-state perceptions often concern questions of state identity, and existential threat. Consequently, the configuration of crises[94] within a protracted setting, from the violent nature of the crisis trigger to the amorphous form and substance of the crisis outcome, will militate against a basin-wide water-sharing regime.

CONCEPTIONS OF NATIONHOOD: JINNAH'S TWO-NATIONS THEORY AND NEHRU'S SECULAR NATIONALISM.

In order to understand the genesis of the protracted Indo-Pakistan conflict, it is necessary to analyze the different conceptions of nationhood expounded by Mohammad Ali Jinnah, leader of the Muslim League and Pakistan's founder, and Jawaharlal Nehru, independent India's first Prime Minister.

For Jinnah, the partition of India was based on the idea that Muslims on the sub-continent constituted a separate nation. He argued that a separate politico-legal status for Muslims was necessary to protect their Islamic way of life since Hindus would forever outnumber Muslims in a united India. A separate, independent Muslim state that would be called the Islamic Republic of Pakistan was his solution.

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[94] An international crisis is defined by Brecher and Wilkenfeld as: a change in the type and/or increase in the intensity of disruptive hostile, verbal or physical interactions between two or more states with a heightened probability of military hostilities which may destabilize their relationship and challenge the structure of the system at the global, dominant, or sub-systemic level. This change may be triggered by, among other things, a territorial dispute, an economic boycott, or threat to a political regime. It is preceded by a foreign policy crisis for one state. Once the rival state responds to the first state's foreign policy crisis, an international crisis ensues. Hence, a foreign policy crisis may or may not coincide in time with the outbreak of an international crisis depending on the response time of the rival. Ibid., p. 11.

In contrast, Nehru saw the partition of India as the result of the British colonial policy of divide and rule.[95] For Nehru, there was nothing inherently incompatible between Hinduism and Islam. After all, for centuries Hinduism had coexisted with Islam and other religions to create a composite Indian culture. As an advocate of secular nationalism, Nehru believed it was possible and desirable to integrate different religious and ethnic groups into a single state. For him, nationhood based on secular principles would ensure that the rights of all people were safeguarded.

From the foregoing analysis it becomes clear that Jinnah and Nehru held diametrically opposed views regarding the basis of nationhood. As we shall see in sections to follow, these conceptions of nationhood have shaped India's objective of preventing Kashmiri secessionism and Pakistan's irredentist claims on Kashmir. The vital water interests of Pakistan and India in controlling the headwaters in Kashmir are also couched in the jargon of Pakistani nationalism and Indian secularism. Hence, India's desire to placate its large Muslim minority imposes constraints on India's behavior regarding the use of transboundary waters with its Muslim neighbor, Pakistan. India could not, therefore, halt the flow of water into Pakistan with impunity. Pakistan, by contrast, has a 'moral' imperative to ensure the unity and viability of its Muslim state by securing the headwaters in Muslim Kashmir.

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[95]The Minto-Morly Reforms (1909) and the Montagu-Chelmsford Reforms (1918) triggered communal antagonisms by creating separate electorates for Muslims. These pieces of legislation served to crystallize ethno-religious identities and hampered further cooperation between Hindu and Muslim political elites during the freedom struggle against British rule.

KASHMIR'S STRATEGIC AND MORAL IMPORTANCE TO INDIA AND PAKISTAN

Why was annexing Kashmir so important to both India and Pakistan? When British paramountcy lapsed in 1947, the princely state of Kashmir had still not acceded to either the Indian Union or Pakistan.[96] Since Kashmir borders both India and Pakistan and has a predominantly Muslim population with a strong Kashmiri identity but was governed by a Hindu Maharajah, the ruler obtained standstill agreements from both India and Pakistan on August 15, 1947.

THE ACCESSION OF KASHMIR TO INDIA AND THE FIRST INDIA-PAKISTAN WAR 1947-1949

In October 1947, Pathan tribesmen from Pakistan's North West Frontier Province and irregular brigades from Pakistan's army invaded the northern part of Kashmir with the belief that Kashmir should become a part of the Islamic republic of Pakistan. Fearing the imminent collapse of his rule, the Maharajah sought military aid from the government of India and agreed to Delhi's demand that he accede to the Indian Union before receiving the aid. New Delhi dispatched troops in late October and this signaled the first India-Pakistan War.

Arguably, Pakistan's security problem was compounded by the fact that India could now argue that it legally enjoyed upstream riparian status on two rivers that flow through Kashmir and into Pakistan, the Jhelum and Chenab. In fact, the government of Pakistan alleged in a report to the UN Security Council in 1952 that "the Indian military

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[96] For the 500+ princely states the decision to join India or Pakistan was based on territorial contiguity and the will of the majority population. Hence, if the princely state was territorially contiguous with one successor state, and had a majority population wishing to accede to that contiguous state, then the princely ruler was expected to likely accede to that state.

offensive launched in Kashmir is the spring of 1948 had as one of its aims the capture of the Mangla Headworks which control the flow of the Jhelum River into Pakistan."[97] This claim, among others, notably Muslim identity, was used by Pakistan to justify its occupation of Azad ("Free") Kashmir. In other words, Pakistan claimed its military actions in Kashmir were defensive, aimed at stopping the further advance of the Indian Army, which, inter alia, could have cut off the flow of the water through Jammu and Kashmir into Pakistan.

THE INDIA-PAKISTAN RIPARIAN DISPUTE WITHIN THE LARGER CONFLICT SETTING.

Since the India-Pakistan riparian dispute was embedded within their protracted conflict, the animosity engendered by the latter colored the nature of the former. An examination of four factors will reveal the complex dimensions of the riparian dispute:

1. The geography of the Indus River Basin and the riparian positions of the parties.
2. India's perception of critical resource need within the economic context of the time.
3. Pakistan's perception of critical resource need within the economic context of the time.
4. The adoption of contradictory legal principles to buttress their conflicting riparian policies.

As mentioned at the outset of this chapter, partition severed the hydrological unity of the Indus Basin and became a source of tension between the two successor states, India and Pakistan. In fact, there were occasional raids and, at some key places, armies stood

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[97] United Nations Security Council Records 7th Year, 609th meeting, 16 December, 1952, p. 13.

face to face across a barbed wire barrage or some other obstruction.[98] Moreover, since India had control over the Chenab and Jhelum rivers by virtue of its presence in most of Kashmir, West Pakistan was heavily dependent on headwaters rising in Indian territory. In addition, large-scale population migrations across the border aggravated the problem of water need. In fact, nearly fifteen million people crossed the border and sought refuge in the other state because of the communal violence that besieged the subcontinent in the wake of independence.

Furthermore, critical resource need was exacerbated because the rivers were subject to floods and droughts such that the actual flow at any time would have been half or double the statistical average. In terms of Falkenmark's water scarcity modes alluded to in chapter two, Modes A, B, and C operate in India and Pakistan. Thus, Modes A and B which are climate-related concern problematic environmental conditions, whereas Mode C is due to vulnerable soils that are made worse by rapid population increases and leakage from irrigation systems. Consequently, from 1930 to 1960, India's agricultural land went out of production at a rate of 202.34 km^2 to 404.68 km^2 per year due to salinization.[99]

It is against this backdrop of mass migration, blood baths, extensive property loss, deep suspicion, and climatic variability that the problem of sharing transboundary waters had to be solved. As noted earlier, on April 1, 1948, East Punjab discontinued the delivery of waters from the UBDC to the lower part of the canal in West Punjab once the

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[98] Niranjan Gulhati, Indus Waters Treaty (Calcutta: Allied Publishers, 1973) p.56. Throughout this section, I shall rely on this work by Gulhati who was the chief engineer and negotiator during the Indus water treaty talks. Many of the facts presented in this dissertation regarding the canal waters crisis are taken from Gulhati's extensive study.

[99] As cited in Brian Concannon, "The Indus Waters Treaty," Georgetown Environmental Law Review, 2 (1989), p. 60.

standstill agreement expired without prior negotiation. More importantly, the inhospitable political climate at partition made it easier for the provincial government in India's East Punjab to adopt such a provocative policy:

The claim, which was made by West Punjab that partition should not have occasioned any disruption in the water supply to its canals, did, perhaps, have some justification. But then, many things had happened...no one had thought that the Hindus and Sikhs in West Punjab, Bahawalpur and NWFP and the Muslims in East Punjab would be expelled from their ancestral homes for ever, and unceremoniously deprived of their houses and land. In any case, the personal loss of property, of means of livelihood, of relatives killed across the border was so keen and widespread in East Punjab, and the whole atmosphere was so charged with anger and emotion that it is doubtful if any one in the East Punjab government had dispassionately studied the logic of the action taken by it on April 1, 1948.[100]

Cutting off the water supply had thus been employed as a weapon by the state government in East Punjab. This action amounted to a change in Pakistan's internal and external environment that posed a threat to basic values. The action aggravated an E-D crisis for Pakistan by reducing its exogenous supply during a crucial moment in the growing season. Since the Indus River provides a surplus of water in the summer (April-September), and not enough during the winter (October-February), farmers must store summer water to be used in the winter. This is important because winter crops require more water to grow in comparison to summer crops. By cutting off the water in April, the government of East Punjab imperiled the winter growing season in Pakistan.[101] For Pakistan, this expectation of adverse material consequences stemming from severe water stress necessitated drastic action. Simply put, Pakistan was approaching a critical environmental threshold as a result of East Punjab's actions.

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[100] Concannon, op.cit., p. 64.

[101] "India's action resulted in the in the absence of water in 8% of the culturable commanded area in West Pakistan. In addition, not only was the city of Lahore deprived of municipal water, but also West Pakistan's hydro-electric power supply was cut off." Michel, op.cit., p.196.

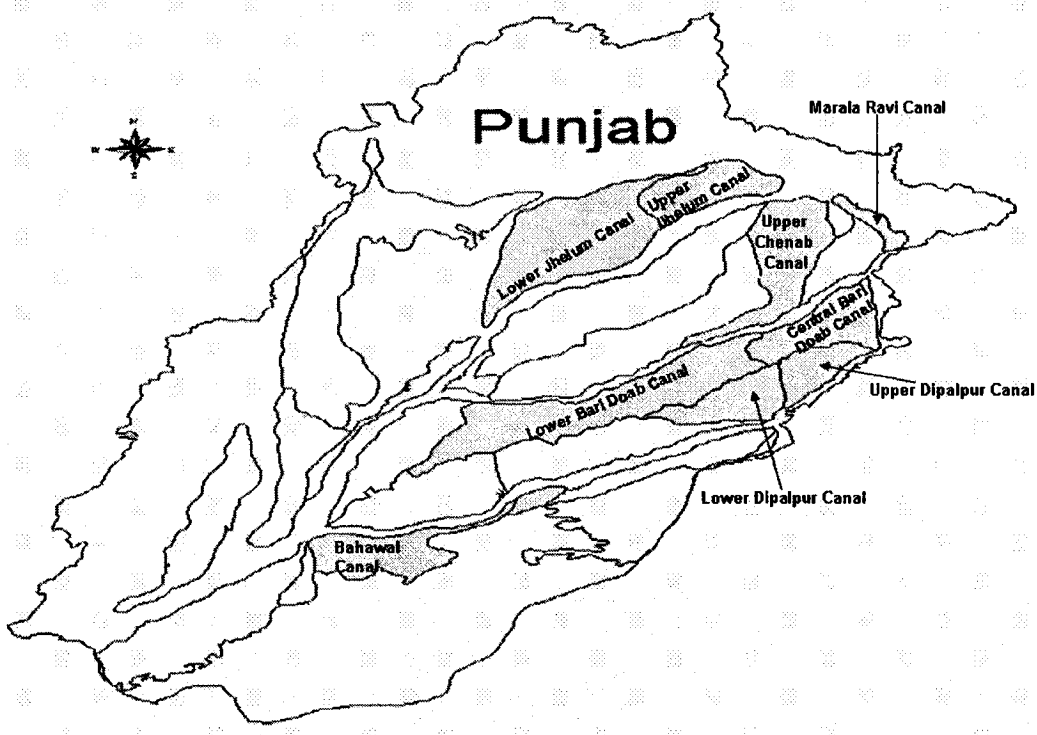
India, by contrast, may have committed such an act to pressure the Pakistani "volunteers" who invaded Kashmir to withdraw. In retaliation, the government of Pakistan, led by Liaquat Ali Khan, forbade the issue of permits for the removal of valuables from banks by Hindus and Sikhs fleeing to India. The Indus water dispute had officially begun. Pakistan linked the issue of evacuee property with settlement of the Canal waters dispute. In essence, the E-D crisis escalated to a security crisis for both countries.

From this discussion, it appears that the onset of the Indus waters dispute conforms to the pattern suggested in hypothesis one, reproduced below.

HYPOTHESIS H1:

If a downstream riparian anticipates adverse material consequences from the resource extraction of its upstream neighbor, then an extant E-D crisis is aggravated for the downstream riparian.

Figure 8: MAP OF INDUS RIVER CANAL SYSTEM IN PAKISTAN[102]



Although the canal crisis of April 1948 was subsequently resolved in May in a series of agreements concluded at Simla between the Chief Engineers of East and West Punjab, the outstanding issue of Indus water use continued to bedevil relations between India and Pakistan. India charged that Pakistan began digging supply channels on the right bank of the River Sutlej so as to bypass the Ferozepore Headworks in India and connect the Sutlej directly to the Dipalpur Canal.[103] Since this move would have

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[102] Map adapted from Zubair Tahir, "Trends Across Punjab Canal Commands," {Http://www.iwmi.cgiar.org/pubs/working/WOR14.pdf} p. 10.

[103] Aloys A. Michel, The Indus Rivers: A Study of the Effects of Partition (New Haven: Yale University Press, 1967) p.205. Note that Aloys presents Pakistan's version of events thus: "Pakistan will maintain

adversely affected discharge levels within India, the central Indian government dispatched several diplomatic complaints to Pakistan. India's vulnerability on this score implies it is not the most powerful player in this game. India enjoys upstream riparian status and is relatively more powerful than Pakistan, but it does not enjoy an invulnerable supply of water. Nevertheless, since India is, on balance, more powerful it is able to resist attempts to resolve the issue on basin-wide, Pareto-optimal terms.

The situation deteriorated in September 1949, when all sterling bloc countries except Pakistan devalued their currencies.[104] In response, India severed trade with Pakistan. The economic war, combined with the fact that the international legal principles governing water use were contradictory, made the water dispute less amenable to resolution in Pareto-optimal terms. A brief discussion of the incompatible legal principles invoked by both parties is necessary to show how initial bilateral talks over water sharing of the Indus waters failed. Thereafter, the economic factors influencing negotiation dynamics will be analyzed. By doing so, the domestic and international players involved in the negotiations will be situated in a solid empirical context.

THE INSUFFICIENCY OF EXISTING LEGAL NORMS GOVERNING TRANSBOUNDARY WATER USE.

Three incompatible legal principles that were later operationalized in the Helsinki Rules of 1966 have been invoked to sustain bargaining positions by contending parties in water disputes: Absolute territorial sovereignty over waterways (Harmon Doctrine), the concept of a community of basin interests, and limited territorial sovereignty (sic utere

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that they had no such intention or financial capability at that time to short-cicuit Ferozepore by building a barrage five mile upstream on the Sutlej.

[104] Michel, op.cit., p. 219.

tuo ut alienum non laedus).[105] In addition, the Helsinki Rules stipulate the factors that ought to govern water use such as socio-economic needs of populations, established patterns of use, and geography.

Although the Harmon Doctrine has fallen out of favor, it is still invoked by upstream riparian states, which consider waterways within their territories as belonging to them. In the early days of the Indus Waters dispute, India appealed to this doctrine to justify its rights to the Indus rivers.

By contrast, the concept of a community of basin interests implies that any riparian can block the unilateral actions undertaken by other riparians, especially the upstream states. Few nations have endorsed this principle, however, for it challenges the essence of the state system itself, sovereign territorial jurisdiction. Pakistan's occupation of Azad Kashmir could be seen in this light.

Finally, the concept of limited territorial sovereignty has been favored by most nations, but inherent conceptual ambiguities have undermined its utility as a norm for governing state practice. For instance, limited territorial sovereignty implies that the state, which enjoys upstream status, will use its water according to its interests and also consider the interests of its downstream neighbor. The underlying assumption here is that a state will avoid causing appreciable harm to another state provided it uses its water in a reasonable and equitable manner. Towards the end of the negotiation process, India was persuaded to adopt this position. Unfortunately, the Helsinki Rules do not provide a consistent definition of what constitutes reasonable and equitable water use. Too many

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[105] The limited sovereignty principle embodied in this Latin phrase translates as "use what is yours so as not to cause harm to another. As cited in Asit Biswas, Core and Periphery (London: Oxford University Press, 1997) p. 29.

hydrological factors such as variable river discharge rates and precipitation rates, combined with changing demographic and economic realities, make it difficult to stipulate which factor is most important in determining equitable use.

In short, the international law on water use is weakened by the presence of contradictory principles that either entrench sovereign rights or erode them. During the pre-negotiation process that led to the negotiating table, the Governments of India and Pakistan employed these principles hoping to maximize individual gains. There is little doubt, therefore, that contradictory legal principles only prolonged the acrimonious character of the initial India-Pakistan discussions over water use, which were aborted shortly after their onset. For a thorough understanding of the dynamics of the negotiation process, however, the domestic and international players must be situated in a solid empirical context. To this end, various economic factors will be examined next.

THE ECONOMIC FACTORS THAT SHAPED THE NEGOTIATION PROCESS:

In this section, I shall analyze the Economic-Developmental levels of both countries to determine how economic factors helped or hindered policy makers in their efforts to negotiate a treaty that maximized gains. Since post-colonial states are faced with the serious problems of uneven[106] economic development and food insecurity, the state takes the lead in fostering development. The relevant portions of the first and second five years plans promulgated by the Planning Commission in India in 1950 and 1956 will be studied along with Pakistan's economic plans in the same period. A focus on the type of constituency that was rewarded by the Congress Party and the Muslim

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[106] Uneven development occurs when a colony's economy evolves solely for the purposes of enriching the Imperial state. As such, vast areas in the colony that were not vital to Imperial enrichment remain undeveloped. Port cities, by contrast, experience the greatest development since the wealth of the colonies is transported overseas through these.

League leaders in the first decade following independence presupposes such an inquiry. Only then can we understand the planning priorities of the central governments.

During the independence struggle to oust the colonial regime, the Indian National Congress evolved into a mass movement in which rural support was a key element. Consequently, large and medium-class landowners supported the Congress platform while absentee landowners who collaborated with colonial rulers did not. The landless peasants were also brought into the Congress fold as a result of Mahatma Gandhi's ideology of inclusiveness.

By contrast, the Muslim League's basis of support was much narrower. The League's support came from large Punjabi landlords while middling and poor Muslim agriculturalists were not courted. In post-colonial Pakistan, therefore, the central government was unwilling and unable to enlist the support of middle and lower rural classes. Instead, the government rewarded military and bureaucratic Punjabi elites with land and focused on urban industrialization in Lahore and other Punjabi cities. During the 1950s, policy makers in Pakistan squeezed agriculture to promote industry, and only a small proportion of the state's total investment went to agriculture.[107] The fact that the province of Sindh was not a beneficiary of the center's largesse with respect to water resource development also explains the negotiation decisions of the Pakistani team from 1955 onwards.

Indian leaders, on the other hand, had a commitment to provide irrigation facilities, electricity and roads to revitalize rural hinterlands with fertile land and reward

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[107] Holly Sims, "The State and Agricultural Productivity," Asian Survey, 26, 4 (April, 1986), p.487. Pakistan's farmers in Sindh were denied private irrigation facilities, agricultural machinery, credit, and fertilizers for reclamation purposes.

rural constituents for their support during the freedom struggle. East Punjab thus received a disproportionate amount of central assistance in the early years of the first five-year plan. The government ensured that East Punjab had plenty of access to private tubewells to pump groundwater. In fact, food grain production increased from 52 million tons per annum to 66 million tons by the end of the first plan due to the timely access to irrigation supplies.[108] According to the plan, however, all-India coverage under the Community Development Program would begin in 1953. Canals and dams would be built to irrigate less arable land, especially near Rajasthan. In the second five-year plan, the leadership allocated the largest share of public investment to capital projects to develop the industrial infrastructure. In sum, India's allocation of financial and natural resources to the agricultural sector during the pre-industrial phase of development conform to the trajectory of development depicted in Karshenas' graph alluded to in the Preface to Section 2.

From the foregoing analysis, we can infer that the economic planning priorities of each state, which were based on the states' response to various constituents, would shape the bargaining positions of negotiators during the treaty process.

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[108] Ayesha Jalal, Democracy and Authoritarianism in South Asia (Cambridge: Cambridge University Press, 1995) p. 129. "The three urgent problems that the first plan addressed are, the food shortage, the shortage of agricultural raw materials for India's industries, and the problem of inflation. The solution of the first problem required increased output of food; the solution of the second, increased output of cotton, jute, and oil seeds; the solution of the third, in addition to austerity and taxation, requires increased output generally. Since increased output hinges on greater food and raw materials supplies, the solution of all three problems requires an increase in agricultural production. It is for this reason the Plan emphasized agricultural/irrigation investment." As quoted from H.W. Singer, "India's Five-Year Plan: A Modest Proposal, " Far Eastern Survey, 21, 10 (June 18, 1952), p.98.

At a macroeconomic level, both India and Pakistan were burdened by poor economic and social statistics.[109] India was faced with the task of absorbing and feeding the influx of refugees in the aftermath of partition by harnessing the agricultural potential of undeveloped East Punjab. Similarly, as Aftab Khan maintains, Pakistan had a low level of per capita income, high rate of population growth due to the refugee influx, and large disparities of wealth among regions and classes.[110] In the post-independence period, the nascent state of Pakistan had not consolidated state power and was ill equipped to deal with demands of the people. The fact that Pakistan's water supply was dependent on its enemy's upstream extraction policies only compounded the problem and forced the country to negotiate with India. India was willing to negotiate because she was also hostage to the variations in precipitation and watershed degradation.

THE NEGOTIATION PROCESS THAT CULMINATED IN THE INDUS WATERS TREATY OF 1960

I shall now analyze the process that culminated in the ratification of the Indus Waters Treaty. A series of abortive India-Pakistan talks aimed at settling the outstanding water disputes followed the Inter-Dominion Agreement of May 1948.[111] When Pakistan attempted to divert the water of the Sutlej, India responded by offering the carrot of supplying the water to the Bahawalpur State Distributary on the Eastern Canal in

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[109] "In terms of the relative power of each state, however, India was on balance stronger. India had inherited virtually all of the manufacturing centers of the British Raj and had inherited the colonial state's unitary central apparatus without seriously rupturing its links with the lower rungs of the civil administration. By contrast, Pakistan had to construct an entirely new central government before it could begin coordinating the affairs of the provincial, district, and local levels of society. Moreover, Pakistan had less than ten percent of the industrial base in the two states and just a little over seven percent of the employment facilities."Jalal, op.cit, p. 23.

[110] As Quoted in Rafi Raza, Pakistan in Perspective 1947-1977 (New York: Oxford University Press, 1997) p. 175.

[111] During the inter-dominion meetings India agreed to the resumption of flows from the canals on payment for administrative costs by Pakistan. Mehta, op.cit, p. 72.

exchange for maintenance and seigniorage charges.[112] Had Pakistan agreed to pay for the water from the eastern rivers, it would mean that Pakistan recognized India's proprietary rights to the rivers. In this scenario, Pakistan would rent the flow of water rather than owning the water asset. Pakistan refused and, as a result, India threatened to tap the Sutlej waters further upstream.[113] Moreover, India was determined to increase the area of agricultural land irrigated by Indus waters. Since such an endeavor would reduce the area of Pakistan's irrigated land and perhaps even return the state to the desert, one can infer that Pakistan initiated the pre-negotiation phase. The prospect of Indian retaliation was sufficiently alarming that Pakistan could not tolerate the status quo.

From this analysis, it appears there is some support for research hypothesis **H3**: **If, in the course of negotiations between a lower riparian and an upper riparian, the former agrees to rent water from the latter, the upper riparian is more likely to agree to a limited regime.** The point is, however, that neither the lower nor upper riparian is willing to separate questions of water use from questions of the allocation of property rights in protracted conflict settings. States would rather own a stock of the water asset rather than rent the flow because of the belief that the former has an inherent

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[112] Gulhati, op.cit. pp. 75-80.

[113] Pakistan claimed an historical right to the use of the rivers based on pre-partition allocation agreements signed between the former East Punjab government and the Bombay Presidency. In July 1942, the Indus Commission submitted its report on the Sindh (within the Bombay Presidency) Punjab dispute. "Sindh claimed that Punjab's plan to build the Bhakra dam on the river Sutlej would aggravate Sindh's water shortage in the late kharif season. The Commission concurred with Sindh and recommended that two new barrages in Sindh, at Gudu and Hajipur, be built with financial contributions from the Punjab." The ruling was never implemented, however, for partition was fast approaching and the British were no longer concerned with inter-provincial disputes. As cited in Aloys Michel, The Indus Rivers (New Haven: Yale University Press, 1967), p.130.

advantage.[114] By buying the asset, the buyer encounters fewer transaction costs[115] and the investment in the asset purchase is offset by investment in complementary infrastructure such as canals, dams, and reservoirs.

As the strongest regional power, which could still be harmed by Pakistan's threatened actions to dig canals, India was also disquieted. Nevertheless, India would not consent to Pakistan's proposal to submit the issue to the International Court of Justice (ICJ) for adjudication because she feared that the legal principle, which could govern the court's ruling, might erode India's sovereign rights to waters within her territory. Furthermore, India did not agree with Pakistan's "identification of the problem" because the latter widened the issues under consideration to include the water supply to CBDC and the Dipalpur Canal in Pakistan and to ensure an equitable share of all waters common to both states. Instead, India would have preferred if Pakistan had offered to remove the obstacles it imposed on evacuee property in return for the "appointment of an ad hoc tribunal consisting of two judges of the highest judicial standing from each country to apply itself to the solution of the dispute over the canal waters."[116] In essence, India's "search for options" precluded ICJ adjudication. This opinion is stated categorically in a letter sent by PM Nehru to PM Liaquat Ali Khan in 1950:

I am not aware of any instance where two independent nations have bound themselves down to refer every dispute, whatever its nature, to a particular authority, much less to an

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[114] Alan Richards and Nirvikar Singh, "No Easy Exit: Property Rights, Markets, and Negotiations over Water," Department of Environmental Studies, University of California, Santa Cruz, September 2000, pp. 8-13.

[115] By transaction costs, I am referring to the perceived and actual costs incurred by the seller and renter when the renter rents the flow of a benefit stream. Due to unexpected environmental contingencies such as droughts and mistrust of foreign owned water in protracted conflict settings, there is "reluctance on the part of the renter to pay for the flow of a benefit stream. This reluctance on the part of the renter aggravates the fear of the seller that the sums promised would not be paid. The seller, however, owns the water asset and can therefore refuse to rent the asset." As such, the seller has bargaining leverage. Ibid., pp. 8-13.

[116] Gulhati, op.cit., p. 80.

external authority...I would gladly agree however, to the creation of an Indo-Pakistan Commission which would deal with certain specified types of disputes, consisting only of an equal number of judges chosen by India and Pakistan respectively...To think, ab initio, of a third party will lessen the sense of responsibility of the judges and will also be a confession of our continued dependence on others. That would hardly be becoming for proud and self-respecting independent nations.[117]

From Nehru's position, as articulated here, one can infer that India had an earnest desire to change the direction of its relationship with Pakistan. However, the bilateral means Nehru advocated stood in sharp contrast to the means advocated by Pakistan. Nehru was keenly aware that, in a bilateral situation, India's upstream riparian position and hegemonic status would easily induce a preferred outcome for herself. By contrast, external intervention could very well tilt the balance of bargaining power away from her given the U.S interest in cultivating good relations with Pakistan. It was precisely this reality that provoked Pakistan to insist upon ICJ adjudication. Ultimately, however, Nehru got his wish and both governments set up bilateral negotiating teams consisting of three members per side. The negotiating teams were composed of lawyers, engineers and politicians. Despite the high profile of the members, the bilateral talks failed. As such, the first attempt at pre-negotiation failed.

It is worth reiterating that India's desire to link negotiation with the evacuee property issue had a negative effect on the bilateral negotiations. As such, there is tentative support for the null hypothesis $\mathbf{H7_0}$: **If water issues are linked to non-water issues that are of vital importance to both parties then there is a negative effect on the negotiation outcome.**

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[117] From the White Paper on Kashmir—Meetings and Correspondence between the Prime Ministers of India and Pakistan (July 1953-October 1954); Ministry of External Affairs, Government of India Documents, Delhi, October 1954.

Nevertheless, the exercise itself was meaningful. For example, Pakistan had accused India of forcing Pakistan to sign the Simla agreements on water use under duress. By making such an allegation, Pakistan enabled India to determine Pakistan's motives for initiating the pre-negotiation phase. From India's perspective, Pakistan did not want to abide by the terms of the agreement because of a persistent fear that India would use its upstream riparian position as a weapon in the larger conflict setting. Pakistan's fears could be allayed only if all outstanding water issues could be resolved. In addition, by offering to submit that portion of the Simla agreements that Pakistan claimed were signed under duress to an international court for adjudication, India hoped to establish her credibility as a good faith bargainer committed to the principles of reciprocity.

The next attempt at pre-negotiation was catalyzed by the visit of David Lilienthal (former Chairman of the Tennessee Valley Authority and of the U.S. Atomic Energy Commission) to the subcontinent in February 1951. Lilienthal reasoned that, since India was neutral, though somewhat unfriendly to the United States, there was still an opportunity for the US to prevent the loss of India to the Communists.[118]

In fact, Lilienthal was well aware that India-Pakistan hostility over Kashmir had a hydrological component. After all, the struggle over Kashmir also concerned the issue of which nation would control the rivers arising in Kashmir and flowing into Pakistan. As a result, Lilienthal wrote:

Progress on the water issue would promote a sense of community between the two nations which might, in time, lead to a Kashmir settlement. Accordingly, I proposed that India and Pakistan work out a program jointly to develop and jointly operate the Indus

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[118] David Lilienthal, The Journals of David Lilienthal: Volume III, Venturesome Years 1950-55 (N.Y: Harper & Row, 1966) p. 51.

Basin river system, upon which both nations were dependent for irrigation water. I also believe the World Bank might use its good offices to bring the parties to agreement, and help in the financing of the Indus Development program.[119]

It was for this reason that US Secretary of State Dean Acheson dispatched Lilienthal with a proposal for solving the water dispute. Lilienthal's proposal embodied the liberal-institutional principle that it is practicable to divorce political issues from the functional issues concerned in order to secure a Pareto-optimal solution. Thus, water development, an engineering matter, could be treated as a shared, functional project separate from political tensions.[120] In addition, after surveying the hydrological features of the Basin, Lilienthal concluded that there were sufficient water resources for current and future use.[121] He argued, therefore, that basin-wide cooperation aimed at economic development would reverse the pattern of enmity between the parties. With the advantage of hindsight, however, it is clear that only a limited task-based regime can emerge within a protracted conflict setting because of the inevitable influence of political tensions on the negotiating process and the power asymmetries between the disputants.[122] Moreover, such a regime is not sufficient to resolve the larger conflict. Despite these shortcomings, however, Lilienthal was on the right track when he persuaded the governments of India and Pakistan to accept World Bank mediation.

APPLYING THE INSIGHTS FROM TWO-LEVEL GAMES:

In 1952, General Wheeler, the World Bank's Chief Engineering Advisor, submitted a comprehensive plan during the agenda debate that would oblige the parties to

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[119] Lilienthal, op.cit., p. 205.
[120] Lowi, op.cit., pp. 64-65 The original source is the November 8, 1951 Letter from the President of the International Bank for Reconstruction and Development, to Khwaja Nazimuddin, PM of Pakistan.
[121] Michel, op.cit., p. 226. The original source is Lilienthal, Journals, 3, pp. 262-63.
[122] This is the essence of Lowi's study.

develop the Indus basin waters and increase usable water supplies on a joint basis. It is important to note that Pakistan's negotiating team until 1954 was comprised of engineers representing regional political interests. Thus, Sindh's interests were represented during this period.[123] With so many interests at stake, however, the range of agreements (win-set) at Level I (international game board) that are acceptable to a majority at Level II (domestic game board) is exceedingly small. This implies that the likelihood negotiations would breakdown is great. As mentioned in footnote 123, there had always been a conflict between the interests of Sindh and Punjab in pre-partition times. In the post-partition period until 1955, the Pakistani government had to enlarge the size of the domestic win-set by reconciling the interests of Sindh and West Punjab. Only then could the government achieve agreement at the Level I game.

India's negotiating team, by contrast, was composed of engineers from the Natural Resources Division of India's Planning Commission. Since the chairman of the Planning Commission was PM Nehru, himself, there was no ambiguity about which regions would be privileged in terms of water resource development allocations. East Punjab and later Rajasthan were top priorities. Unlike Pakistan, Indian planners were not allocating resources on the basis of a systemic bias toward a particular region or ethnic group. Instead, allocation decisions were based on the goals of productive efficiency and all-India development. Unfortunately, India's allocation decisions conflicted with the hydro-political interests of Pakistani West Punjab and Sindh. As such, Sindh objected to

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[123] In 1955, however, regional representation was de-emphasized, for the central government adopted the One Unit Plan in West Pakistan. This One Unit Plan fused the NWFP, Sindh, Punjab and Balochistan into one administrative unit. In practice, the central government used this provision to hand out land and water development grants to Punjabi military and landed elites at the expense of Sindhi agriculturalists. The allocation of resources in Pakistan's Level II game figures prominently in Ayub Khan's decision to sign the Indus Treaty of 1960. By neglecting Sindh's interests post-1955 the Pakistani government was able to concede to provisions India favored.

India's plan to build the Bhakra dam, for it would reduce supplies to Sindh during critical crop sowing phases, and West Punjab objected to India's plan to build diversion tunnels to irrigate Rajasthan, for it would reduce its supplies from the river Sutlej.

Apart from these realities at the Level II game boards in both states, Wheeler's joint development proposal failed for several other reasons. First, the level of enmity and mistrust that characterized India-Pakistan relations precluded such collaboration at that time. Second, Pakistan feared that India could link joint development of the Basin waters with her actions in the disputed territory of Kashmir, thereby compromising Pakistan's interests. Third, for India, joint development implied that it, as the more powerful state, would bear most of the financial burden. Based on these reservations, the agenda was limited so that the waters would be quantitatively divided between the parties that would carry out development on an individual basis. Thus, Pakistan would have rights over the western rivers (Indus, Jhelum and Chenab) while India would control the eastern rivers (Ravi, Beas, and Sutlej). In addition, a proposal was tabled which would make India responsible for contributing to the cost of building a canal network linking water from western canals to eastern Punjab. A corollary to this argument was that India would agree to reduce water withdrawal from the eastern rivers until the Pakistani canals were built for a specified period.[124] It should be noted, however, that it took several years of protracted negotiation to limit the agenda in this way. Only then did the principles of the negotiations become established. It was agreed that the process would be guided by three basic considerations:

1. The principles of water resource development.
2. The requirements of irrigation engineering.

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[124]Lowi, op.cit., p. 65.

3. The principles of economic efficiency and need.

In spite of this movement to the second stage within the negotiating process, several issues emerged which led to the removal of General Wheeler as chief mediator in favor of Sir William Illif, the Vice President of the World Bank. It would be helpful at this point to discuss these hurdles because they demonstrate how Pakistan, the weaker party, was able to hold out in order to wrest concessions from the more powerful state, India. Paradoxically, Pakistan's ability to hold out was a function of its own weakness in the domestic political realm. In 1954, for example, Pakistan was confronted with turmoil in East Bengal, with threats of secession and charges of treason. Under these circumstances it was difficult for the Pakistani government to consolidate support at home for an agreement with its arch-enemy, India. Thus, Pakistan insisted that reservoir storage on the western rivers was needed because water flow alone was insufficient. India vehemently opposed this demand because it would be too costly to enlarge the scope of the system and it would unnecessarily lengthen the transition period.

Second, India wanted recognition of Jammu and Kashmir's irrigation development needs, which required use of the western rivers. Although Pakistan agreed with this demand in principle, actual agreement on the allocation was precluded due to the political conflict in Kashmir.

Third, India wanted the right to develop the full hydro potential of the three western rivers outside of Pakistan. Pakistan would not, however, concede because India's plan was tantamount to impounding Pakistan's western river water by reservoir

storage. This problem was ultimately solved when India agreed to restrict run of the river installations with minimum storage facilities.[125]

It should be noted that the World Bank was quite effective at moving the talks forward at this stage. Mediators put pressure on Pakistan to divorce the scheme of works necessary for replacement from the scheme of works necessary for development. By doing so, India was freed from any obligation to pay for the cost of development works—a cost India would not bear.

The other thorny issues were overcome because the World Bank mediators were instrumental in securing massive foreign aid to finance the basin development project for each side. Moreover, one cannot overlook the impact of US military aid to Pakistan in 1954. Since this aid also had economic benefits attached, it induced Pakistan to accept the ultimate basis of the Bank proposal. As the senior American diplomat Rushbrook-Williams wrote:

> Special loans would be a good investment for the Western World, at a time when Indo-Pakistani tension cannot but handicap the development of the two largest Commonwealth counties in South East Asia along peaceful and progressive lines; and it can hardly be doubted that the World Bank, at least will do its best to see that its own long work of honest broking is not frustrated at the last for lack of funds to implement it.[126]

An important fact is that the resolution of sticking points rested on the work of a team of engineers and other scientific personnel representing both countries. These individuals were able to come up with functional, technical solutions to water use, storage and supply issues without being prejudiced by political tensions.

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[125] Gulhati, op.cit., p. 302.
[126] "World Bank," The Spectator, September 19, 1958, p. 367.

Although India diluted some of its demands and acquiesced to some of Pakistan's demands, there is no doubt that India retained the upper hand in the negotiating process. To substantiate this claim, consider how India was able to urge the Bank to use its good offices to work out an ad hoc agreement with Pakistan so that India could open up the new Bhakra Canal from the Sutlej River, contrary to the Bank agreement of 1952, which had precluded any development that would reduce the supplies available to Pakistan. India justified its demand on the basis of the 1948 Simla Agreements, the legitimacy of which was heavily contested by Pakistan.[127] Even though Pakistan refused to conclude an ad hoc agreement on the Bhakra Dam issue, India opened up the dam enthusiastically-much to the chagrin of Pakistan. Pakistan was deeply concerned about the effects of the Canal on the supply of water in September and threatened to take the issue to the United Nations. India, interested in preserving its reputation as a conscientious member of the international community, decided to restrict withdrawals from the Canal voluntarily until Pakistan could replace its supply via canal links from the Chenab River. In this way, the more powerful state accommodated the "reasonable demands of the weaker party."

On October 14, 1955 the West Pakistan government adopted the One Unit plan that treated the provinces of NWFP, Baluchistan, Sindh, and Punjab as one administrative unit. Consequently, regional representation within the Pakistani delegation at the Indus Waters negotiations was deemphasized. From a two-level game perspective, the Pakistani leadership with its bias towards Punjabi military and landed interests was able to enlarge the Level II win set by simply disregarding Sindh's interests. As such, by 1958 West Punjab tabled a proposal to store water supplies on the Jhelum for

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[127] Gulhati, op.cit., p.306.

development rather than for replacement. The World Bank responded by arguing that India would bear replacement costs only, and that West Punjab was free to develop Jhelum storage reservoirs at its own cost. The Pakistani government agreed although such a move would adversely affect Sindh's supplies downstream. In addition, the Martial Law administrator of Pakistan, General Ayub Khan, decided to increase water rates to cover the cost of providing water to make up a part of the deficit incurred by the Irrigation Department. More importantly, he wanted to dilute the opposition of rent-seeking groups opposed to the fundamentals of the Indus Waters Plan. Since agricultural water users in Pakistan had historically enjoyed a large concealed subsidy for water, these users had become a rent-seeking group who opposed the World Bank plan allocating the three eastern Rivers to India. By increasing the water rates, Khan was able to increase irrigation revenue from the provinces to the center from 8.6% to 20% between 1959 and 1960.[128] He then used the prospect of reducing water rates to induce these groups to accept the treaty's legitimacy.

By contrast, Nehru was able to dilute opposition to the plan by decentralizing fiscal policy to stimulate all-India development. For example, India financed the Bhakra Project by extending loans from the center to the states and suggesting that the states recover the costs by increasing water rates.[129] The revenues were then used to finance other works, which would benefit those agriculturalists who would have lost the most once Pakistan had exclusive rights over the three western rivers.

Since both countries were able to enlarge their Level II win sets, agreement was made possible at Level I. This analysis lends tentative support to hypothesis **H6: If the**

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[128]Michel, op.cit., p. 392.
[129] Ibid., p. 373.

negotiating parties successfully win both the international and domestic game boards simultaneously, the prospects for regime emergence increase.

CONCLUSION

In short, more than a decade of negotiations finally culminated in the signing of the Indus Waters Treaty on September 19, 1960. The Treaty was composed of 79 paragraphs under 12 Articles, supplemented by eight detailed annexes covering 102 pages.[130] It was legally sound and codified the Bank's 1954 proposal. It gave India rights over the eastern rivers and Pakistan rights over the western rivers. For a ten-year transition period, India was to continue to supply water to Pakistan from the eastern rivers until Pakistan completed a system of link canals to replace the supplies it would ultimately lose. India's contribution to replacement link canal cost in Pakistan was fixed at $174 million dollars.[131] It also delineated the terms for building storage reservoirs that would be financed by Western and European governments. Finally, it established a Permanent Indus Commission to oversee treaty implementation.

The treaty has been adhered to by both parties even during their wars of 1965 and 1971 and is still honored today. The treaty ultimately materialized because India, the more powerful state in the protracted conflict, considered the water supplied by the rivers of the basin as a vital component of its security and development. After all, the Punjab region, India's breadbasket, is irrigated by the Indus waters. Moreover, the fact that India enjoyed upstream riparian status did not make her invulnerable to actions taken by Pakistan to increase its share of the waters. As such, India had an interest in negotiating with her weaker counterpart to secure a limited regime. These facts, therefore, lend

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[130] Gulhati, op.cit., p.307.
[131] Michel, op.cit., p. 248.

tentative support to hypothesis **H5: If a state is more powerful and is the upper riparian, then such a condition is not conducive to the emergence of a basin-wide regime.** Finally, the good offices of the World Bank and its success in structuring bargaining processes so that both parties could achieve their fundamental goals was instrumental in the emergence of the task-based regime enshrined in the treaty.

Although these findings support several hypotheses, I would be wary of drawing concrete generalizations.[132] As mentioned at the beginning of this study, much more empirical research of water conflicts in protracted conflict settings is required. Until then, the only conclusion that emerges is that politics is highly relevant and influential in reaching decisions on economic-developmental issues. Despite the hurdles, stalemates, and crises, which characterized the road to treaty-making, two states, whose relations were embittered by protracted conflict, were able to solve a problem that affected the lives of millions of people on the subcontinent.

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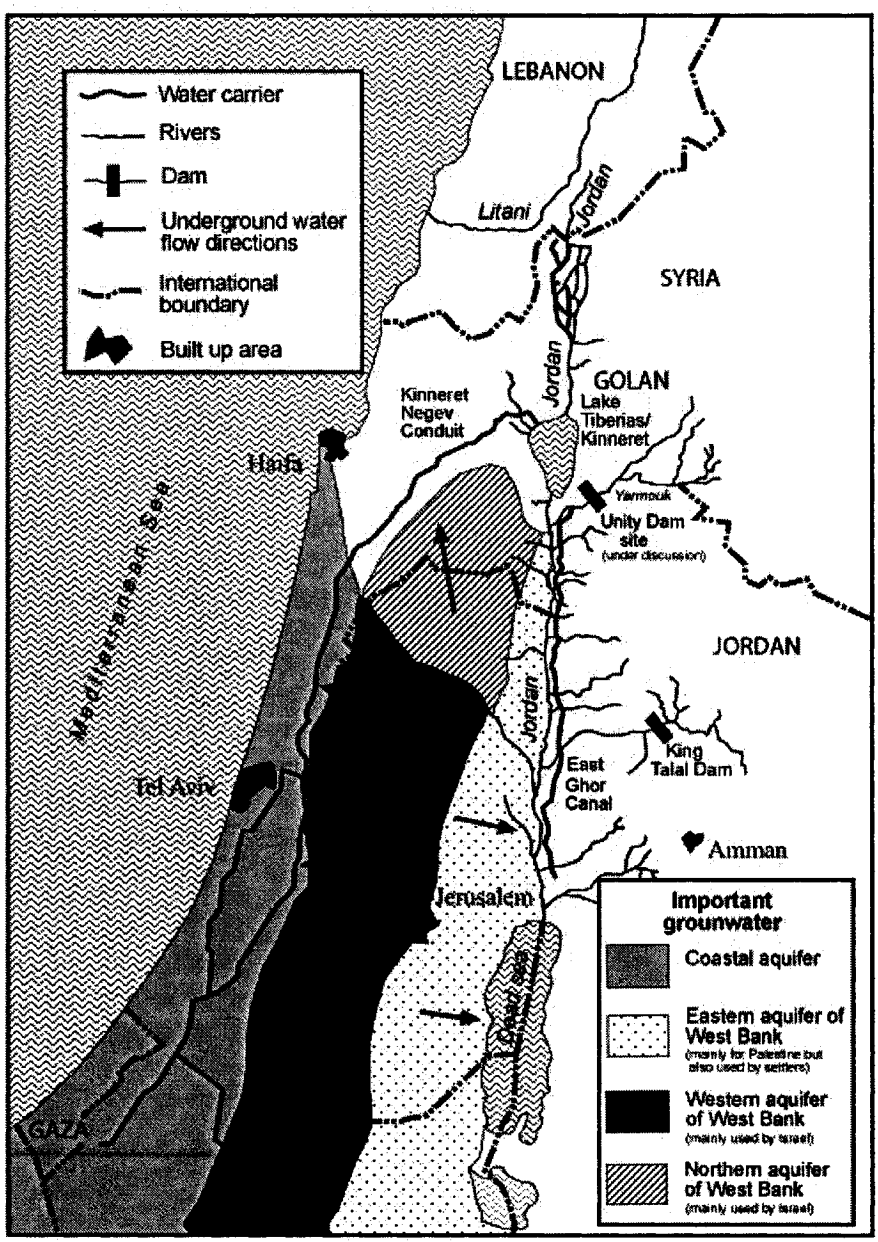
[132] Note that it is not possible to examine the validity of hypothesis H4 until all of the case studies are completed. The relationship explored in this hypothesis is of a probabilistic kind and therefore, more cases must be analyzed. Also note that hypotheses H2 and H8 concern a different set of cases and are not examined here.

CHAPTER 4: THE ARAB-ISRAEL CASE OVER THE JORDAN WATERS

POLITICAL GEOGRAPHY AND HYDROLOGY OF THE JORDAN BASIN

Figure 9: MAP OF THE JORDAN BASIN AND ITS TRIBUTARIES, MAJOR AQUIFERS, THE RIPARIANS, AND WATER TRANSFER SYSTEM.



Source: After Ohlsson 1997 & BGS 2002

The Jordan basin drains an area of 18, 300km^2. The following states and territories comprise the core of the basin covering 80% of the area: Israel, Jordan, and the West Bank and Gaza. Although Syria and Lebanon contain the headwaters of the Jordan River, these states rely upon other water sources for their principal needs. As such, this chapter concerns Israel and Jordan primarily, with secondary consideration of Syria and Lebanon in their role during the Johnston talks of 1955.

The river rises on the western and southern slopes of Mt. Hermon in a triangle between Lebanon, Syria and Israel and discharges into the Dead Sea.[133] The river has three separate sources each rising in a different state: The Dan is within Israel's recognized borders while the Banias lies within the territory (Golan Heights)[134] occupied by Israel after the 1967 Arab-Israel war. The Hasbani, by contrast, lies squarely within Lebanon. The Upper Jordan river flows through northern Israel into Lake Huleh, and empties into the only natural reservoir in the basin, Lake Tiberias, hereafter LT.[135] Ten kilometers south of LT, the Yarmuk tributary, whose headwaters lie in Syria, flows along the Syria-Jordan border into Israeli territory before joining the Jordan River (see Figure 3 above). It is important to note the riparian position of each state in the basin indicated in the following table:

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[133] Stephan Libiszewski, "Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict, " ENCOP OCCASIONAL PAPER No. 13, Center for Security Policy and Conflict Research/Swiss Peace Foundation, Berne, August 1995.
{http://www.fsk.ethz.ch/encop/13/en13.htm.} pp. 4-9.
[134] The Golan Heights was part of Syria prior to the 1967 war.
[135] Lake Tiberias is also referred to as Kinneret and the Sea of Galilee.

Table III: RIPARIAN POSITION IN THE JORDAN RIVER BASIN

RIVER/TRIBUTARY	STATES	RIPARIAN POSITION
HASBANI	LEBANON	**UPSTREAM**
	SYRIA	**UPSTREAM**
	ISRAEL	**DOWNSTREAM**
	JORDAN	**DOWNSTREAM**
BANYAS	LEBANON	**UPSTREAM**
	PRE-1967 SYRIA	**UPSTREAM**
	PRE-1967 ISRAEL	**DOWNSTREAM**
	POST-1967 ISRAEL	**UPSTREAM**
	PRE-1967 JORDAN WITH WEST BANK	**DOWNSTREAM**
YARMUK	SYRIA	**UPSTREAM**
	JORDAN	**DOWNSTREAM**
	ISRAEL	**FURTHER DOWNSTREAM**
	POST-1967 ISRAEL	**UPSTREAM OF JORDAN**
JORDAN RIVER	**LEBANON**	**UPSTREAM**
	SYRIA	**UPSTREAM**
	ISRAEL	**DOWNSTREAM**
	JORDAN	**FURTHER DOWNSTREAM**

The complex hydro-political geography of the region, combined with the arid climate, makes issues of transboundary water sharing difficult to resolve. Endeavors by some governments to divert the waters of the Jordan and theYarmuk rivers outside the valley to irrigate dry areas have been met with stiff resistance by downstream riparians. Surface water evaporation and the resultant water shortage is therefore a real problem in the summer months when precipitation is rare. Nevertheless, the northwest coast of the Mediterranean is endowed with a water surplus due to the movement of moist air from sea to land by the westerly winds.[136] Hence, precipitation is high in the mountains of Syria, Lebanon, and the hills of the West Bank and northern Jordan. This rain collects in underground aquifers.

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[136] Libiszewski, op.cit. p.6.

Tragically, however, over pumping of the aquifers, salt water intrusion in the ground water, and pollution due to agricultural runoff have led to severe water quantity and quality problems. In fact, the salinity of the Jordan River reaches up to 2,000 parts per million in the lowest section, making it unsuitable for crop irrigation.[137]

The fact that the states contributing to the environmental deterioration are also embroiled in a protracted conflict means basin-wide resolution of the former is hindered by the latter. Nevertheless, transboundary water cooperation between two core basin states, Israel and Jordan, has occurred since the technical committees of both parties accepted the water allocation formula established by US Ambassador Eric Johnston in the Revised Unified Plan of 1955. This early cooperation was later enshrined in the main body and Annex II of the 1994 Treaty of Peace concluded between Israel and Jordan. The path to water cooperation was marred, however, by war and suffering. In the next section, I shall discuss the nature of the Arab-Israel riparian dispute within the Arab-Israel protracted conflict. A brief review of how the hydrological unity of the Jordan basin was severed in 1920 by the mandatory powers of Britain and France presupposes such a discussion.[138]

THE MAP OF MANDATORY PALESTINE AND TRANSJORDAN

The collapse of the Ottoman Empire following Turkey's defeat in World War I had a profound impact on the map of the Middle East, especially on the hydrological unity of the Jordan Basin. According to the Sykes-Picot Agreement of 9 May 1916, the U.K and France divided the Arab lands into spheres of influence. The former was

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[137] Libiszewski, op.cit., pp.6-9.
[138] Throughout this section, I shall refer to Miriam Lowi's seminal work, Water and Power, op.cit.

granted control over the area known as Palestine (including the area east of the Jordan River then called Transjordan) and Iraq while the latter received control over Lebanon and Syria. This division of conquered land was formalized in the 1920 San Remo Treaty and authorized by the League of Nations that year in Italy. The boundary between the British and French Mandated territories ran from a point on the Mediterranean coast (Ras al-Naqura) to the Jordan River north of the Banias and Dan headwaters and south to the northern shore of Lake Huleh, running east of the Jordan River through Lake Tiberias to meet the Sykes-Picot line at the Yarmuk. This boundary failed to appease the three parties who had the greatest interest in the matter, the Arab and Jewish inhabitants of Palestine, and the Jews in exile who desired to establish a home in Palestine.[139]

THE BIRTH OF ZIONISM AND THE HYDROPOLITICAL MAP OF MANDATORY PALESTINE

Partly in reaction to the anti-Semitic pogroms in Czarist Russia and elsewhere in Europe, and partly because of a religious belief in the need to return to the land of their ancestors, nearly 65,000 diasporac Jews immigrated to Palestine between 1882 and 1914. The concept of the ingathering of the exiles in the Biblical land of Israel became a key element of Zionist ideology. In 1897 the Jewish playwright-journalist and father of Zionism, Theodor Herzl, convened the first Zionist Congress in Basle, Switzerland to

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[139] Uri Ra'anan, The Frontiers of a Nation (Westport: Hyperion Press, 1955) pp. 132-133. "It should be noted that from 1904-1914 nearly 40, 000 Jews immigrated to Palestine mostly from Russia. Among the new immigrants were individuals such as David Ben-Gurion and Levi Eshkol who would lead the Jewish community (Yishuv) into statehood and who founded Labor Zionist political parties in the state of Israel. Interestingly, these immigrants were pioneer agricultural settlers who participated in the collective ownership of the land. The agricultural cooperatives are known as the kibbutz movement and the land for these collectives was purchased by the Jewish National Fund through the Palestine Office, an arm of the World Zionist Organization, opened in Jaffa in 1908." Alwyn Rouyer, Arab Studies Quarterly, 18, 4(January 1, 1996), p. 5.

discuss the need to create a Jewish national home in Palestine secured by public law and confirmed by settlement.[140] The Ottoman Sultan ignored the request to permit increased Jewish immigration to Palestine. Before the fall of the Ottoman Empire, however, the U.K lent a sympathetic ear to the aspirations of the founding fathers of the Zionist movement through the Balfour Declaration of November 1917, pledging support for a Jewish national home in Palestine. Since agriculture was seen as the best way to bind Jewish immigrants to the ancient land, the need to secure water resources was a central part of the Zionist mission:

> Throughout 1917 and 1918 Jewish nationalists and pro-Zionist Englishmen advocated the continued integration of Eastern and Western Palestine. More pointedly, the Advisory Committee on Palestine proposed, 'on historical, economic, and geographical grounds,' that its boundaries should include, 'in the North, the Litani River, and the Banyas, close to and north of the sources of the River Jordan.'[141]

Although the Jewish national movement did not succeed in placing the Jordan River headwaters within Palestine, as evidenced by the outcome of the San Remo meeting alluded to earlier, "Palestine was permitted to use the Upper Jordan and Yarmuk water after the self-defined requirements of the French Mandates of Lebanon and Syria were met."[142] In addition, dams could be built on the Lakes of Huleh and Tiberias, provided compensation was given to extant users. In 1926 the Zionist Palestine Electric Corporation led by Rutenberg was awarded a seventy- year concession to develop the hydropower of the Jordan and Yarmuk rivers. These developments contributed to the economic growth of the Jewish community in the area. Thereafter, a series of reports and studies commissioned by Britain and later by Jewish and American engineers explored

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[140] Rouyer, op.cit., p. 3.
[141] As quoted in Michael Brecher, Decisions in Israel's Foreign Policy (London: Oxford University Press, 1974) p. 185.
[142] Ibid., p. 186.

the developmental potential of the basin. These reports warrant attention because they serve as the basis for each riparian's negotiating position in the rounds leading up to the Johnston talks in the 1950s. Before we can examine these reports, however, it is necessary to consider Arab-Jewish relations in the pre-state of Israel period and how these relations were shaped by British Mandatory policy. Only then can we understand the dynamics of the riparian dispute within the larger protracted conflict setting.

ARAB-JEWISH RELATIONS IN THE PRE-STATE PERIOD

For the Arabs, the Sykes-Picot agreement of 1916 was perceived as a betrayal of a formal British commitment. In this regard, the Arabs cite the promise that the British High Commissioner, Sir Henry McMahon, made to Husayn, Sherif of Mecca, in an exchange of letters in 1915. According to the Arabs, the British government agreed to support Arab independence from Ottoman rule provided the Arabs helped the British in the war against the Turks. The subsequent carving up of the region by Britain and France was viewed as a broken promise. In addition, the Arabs objected to the Balfour Declaration of 1917. The Arabs perceived Jewish settlement and land purchases as a threat to their own national aspirations and economic growth. Hence, as early as 1920

and 1929 violent clashes occurred between the Arab and Jewish communities in Palestine.[143] By 1936 Arab-Jewish relations had deteriorated to the point of an Arab revolt, lasting three years. The Rutenberg Concession works halted as a result, for at this time, Britain was eager to alleviate the tension between the communities.

The Peel Commission report of 1937 recommended the partition of Palestine: a Jewish state was to be created covering the northern coastal plain, the Jezreel Valley,[144] and the Galilee; and an Arab state in the rest of the territory west of the Jordan River, the area east of the Jordan River was to be given to Arab Transjordan. Since the partition would involve the exchange of populations, the report advocated a hydrological survey of the area to determine the capacity for land reclamation and agricultural development. Although the Peel Commission's plan to divide the region was rejected by the Arabs,[145] and was subsequently shelved by Britain, the hydrological survey known as the Ionides Report was completed but not implemented. It is this report that Arab negotiators endorsed during the rounds of the 1953-55 Johnston talks. In essence, the Ionides report was premised on the assumption that the Jordan Basin had insufficient water resources to support increased Jewish immigration. Focusing on the surface waters, the report recommended that water be diverted from the Yarmuk south of Lake Tiberias via canals along the East Ghor of the Jordan valley to irrigate Transjordanian areas. In addition,

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[143] The 1922 Churchill White Paper, which clarified British policy toward Jewish immigration, was designed to dispel Arab concerns. Although the document introduced the concept of the economic carrying capacity of the land to restrict the expansion of Jewish settlement, it reaffirmed British support for the existence of a Jewish national home in Palestine. As such, the Arabs rejected the White Paper. This White paper also severed Transjordan, the territory east of the Jordan River, from the League of Nations Mandate over Palestine, which included Transjordan and contributed significantly both to the Jordan Waters dispute and the intensity of the conflict over Palestine.

[144] Lowi, op.cit., p. 43.

[145] Note that the Jewish Agency accepted the Plan, though not unanimously.

Yarmuk winter water would be stored in LT during the summer. The plan also entrenched the concept that out-of-basin water transfer would be ill advised.

By 1939 the U.K outlined its new policy with respect to the final status of Palestine in the MacDonald White Paper. The plan recommended an Arab-majority binational state in which authority would be shared by Arabs and Jews. In keeping with the earlier concept of economic absorptive capacity, Jews would constitute only 1/3 of the population. Consequently, Jewish immigration was limited to 75, 000 over the next five years and total Jewish land purchases were severely restricted to 5% of the total territory of Palestine.[146]

These restrictions were condemned by the Jewish community, especially after the Holocaust began to unfold in Europe. Desperate to receive more Jewish refugees from Europe, the Jewish Agency of Palestine decided to study the prospect of increased settlement in the region. Since agricultural potential and access to water resources were essential if the refugees were to be accommodated, the Agency commissioned an American soil conservationist, Walter Lowdermilk, to formulate a land and water utilization plan. The plan was based on the premise that there was more than enough water to sustain an increase in Jewish immigration if the out-of- basin resources in Lebanon and Syria were harnessed. Lowdermilk envisioned the creation of a Jordan Valley Authority to oversee irrigation on both banks of the river, the diversion of Upper Jordan waters to the coastal plain and Negev desert in the south, and the construction of a Mediterranean to Dead Sea canal for hydroelectric production.[147] Another American

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[146]The MacDonald White Paper is reprinted in Walter Laqueur (ed.) The Israel-Arab Reader (New York: Penguin Books, 1975) pp. 64-75.
[147] Miriam Lowi, Water and Power (Cambridge: Cambridge University Press, 1995) p.45.

engineer, James Hays, delineated the steps required to implement Lowdermilk's plan. Most notable among the steps was the recommendation to drain the Huleh swamps, to divide the Yarmuk water resources in half so that both Israel and Transjordan could utilize them, and to divert Upper Jordan waters to irrigate the Negev in Israel.[148] The Lowdermilk-Hays plan of 1948 would become the cornerstone of Israel's water policy after independence.

ISRAEL'S INDEPENDENCE AND THE FIRST ARAB-ISRAEL WAR OF 1948-49

On November 29, 1947 the United Nations General Assembly passed a resolution calling for the partition of Palestine into Arab and Israeli states. The Arab states rejected the UN Partition Plan. Once the U.K withdrew from Palestine on 14 May 1948, Israel declared its independence as a sovereign state. The surrounding Arab states refused to accept Israel's existence and promptly attacked the nascent state. This was the first Arab-Israel war in their protracted conflict. For Israel, the war highlighted its vulnerable position in the region: it was surrounded by hostile neighbors who refused to accept its existence. For the Arab states, Israel was viewed as an insertion into the Arab heartland by colonial powers. Jewish immigration in the pre-state period, combined with what they perceived as colonial favoritism, aggravated Arab fears and hostility toward immigrant land and water expropriation.

After the 1948-49 war, there was a flood of Palestinian Arab refugees into the West Bank, the Gaza Strip, and Jordan. Mutual mistrust and suspicion characterized the relations between Israel and the surrounding Arab states. As a result of the armistice

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[148] Lowi, op.cit., p. 45.

agreements of 1949, the headwaters of the Dan lay within Israel, as did Lake Huleh and Lake Tiberias. Lake Tiberias bordered on Syrian territory, however. The Hasbani and the Banias lay within Lebanese and Syrian territory, respectively. Israel focused on the development of the coastal plain while Jordan was concerned with developing the Jordan Valley. Since both states unilaterally undertook these projects, which relied upon the same water system, the prospect for conflict was high. Both states were faced with the daunting task of developing scarce water resources when the demand for such resources was increasing exponentially. Within the first four years of Israel's independence, its population doubled.[149] Similarly, Jordan's population tripled due to the large influx of Palestinians refugees in the aftermath of the war. It is against this backdrop of population growth, mass migrations, mutual hostility, and fear that the issue of transboundary water sharing had to be confronted.

THE CATALYST FOR THE JOHNSTON MISSION OF 1953

Following the first Arab-Israel war, the Israel-Syria armistice agreement created a demilitarized zone (DMZ) on the northern frontier of the Jordan Basin. Syria and Jordan objected to the onset of Israeli water development plans in the DMZ in 1951 and 1953, respectively. In keeping with the Lowdermilk-Hays scheme, Israel began to drain the Huleh swamps north of LT to cultivate more land and divert Jordan river water via a canal at the Gesher Bnot Ya'acov. These actions sparked an exchange of fire between Israeli and Syrian forces around the DMZ. For Syria, the draining of the swamps was tantamount to Israeli expansion into Syrian territory, a threat to the core value of sovereignty. As such, Syria was prepared to divert the flow of the Banias headwaters in

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[149] Lowi, op.cit, p. 47.

retaliation. For Jordan, the diversion of Jordan river water was increasing the saline quantity in downstream water and aggravated an extant economic-developmental crisis. Jordan could not meet the irrigation or drinking needs of the Palestinian refugees. From this review of riparian history, it is evident that there is tentative support for hypothesis **H1: If a downstream riparian (Jordan) anticipates adverse material consequences from the resource extractions of its upstream neighbor (Israel), and the downstream state (Jordan) is pursuing unsustainable development of its water resources, then an extant E-D crisis is aggravated for the downstream state (Jordan).** Being the weakest downstream riparian, Jordan could only lodge complaints to the United Nations and endorse Syria's threatened counteraction.

Although Israel halted work on its Huleh project as a result of a UN resolution, the water quality problems faced by Jordan were not resolved. At this stage in May 1953,[150] the U.S sensed a need to intervene to prevent greater instability in the area. Consequently, the U.S. sponsored a water plan for Jordan prepared by the American engineer, M.E. Bunger.

The timing of this intervention and the fact that the parties to the dispute, Israel and Jordan would even countenance dialogue in subsequent meetings with the American Ambassador Johnston, conforms to the pattern suggested by Stein's negotiation model alluded to in the theoretical section. The crisis engendered by the Huleh project made it clear to the core riparians that future hostility would be imminent unless something meaningful occurred. The Bunger plan envisioned a water storage dam on the Yarmuk at Maqarin and another dam in the East Ghor area. The dams would supply water and

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[150] Lowi, op.cit., p. 82.

electricity to both Syria and Jordan and address the needs of Palestinian refugees. In 1953, however, Israel voiced its strong objection to the Bunger project claiming that the Rutenberg Concession of 1926 gave it proprietary rights over the Yarmuk. Consequently, all work ceased on the Bunger project.

As tensions increased over water use in the basin, the United States dispatched Ambassador Johnston to the area to mediate. Before analyzing the Johnston mission, however, it is useful to examine the bias toward agriculture in Israel's institutional structure. Only then can we understand the dynamics of the negotiation process at the international level.

By October 1953 Israel had initiated its National Water Carrier project designed to irrigate the Negev with water from the Jordan River. For Israeli water planners and politicians in this period, water shortage was perceived as a failure to access undiscovered sources. Increasing the supply of water was the policy objective, not curtailing demand. The construction of a National Water Carrier was seen as the best way to expand water resources and increase agricultural production. Since the settlement of frontier regions was essential to the nation-building enterprise, Israel's leaders were personally involved in the formulation of agricultural and water policy.[151] At the institutional level, water policy was intertwined with agricultural policy. To substantiate this claim, consider the fact that members of Israel's policy network were concurrently representing agricultural and water interests. For example, the Minister of Agriculture

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[151]" Levi Eshkol, Israel's third Prime Minister, was the first Director General and later chair of Mekorot, Israel's Water Authority. He was succeeded by Pinhas Sapir, who later succeeded Eshkol as finance minister." As quoted in E. Feitelson, "Implications of shifts in the Israeli water discourse for Israeli-Palestinian water negotiations," Political Geography, 21 (2002), p.300. It should be noted that, in 1953, "Eshkol held the Finance portfolio, as well as the key agricultural post in the Jewish Agency; as such, he joined Ben Gurion and Moshe Sharett (Prime Minister and Foreign Minister) as the principal Israeli decision-makers on Jordan Waters." Brecher, op.cit, p. 181.

and the Water Commissioner were personally affiliated with the agricultural sector. Moreover, in the 1950s and 1960s, the patrons of agricultural settlement organizations were those affiliated with the Labor Party. According to Yishai, 1/3 of the cabinet members were then affiliated with the agricultural sector.[152]

A flow chart depicting the functions and relationships among governing bodies relating to water and agricultural policy formation will reveal how agricultural interests were entrenched in the Israeli parliament.

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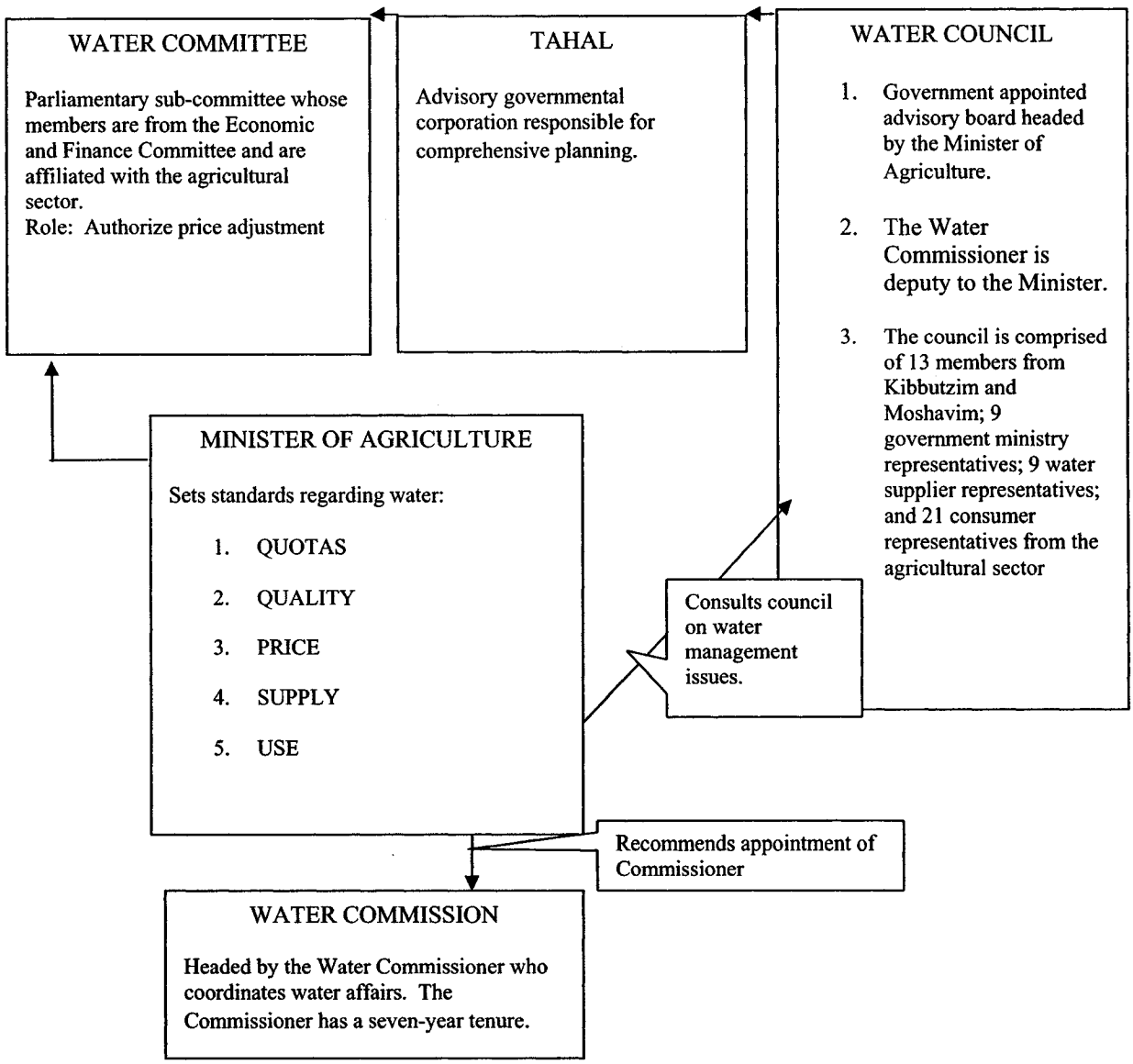
[152] Y. Yishai, "Civil Society in Transition: Interest Politics in Israel," Annals of the American Academy of Political and Social Science, 555 (January 1998), pp. 147-162.

Figure 10: ISRAEL'S AGRICULTURAL AND WATER POLICY NETWORK[153]



From this illustration it is evident that agricultural and water resource development was paramount in the Israeli planning process. Due to the dynamic population growth and the variability of rainfall, Israeli planners in the 1950s and 1960s

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[153] I created this figure to illustrate the institutional network discussed by Gila Menahem, "Public Policy, Sociology and Anthropology," International Public Policy, 18, 3 (1998), pp. 292-294.

were confronted by a high degree of uncertainty. To cope with such uncertainty in the least politically costly way, planners placed the burden of uncertainty on future generations.[154] Hence, planners gave liberal estimates of water resource potential by envisioning elaborate diversion schemes and allocated fixed amounts of water to the agricultural sector despite diminished supply and Arab wrath. These policies fit well with Israel's nation-building/security ideology. Promoting agricultural settlement through diversion of the Upper Jordan River was framed in the security discourse.

To substantiate this claim, consider Michael Brecher's synopsis of cabinet committee positions regarding Israel's decision to divert the river at Gesher B'not Ya'acov in the DMZ in July 1953. Although the Foreign Office representative was opposed for political reasons and Finance Minister Eshkol and his Director General, Sapir, were skeptical for financial reasons, Agricultural Minister Naftali was strongly in favor of the diversion plan.[155] It was the Agriculture Minister's view that was subsequently adopted by Eshkol, Prime Minister/Defence Minister Ben Gurion, and Foreign Minister Sharett. Since the water at the diversion point was not saline, it would be ideal for irrigation purposes and, by extension, for settlement. Although such a decision would incur the hostility of the Syrians, the primacy of agricultural development in Israel's national security discourse was uncontested. Bearing in mind Israel's policy predispositions, and the institutional structure of the policy network, I shall consider the

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[154] David Dery and Ilan Salomon, "After Me, The Deluge: Uncertainty and Water Policy in Israel," Water Resources Development, 13, 1, 1997. p. 93.
[155] Michael Brecher, Decisions in Israel's Foreign Policy
(London: Oxford University Press, 1974) p. 190.

dynamics of two-level games in the Johnston mediation rounds.[156] Effort will be made to account for the nature of water policy governance in Jordan as well.

Unlike the Israeli case, the institutional arrangements regarding water policy formation and implementation in the Kingdom of Jordan have undergone frequent change. In fact, it was only in 1959 that comprehensive legislation was passed regarding the institutional structure for water resources development. Since then the structure has changed seven times. These changes mean, in the words of Munther Haddadin, "a continuity of responsibilities has not been maintained."[157] Due to the short life span of many departmental arrangements, it is virtually impossible to engage in the rigorous institutional analysis of policy-making found in the Israeli case. As such, I must rely on the predilections of key power holders in the Royal Court and examine the dynamics among them. As far as the pre-1959 period is concerned, note that legislation in 1954 entrusted the responsibility to implement government irrigation projects to the Water Department and Ministry of Public Works. Water policy during this period resulted from politics in the Cabinet, which was ultimately influenced by the consensus among Arab League members.

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[156] **I shall extensively cite Lowi's case study on the Jordan waters conflict detailing the Johnston rounds because of her reliance upon and astute analysis of primary source material from the region.** See Lowi, op.cit. pp. 79-114.

[157] Munther Haddadin, "Water Issues in Hashemite Jordan," Arab Studies Quarterly, 22, 2 (Spring 2000), p. 74.

ROUND I: THE MAIN PLAN

Johnston was dispatched to the Middle East with the following terms of reference:[158]

1. Integrated development should give a greater volume of water to the riparians than unilateral development. Hence, both the Yarmuk and part of the Upper Jordan river would be diverted to LT.[159]
2. Israel should not exercise exclusive control over LT, the outlet from the Lake, and the diversion canal from the Yarmuk to Tiberias.
3. The Maqarin Dam should be used for hydroelectric production only.
4. The DMZs in the valley should be removed.
5. The development of Lebanon's Litani River should be off the negotiation agenda since in-basin use was emphasized.

On his first mediation mission Johnston proposed a plan for the use of the Jordan river basin that was based on the recommendations of the American consulting firm of Chas T. Main. The central premise of the Main Plan was integrated basin development for irrigation, hydroelectricity, and resettlement of Palestinian refugees in the West Bank and Jordan.[160] The projects would be largely financed by the United States, with some contributions from the UNRWA. Johnston hoped that the proposal would stimulate a dialogue among the riparians, which would result in the formulation of counterproposals during the bargaining process.

In essence, the Main Plan corresponds to the Pre-Negotiation phase in the international negotiation process. The third party mediator in this case, the U.S., adhered to the functionalist principle that resolution on technical water use and allocation matters

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[158] Lowi, op.cit., p. 86.
[159] "The Plan stipulated that Israel would be allocated 394 MCM annually while Jordan and Syria would receive 774 MCM and 45 MCM respectively. No quota was allocated to Lebanon." As cited in Munther J. Haddadin, "Negotiated Resolution of the Jordan-Israel Water Conflict," International Negotiation, 5, 2000, p. 266.
[160] Lowi, op.cit., p.83.

could facilitate resolution of seemingly intractable political problems such as the Palestinian refugees and regional instability. The reaction of each riparian to the Pre-Negotiation phase will demonstrate, however, that the search for principles in the Negotiation phase is fraught with difficulty. Although Israel and Jordan would benefit the most from integrated development, the incentive for each riparian to defect and pursue unilateral development was great in the atmosphere of protracted conflict.

THE ARAB COUNTER-PROPOSAL

The Arab riparians were skeptical about Johnston's proposal. First, unlike the role of the World Bank in the Indus Waters dispute, the United States was not viewed as an impartial mediator. Instead, the Arabs believed the U.S. was endeavoring to secure Arab recognition of Israel under the guise of cooperation on seemingly technical, non-political matters. Second, the Arabs were skeptical of Johnston's plan to develop the Jordan Valley for Palestinian resettlement. For them, doing so would be tantamount to nullifying UN Resolution 194 ("Right of Return") of 11 December 1949, which called for the repatriation, and compensation of Palestinian refugees.[161] To substantiate this claim, consider the memo sent by Jordan's Foreign Minister, Hussein Khalidi, to the Jordanian Prime Minister, Fawzi al-Mulki, in October 1953. In the memorandum the Foreign Minister maintained that integrated basin development was designed to force Arab states to share economic benefits with Israel and eventually sue for peace based on the right of Israel to exist.[162] Despite these serious misgivings, the Arab League Technical Committee was urged by Egypt to develop an Arab counter-proposal to the Main Plan in 1954. The broad outlines of the Arab plan follow:

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[161] Haddadin, International Negotiation, op.cit., p. 267.
[162] Ibid., p. 267.

1. Out-of-basin water transfer should be prohibited.
2. Only surplus water would be stored at Lake Tiberias; whereas, the bulk of the resources would be stored at the Maqarin dam on the Yarmuk.
3. More water should be allocated to all of the riparians than specified in the Main Plan.[163]
4. The UN should be authorized to supervise the implementation of the plan.

Clearly, by delimiting the agenda in this way, the political committee hoped to reduce uncertainty and risk.

THE INTERNAL AND EXTERNAL DETERMINANTS OF JORDAN'S FOREIGN POLICY

The fact that the Arabs formulated a counter-proposal, despite the politics of protracted conflict, necessitates a discussion of the internal Jordanian factors that may have shaped such a decision. In what follows, it is important to note that the nature of the Jordanian state in Migdalian[164] terms of weak/strong determines the type of foreign policy pursued. Of equal import is the fact that the third world state is essentially Janus-faced. The regime must look inward and outward and ensure that both its domestic and foreign commitments are met in order to survive.

Jordan's national security discourse rests on three variables: first, the need to secure foreign economic aid; second, the perceived political need to stifle parliamentary and media opposition; and third, the environmental imperative to cope with crop failure

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[163] According to the Arab League Files in Cairo in 1954, all riparians including Lebanon would get a share of the water resource from the Jordan river, side wadis, and ground water sources. Specifically, Israel would get 289 MCM in total, Jordan 975 MCM, Syria 45 MCM and Lebanon 35 MCM. Haddadin, op.cit, p. 269. Note that the Arab inclusion of Israeli riparian allocations was tantamount to de facto recognition of the State of Israel.

[164] Joel S. Migdal, Strong Societies and Weak States: State Society Relations and State Capabilities in the Third World (New Jersey: Princeton University Press, 1988)

induced by water shortage.[165] When domestic challenges to the Hashemite monarchy are successfully managed by the selective distribution of economic rewards to potential challengers, the regime is sufficiently stable. It is during such periods of 'stability' that the regime focuses on the first and third variables. Unfortunately, the need to secure foreign aid from Arab donors may necessitate the pursuit of ideologically driven policies entailing non-cooperation with Israel, which impedes the ability of the state to cope with environmental catastrophe.

By contrast, when patronage fails to buy off opponents in the domestic realm, the regime experiences instability.[166] During times of instability, the regime relies upon coercive instruments and thus stifles parliamentary and media dissent. In addition, one can infer that the frequency of anti-Israel rhetoric in Parliament and the executive branch would increase at such times to deflect attention from the fundamental schisms in the polity and provide the illusion of solidarity against a foreign enemy. Implicit in this formulation is the assumption that regime maintenance is a function of the king's ability to contain the various sub-nationalisms that threaten mass allegiance to the crown in the plural, deeply divided Jordanian polity. To achieve this end, the monarch must create a national ethos around which Jordan's principal ethnic groups coalesce.[167] In the early part of King Hussein's reign, this ethos was based on the need to assimilate Palestinian

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[165] Lawrence Tal, Politics, the Military, and National Security in Jordan (NY: Palgrave Macmillan, 2003) p. 10.

[166] See Rex Brynen, "Economic Crisis and Post-Rentier Democratization in Jordan," Canadian Journal of Political Science, 25, 1 (1992) pp. 69-97 for an informative discussion on the social manifestations of such regime instability, which was caused by a significant decline in oil rents.

[167] This is derived from Bassel F. Salloukh's article in which the concept of "Asabiyya dilemma" is developed. Salloukh borrows the concept from Ibn Khaldun to describe "a condition where society is composed of different segments, each with its own solidarity (asabiyya) and its own specific vision and definition of territorial entity that may challenge the cohesiveness of a state lacking a single, overarching, asabiyya." "State Strength, Permeability, and Foreign Policy Behavior: Jordan in Theoretical Perspective," Arab Studies Quarterly, 18, 2 (Spring 1996): pp. 37-65.

refugees into the socio-economic and political life of the country without alienating the King's traditional sources of support among the Transjordanian East Bankers. In terms of the domestic determinants of Jordanian foreign policy, therefore, the King had to adopt policies that appeared to address Palestinian domestic needs. Jordanian insistence on in-basin water use could thus be construed as a measure to address the needs of the Palestinian refugee community on the West Bank who historically tilled the soil for a living.

Nevertheless, the fact that the kingdom is dependent on foreign aid to buttress its fragile economy means it is especially vulnerable to the demands of donor countries in the Arab world. Hostile pronouncements against Israel, even when such a stance is inimical to Jordanian interests, thus becomes a tool of political survival for a weak state that is doing a difficult balancing act at home and abroad. The consensus in the Arab world about the injustice done to the Palestinians thus constrains the options available to the Jordanian state in its dealings with Israel over the use of transboundary waters. Although securing an agreement with Israel on the use of the Jordan River would have benefited the refugees, such an agreement would have paradoxically undermined Jordan's relations with neighboring Arab states[168] and eventually impacted negatively on Jordan's foreign aid. Without such aid, the delicate patronage links upon which the stability of the regime rests would be upset.[169] In short, Jordan's weakness internally,

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[168] As Lowi writes, "{Arab} recognition of what was perceived as an illegitimate political entity {Israel} was equivalent to forsaking the struggle to regain Palestine and accepting the status quo in the aftermath of the 1948-49 War; in other words, a repudiation of one of the most important "binding agents" of the Arab nation in the modern period." Lowi, op.cit., p. 106.

[169] Derived from Laurie Brand, Jordan's Inter-Arab Relations: The Political Economy of Alliance Making (New York: Columbia University Press, 1994) p. 20.

coupled with its weakness externally, prevented the resolution of the Jordan waters problem on Pareto-optimal terms.

Up to this point, the general tendencies of the Janus-faced Jordanian state have been discussed without focusing on the policy-making network. Although Jordan's 1952 Constitution granted free-ranging power to the King and his executive branch and rendered Parliament impotent, the King can be influenced by the Prime Minister and the Chief of Court.[170] While the King is immune from legal responsibility for his policies, the PM must take responsibility for policy failures and successes. The Chief of Court, by contrast, has the ear of the King and access to the inner circle without a risk of public backlash. Should the King enjoy cordial ties with these office-holders, the policy preferences of these men will be pursued by the monarch. In the highly centralized constitutional monarchy of Jordan, the King has the following powers:

1. Commands the military.
2. Declares war.
3. Signs treaties.
4. Appoints or dismisses the PM, the cabinet, and members of the upper legislative house called the Council of Notables.
5. Dissolves both houses of Parliament. (The Lower House is called the Council of Representatives and is elected by the people)

In practice, the King acted as an arbiter among the demands of rival factions in the government.[171] It should be noted that the predilections of the PM would determine whether he would be indifferent or sensitive to the local power-bases of the cabinet ministers. Should the PM be insensitive to the power bases and hold the confidence of the King, domestic opposition to the regime rises and may become manifest as domestic

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[170] Brand, op.cit., p. 12.
[171] Ibid., p. 12.

rioting and public unrest. What is important from the standpoint of water resource policy-making is that the policy orientations of the PM and the Foreign Minister may trump that of the Minister of Development and Reconstruction, or at minimum, dilute the policy preference of the latter, if the former is indifferent to the local power bases. Consequently, political considerations may override rational economic and techno-environmental considerations.

On the other hand, there have been a few instances where the PM was sufficiently sensitive to the interests of the Cabinet. Consider the dynamics between King Hussein's first Prime Minister, Dr. Fawzi al-Mulqi and his Minister of Development and Reconstruction, Anwar al-Khatib. Mulqi lacked a strong power base of his own and depended heavily on his Ministers to ensure there was popular support for his government. A historians of the period depicted Mulqi as a liberal who believed in conciliatory politics.[172] Khatib was a Palestinian moderate who encouraged refugee resettlement by advocating a scaled-down version of the Yarmuk river plan. Khatib's scaled-down plan indicated a willingness to create a modus vivendi with Israel. This dynamic between the PM and Development Minister could partly explain why Jordan was willing to hear Johnston's proposals despite the sentiment in neighboring Arab states. Yet, Foreign Minister Khalidi was a virulent anti-Zionist. As such, the PM could not advance a counter-proposal that could be perceived as being too soft on Israel. Ultimately, the PM in his zeal to secure the broadest minimum of support among the Cabinet members encouraged on-going dialogue with Johnston's team without deviating

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[172] Robert Satloff, From Abdullah to Hussein, (Oxford: Oxford University Press, 1994) p. 75.

from the consensus among Arab states. In the process, the pre-negotiation phase itself served to "moderate and temporarily suspend conflict activities."[173]

ISRAEL'S COUNTER-PROPOSAL: THE COTTON PLAN

In response to the Main Plan, Israel's negotiating team prepared a plan after consulting with John Cotton, advisor to the government on Israel's National Water Carrier. The plan was truly regional in scope and sought the full irrigation of fertile land in Jordan, Southern Lebanon, and Syrian land in the Upper Jordan basin.[174] More importantly, Israel would receive surplus water from the Jordan-Yarmuk system and the Litani flow, which was three times more than stipulated in the Main Plan, while Jordan's and Syria's shares would be cut by one fourth and one third, respectively.[175] Israel's right to use water out of the basin was an essential element of the Cotton Plan.

ROUND 2: JOHNSTON TRIES TO RECONCILE THE ARAB AND ISRAELI COUNTER-PROPOSALS JUNE 1954.

In order to make the Arab and Israeli positions more commensurable, Johnston attempted to persuade each side to relinquish those maximalist conditions, which would result in a negotiating impasse. Since Israel would not agree to any scheme prohibiting out-of-basin use, and the Arabs would not agree to any scheme involving the national waters of Lebanon, Johnston persuaded each side to relinquish or modify these conditions. With respect to the allocations of water, however, Israel rejected the Main Plan's figures as too conservative. More water was needed to meet Israel's development needs. Finally, Israel rejected Jordan's prior claim to water for the resettlement of refugees and was wary of using LT as a storage reservoir for Jordan's Yarmuk floodwater

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[173] Stein, op.cit, p. 180
[174] Lowi, op.cit, p.90
[175] Ibid., pp. 90-91.

given Israel's commitment to protect its sovereign rights.[176] Despite these reservations, Israel did demonstrate a willingness to enter negotiations with the Arabs to hammer out an agreement based on the principle of unified development.

The Arabs, by contrast, would not countenance direct negotiations with Israel. Internal politics within the Kingdom of Jordan at that time, combined with the external political climate, precluded such a possibility. From 1954 to 1957 there was unrest in Jordan due to confrontations between the monarchy supported by the conservatives and the Nationalists led by the Ba'ath, Communist, and National Socialist Parties. The opposition in Parliament seized the issue of Jordan's invitation to join the U.S.-U.K sponsored Baghdad Pact as the target of their anti-monarchy campaign. The Prime Minister, Tawfik Abu al-Huda Baja, was neither able to revise the terms of the British subsidy to Jordan nor to persuade the opposition to join the Bagdad Pact.[177] The fact that Britain refused to respect the sovereign aspirations of the Jordanian government added fuel to the fire of opposition nationalists. Once the British tied treaty revision to the accession of Jordan to the anti-communist Baghdad Pact, opposition forces were determined to end Jordan's military dependence on the Western great powers.[178]

King Hussein, however, was inclined to join the Pact and so he requested the resignation of al-Huda and his cabinet. Al-Huda's successors, PM Said al-Mufti and Hazza al-Majali, were also unable to garner support for the Pact. Displeasure with the regime's pro-Western posture was manifested in anti-government riots on the Jordanian

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[176] Prime Minister Sharett feared that turning LT into an international reservoir would form the basis for future Arab territorial claims. Ibid., p.94.

[177] Up to this point, Britain controlled the finances of Jordan's Arab Legion. General Glubb was the commander of the Jordanian army and he, not the government of Jordan, disbursed the British subsidy.

[178] Since the Palestinians made up two thirds of Jordan's population, they were more likely to dismiss the threat of Soviet power in the region and saw membership in the Pact as capitulation to 'western imperialist interests in the region.' For them, confronting Israel was a bigger priority.

street. The parliamentary opposition and the masses were emboldened by Nasser's anti-imperialist propaganda. Although the government tried to suppress the unrest by marshalling the coercive instruments of the state, it failed.[179]

In this tense atmosphere, Jordan's negotiating team during Round 2 of the Johnston talks could not make fundamental concessions to Israel. The old refrain of Arab unity, right of return for Palestinian refugees, prohibition against out-of-basin water transfer, and development of storage reservoirs on the Yarmuk River resurfaced in Jordan's talks with Johnston's team. Moreover, the shooting incidents across the Israel-Jordan Armistice lines, culminating at the end of June in the outbreak of fighting in Jerusalem, heightened tensions between Jordan and Israel.[180] Once again this sequence of events conforms to the pattern suggested by Stein's negotiation model. Even though both riparians submitted proposals and counter-proposals, the overall deterioration in Jordan's domestic and international political climate impeded progress in the negotiations.

In terms of two-level game theory, the level II winset (domestic realm) in Jordan was so small that it was virtually impossible to enter a zone of agreement at the international level. Without doubt, external regional Arab pressure that had reverberations in Jordan's domestic realm also shrunk the level II winset. The foregoing analysis of the internal and external pressures faced by King Hussein reveals that Jordan did not develop a consensus regarding the "legitimate means and ends of political

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[179] "Opposition leaders were rounded up by the army and security forces in villages, towns and refugee camps. But it was physically impossible to imprison all opponents of the regime."As cited in Sir John Glubb, A Soldier with the Arabs (London: Hodder and Stoughton, 1957) p. 410.
[180] Lowi, op.cit, p.92.

action."[181] The segmented social structure in Jordan with respect to the schisms between Palestinians and East Bankers, Bedouins and urban dwellers, and refugees versus non-refugees militated against consensus. In addition, the King's preference for a pro-Western military alignment was rejected by the opposition and the people and served to enlarge the chasm between the elite and the masses. Instead of reducing this gap by creating a political space in which dissident voices could shape policy legitimately, the King depended on coercive power to suppress dissent and retain his authority. Such strong-arm tactics limited consensus and led to instability.[182]

When it became clear that the government had to capitulate to some oppositional demands for the sake of regime survival, the government would reverse its policy sharply. This is evidenced by King Hussein's decision to dismiss General Glubb as commander of the Arab Legion, and his pact with Syria and Egypt to create a Unified Military Command led by Egypt in 1956. This was quite a volte-face, given the King's previous goal of joining the British initiated Baghdad Pact. By appeasing the opposition for the sake of survival, however, the government narrows the set of possible agreements at the Level 1, international, game board. Hence, Israel would be less willing to enter a zone of agreement when its Jordanian counterpart appears to tow the line of regional enemies.[183] On the other hand, if the King successfully co-opts or appears to placate opposition forces, then he is given greater latitude to maneuver at the international level.

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[181] Naseer Aruri, Jordan: A Study in Political Development (Hague: Martinus Nijhoff, 1972) p. 107.
[182] When political parties are prohibited and press freedoms abridged, polarization occurs between revolutionary nationalists who reject the entire system and loyal conservatives who will defend the status quo at any cost.
[183] See p. 122 of this dissertation for a discussion of Lebanon and Syria's position during the negotiations.

ROUND 3: THE BAKER HARZA REPORT, REVISED ALLOCATIONS, AND MORE BARGAINING CONCESSIONS JANUARY 1955

As a result of American engineering studies completed by the Baker-Harza firm, Johnston was able to revise the allocations to each riparian. The firm had discovered that less water per unit of land was required to irrigate the fertile areas of land in Jordan's portion of the valley.[184] Bearing this in mind, Johnston now offered Israel 446mcm.[185] Johnston also sought agreement on the use of LT as an international reservoir, a small storage facility on the Yarmuk, and placement of an international supervisory body.[186] Despite the increased allocation, Israel still rejected the offer for it did not meet its perceived developmental objectives.

The Arab Technical Committee objected to the Harza findings on several grounds: First, Jordan's water needs were adjusted downwards based on a liberal estimate of the area of arable land in Jordan's side of the valley;[187] second, the small storage dam envisioned for the Yarmuk would not meet Jordan's needs, and third, the Arabs were unwilling to depend on Israeli good will to access Yarmuk flood water stored in LT. King Hussein of Jordan was willing, however, to agree to LT storage with neutral, third party supervision. Jordan also believed that Syria and Lebanon would agree to the shares allocated to those states. Nevertheless, Jordan could not sign the draft Memorandum of Understanding without obtaining explicit Syrian and Lebanese support. Being the weakest, downstream riparian Jordan understood that Johnston's plan did give Jordan much more water than if unilateral development occurred. Yet, Jordan was also

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[184] Lowi, op.cit., p. 93.
[185] Ibid., p. 94.
[186] Ibid., p. 94.
[187] Munther J. Haddadin, "Negotiated Resolution of the Jordan-Israel Water Conflict," International Negotiation, op.cit., p. 272.

acutely conscious of the repercussions of being labeled a maverick in the Arab League Political Committee. A summary of the Arab Memorandum of Understanding follows:[188]

1. The main storage for Jordan and Yarmuk water would be a high dam on the Yarmuk, with secondary storage for floodwater on LT to be released to Jordan by Israel with international supervision.
2. Jordan would be allotted 537 MCM from the Jordan and Yarmuk rivers (in addition to wells, springs and wadis within the kingdom); Syria would be allotted 132MCM (20 MCM from the Banyas, 22 MCM from the Jordan, and 90 MCM from the Yarmuk), and Lebanon would be allotted 35 MCM from the Hasbani.
3. Israel would receive 170 MCM from the Yarmuk.

From a two-level game perspective, the fact that Jordan would agree to unified development at this point can be explained by the Arab belief that such functional cooperation with Israel would not prejudice extant claims against Israel. More importantly, Jordan's serious consideration of unified development with Israel implied recognition of Israel's right to exist. The composition of the Jordanian cabinet on May 30, 1955 can also explain the agreement in principle. As mentioned earlier, the prime ministership of al-Huda had fallen following strong domestic opposition to the King's desire to join the Bagdad Pact and al-Huda's apparent rapprochement with Nasser of Egypt. Moreover, al-Huda had clamped down on civil liberties to quell the unrest. The successor government led by PM al-Mufti was timid and differential to the King.[189] The Jordanian Defence Minister, Shubaylat, and the Minister of the Interior, al-Majali, were known for their pro-Western orientation. The Cabinet also had greater tolerance for press and civil freedom. Finally, Foreign Minister Samir ar-Rifai did not espouse the virulent anti-Zionism of his predecessors. These policy orientations enlarged the Level I winset.

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[188] Haddadin, "Negotiated Resolution of the Jordan-Israel Water Conflict," International Negotiation, op.cit., p. 273.
[189] Robert Satloff, From Abdullah to Hussein: Jordan in Transition, op.cit., pp. 75-80.

Unfortunately, the size of the Level I winset would contract shortly thereafter because of a contraction of the Level II winset at home. The announcement of U.S. Secretary of State Dulles linking Johnston's mission to the resettlement of Palestinian refugees renewed the old Arab commitment to deny Israel's existence:[190] Dulles said that in order to secure a lasting a stable peace in the Middle East, the US would pay adequate compensation to the Arab refugees, underwrite some of the expenses for a regional water development project, and guarantee new and permanent political boundaries which would replace old armistice lines.[191] Dulles' diplomatic faux pas led to rejection of the Johnston proposal in the parliaments of Lebanon and Syria. From this discussion, there is tentative support for null Hypothesis $H7_0$: **If water issues are linked to non-water issues, which are of vital importance to both parties, then there is a negative effect on the negotiation outcome.**

Nevertheless, the Arab League Technical Committee endorsed the plan: it was relieved that Johnston would facilitate 50% more US funding to construct a high dam at Maqarin and that the decision to store surplus Yarmuk water in LT would be deferred for five years in order to conduct a feasibility study. When it became known to the people in each concerned Arab state that the Technical Committee agreed to the Revised Plan, protests occurred. The Palestinian refugees in Jordan thought Jordan's acceptance was tantamount to the jettisoning of the Palestinian cause by the Arab states.[192]

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[190] Haddadin, op.cit, p. 274.
[191] Lowi, op.cit, p. 100.
[192] Ibid., p. 100.

ROUND 4: THE ARAB LEAGUE POLITICAL COMMITTEE REJECTS THE UNIFIED PLAN AND ISRAEL ACCEPTS THE PLAN

During the meetings of the Arab League Political Committee in October 1955, however, Syria rejected the Plan outright citing the standard arguments against the recognition of Israel and the need to repatriate Palestinian refugees. It appears, however, that Syria's objections stemmed from its own internecine regime rivalry and the resultant need to lend the semblance of domestic unity in the face of the "common enemy", Israel. While the Syrian regime was pro-Egyptian in orientation, the presence of a Baath party opposition[193] that was against any negotiations with Israel meant the regime could not be perceived as being soft on Israel. Lebanon, by contrast, was unanimous in its Parliamentary vote against the Unified Plan claiming that any cooperation with Israel was tantamount to betrayal of the Arab cause. Egypt, on the other hand, had a more ambivalent stance born out of its own strategic imperatives in the region. Despite the fact that Nasser of Egypt supported the essence of the Unified Plan, he ultimately voted against it because the United States refused to sell weapons to Egypt and finance its Aswan High Dam. Finally, although Jordan accepted the Plan, it was too weak to influence the opinions of the heavyweights in the League. The refusal of the Political Committee to approve the Revised Unified Plan suggests that null hypothesis $\mathbf{H8_0}$ which states that **multilateral negotiations are more likely than bilateral negotiations to lead to regime emergence** was not supported.

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[193] Lowi, op.cit., p. 103.

ISRAEL'S RESPONSE TO THE ARAB MEMORANDUM OF UNDERSTANDING ENDORSED BY THE ARAB TECHNICAL COMMITTEE

Israel responded to the Arab position by agreeing to Syria's and Lebanon's shares of water and the condition of supervision, but it rejected the allotments for Israel and Jordan. Israel wanted its share of both LT and Yarmuk waters increased and Jordan's share of the same sources reduced. After more talks with Johnston, Israel's PM Sharett and Minister of Finance Eshkol agreed to share 30 MCM of saline water with the Arabs, and accepted the allotments for the distribution of water: they agreed that Jordan would get 100 MCM from LT and Israel would get 25 MCM from the Yarmuk.[194]

It is interesting to note that the shares of Syria and Lebanon steadily increased from the first to the fourth round of talks while those of Jordan decreased. The decline in Jordan's share could be interpreted as its bargaining weakness vis à vis the upstream riparians. Since the new Jordan Cabinet formed by PM Sulayman an-Nabulsi in 1956 was overtly pro-Nasser in orientation, it was less amenable to compromise with Israel.[195] Anti-Israel and anti-American rhetoric was employed by Hamid Farhan, the Under-Secretary of Jordan's Ministry of the Economy, in a speech to Jordan's parliament to highlight the advantages of rejecting the Unified Plan:

US intervention benefits Israel and would be accepted only by sick minds. The {independent} Arab project would irrigate 500,000 dunams of land whereas Johnston's plan would irrigate only one half that area.[196]

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[194] Haddadin, op.cit., p. 275.

[195] In 1955, Nabulsi as leader of Jordan's National Socialist Party sent a memo to then PM al-Mufti stating his party's unequivocal rejection of the Unified Plan on that grounds that acceptance meant cooperating with the enemy, Israel, and jettisoning the Palestinian cause. Nabulsi also advocated an independent Yarmuk project (not involving Israel) that would cost much less than the Johnston Plan.

[196] David Wishart, "The Breakdown of the Johnston Negotiations," Middle East Studies, 26, 4 (1990), p. 543.

As noted, Arab nationalist sentiment reigned supreme during this period. Nasser's proclamation on 22 July 1956 nationalizing the U.K-France dominated Suez Canal corporation and breaking free of Western influence touched a responsive chord among the peoples of many Arab capitals. It is not surprising, therefore, that Jordan towed the Egyptian-Syrian line at the Arab League Political Committee meeting. Arguably, had Egypt and Syria separated political issues from the technical ones and allowed Israel and Jordan to come to a bilateral agreement, Johnston's Unified Plan would have been ratified by Israel and Jordan. This discussion reveals the difficulties inherent in multilateral negotiations when high politics hijacks issues of functional cooperation among parties within the tumultuous phase of a protracted conflict. This indicates non-support therefore of null hypothesis $\mathbf{H8_0}$: **Multilateral negotiations are more likely than bilateral negotiations to lead to regime emergence.**

UNILATERAL DEVELOPMENT, THE 1963-64 JORDAN WATERS CRISIS, AND THE 1967 ARAB-ISRAEL WAR.

The failure of the Johnston Mission to secure a basin-wide accord led to a period of Israeli and Jordanian unilateral development of water resources.[197] Nevertheless, Israel and Jordan abided by the Johnston allocations on a de facto basis. This is significant despite the outstanding political tensions among all riparian parties. It suggests that the competition for scarce resources does not automatically translate into

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[197] In 1959 water policies became institutionalized in Israel due to the passage of the Water Law. The Water Law nationalized all water resources and gave sole authority for water issues to the Water Commissioner who is under the authority of the Minister of Agriculture. In water planning and development, therefore, the agricultural sector was always given priority. Hence, exorbitant rates were charged to municipal consumers. The municipal consumers could not affect policy, for the policy community was dominated by members of Tahal and Mekorot. Jordan embarked on the East Ghor Canal project with Syria in order to irrigate vast tracts of land in the eastern portion of the Jordan Valley. This involved the eventual construction of reservoirs and hydro-electric dams.

violent conflict. This de facto understanding was later legally entrenched with some modifications in the Israel-Jordan Peace Treaty of 1994.

To attain an understanding of the negotiating process, which culminated in the Israel-Jordan Treaty of 1994, the economic and environmental context shaping the interests of the actors from 1964 to 1991 will be analyzed. I have chosen this temporal domain because the perception of each riparian regarding the security implications of the other riparian's development schemes had some influence on the transition of the Economic-Development crisis to a Military-Security crisis in the 1967 Arab-Israel war. This is not to argue that the Jordan Waters Crisis of 1963-64 caused the 1967 War. Rather it is to suggest that conflict over water was one of many irritants vitiating the political atmosphere in the basin. Emphasis will be placed on the territorial changes wrought by the 1967 war because of its impact on the hydro-political configuration of the basin.[198] Only then can we appreciate the preferences of the players at both Level I and Level II game boards during the Middle East peace process launched on October 31, 1991 in Madrid.

ISRAEL'S NATIONAL WATER CARRIER, JORDAN'S EAST GHOR PROJECT, AND THE ARAB HEADWATER DIVERSION PROJECT

By 1964 Israel had completed the water conduit from Lake Tiberias to the coastal plain and the Negev desert. Its National Water Carrier (NWC) had a diversion capacity of 320 million m^3. A 15 million dollar U.S. loan in 1959 helped finance the project.[199] The U.S. also contributed 4 million dollars to Jordan for its East Ghor canal project,

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[198] The end of Nasser's pan-Arab appeal, the Rabat Resolution of 1974, and the end of the Cold War are other factors that merit attention. Arguably, fewer challenges to Jordan's domestic stability, along with Israel-PLO Oslo Accord in September 1993, may have contributed to Jordan's ability to conclude a treaty with Israel in 1994.

[199] Brecher, op.cit., (1974) p.210.

which was completed by 1961. The East Ghor project was the first part of a more comprehensive scheme to develop the greater Yarmuk region. The Greater Yarmuk Plan involved the construction of:[200]

1. the Maqarin and Mukheiba dams for storage and hydroelectricity,
2. the West Ghor canal with a conduit from it to the East Ghor canal,
3. smaller dams on the side wadis,
4. pumping and drainage facilities.

Despite the fact that both Israel and Jordan exercised restraint with respect to their respective withdrawals from the Jordan-Yarmuk river system, the Arab League Political Committee seemed determined to thwart Israel's plans to complete the NWC. At the January 1964 Arab Summit Conference, the member-states decided to divert the headwaters of the Jordan River (the Banias and Hasbani) to the Yarmuk and store it at the Mukheiba dam. For the Arab states, such a diversion scheme would not be cost-effective, yet they were determined to go ahead with the plan because of the perception that Israel's NWC would enhance that state's capacity to house more immigrants at the expense of the Palestinians.[201] Moreover, the Arabs feared that Israeli immigration, combined with economic development, would increase Israel's relative power. In response to the Arab threat to divert the headwaters, Israel's PM Eshkol made the following unequivocal statement to the Knesset on 21 January 1964 about his country's position on the issue:

The Arab countries are utilizing the Jordan-Yarmuk system to meet all their needs, while they seek to prevent Israel drawing its share from this network. They believe, apparently, that what is permissible to them should be forbidden to Israel...It is becoming clearer and clearer to the world that the arguments of the Arab countries have nothing to do with water, but are meant to deny Israel's right to exist...Israel will draw water from Lake

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[200] Thomas Naff, Water in the Middle East (Pennsylvania: Middle East Research Institute, 1984).
[201] Lowi, op.cit., p. 119.

Kinneret within the limits of the quantities laid down in the Unified Plan. Israel will oppose unilateral and illegal measures by the Arab States and will act to protect its vital interests.[202]

In spite of Israel's stated refusal to tolerate such an Arab project, the Arab states commenced work on the Headwater Diversion Project in 1965. This project, when completed, would deprive Israel of nearly 1/9 of its yearly water allocation from the Jordan-Yarmuk system. Such a shortage would make it virtually impossible to meet the needs of immigrants and settlements.[203] This provides further support for hypothesis H1: **If a downstream riparian (Israel) anticipates adverse material consequences from the resource extractions of its upstream neighbor(s) (Lebanon and Syria), and the downstream state is pursuing unsustainable development of its water resources, then an E-D crisis develops for the downstream state.**

During the spring and summer of 1965 clashes occurred along the Israel-Syria border. While Israel accused Syria of firing on Israelis working near the Dan spring, southeast of the Bnot Ya'acov Bridge, Syria claimed that Israeli forces had hit Syrian work teams at the headwater diversion site.[204] In addition, there were reports of Palestinian feda'iyun engaging in cross-border raids from Jordan to sabotage the NWC. The E-D crisis triggered by the Arab diversion project had escalated to a M-S crisis for Israel, Syria, and Jordan. Syria, however, did not find support among other Arab states, notably, Nasser's Egypt, to engage in war with Israel at that time. Of equal import was

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[202] Speech to Knesset, Levy Eshkol, Israel Ministry of Foreign Affairs, Vol. 1-2: 1947-1974, part VII, section 12: The River Jordan.

[203] "Note that from 1950-1970 Israel was using up to 95% of her total resource potential. Due to a trebling of her population, there was a six fold increase in water consumption in which agriculture accounted for 80% of total consumption." Itzhak Galnoor, "Water Policymaking in Israel, " in Hillel I. Shuval (ed.), Water Quality Management under Conditions of Scarcity (New York: Academic Press, 1980), p. 289.

[204] Lowi, op.cit., p. 126.

the decision by King Hussein to prevent the stationing of non-Jordanian Arab troops on his territory. Since the political will to engage in military battle was absent at that time, the Arab plan to divert the headwaters was shelved.

Nevertheless, the anti-Israel belligerent rhetoric emanating from Arab capitals and the outstanding issues in the Arab-Israel protracted conflict set the stage for the second Arab-Israel War in which frequent attacks on water works occurred.[205] Without dwelling on the exact sequence of events that led to the June Six Day War in 1967,[206] I shall focus on the territorial revisions relating to water resources brought about by the war.

THE POST-1967 HYDRO-POLITICAL MAP: A FOCUS ON THE ECONOMIC AND ENVIRONMENTAL CONTEXT

Israel made substantial territorial gains as a result of that war, and was not concerned with perceived external threats to its water supply. It now enjoyed upper riparian status on the Banias by virtue of its military victory in the Golan Heights and was the upstream riparian on the Jordan River. Consequently, Israel had access to 20% of the Yarmuk as opposed to 10% prior to the war.[207] In addition, it controlled the ground water sources of the West Bank and Gaza since it occupied these territories as well.[208] Jordan, by contrast, lost heavily in the 1967 war. The kingdom lost the West Bank, which

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[205] "In mid-July of 1966, the Israeli air force struck the diversion works on the Banias-Yarmuk canal in Syria in retaliation for feda'iyun sabotage operations." Lowi, op.cit, p. 130.
[206] For an excellent synopsis of the Jordan Waters Crisis and the Six Day War see Michael Brecher and Jonathan Wilkenfeld, A Study of Crisis (Ann Arbor, MI.: University of Michigan Press, 2000) p. 277-282.
[207] Lowi, op.cit., p. 149.
[208] From a military-political perspective, Israel had demonstrated its ability not only to exist, but also to fortify its territory. Arab acceptance of Security Council Resolutions 242 of 1967 and Resolution 338 of 1973 enshrining Israel's right to exist would occur much later: on December 14, 1988, at a press conference in Geneva convened by PLO Chairman Arafat, the PLO conditionally accepted UN Resolution 242, implied recognition of Israel, and renounced terrorism outside the territory of Israel. For the US, this statement meant that the PLO would now be recognized and become a party to Middle East peace negotiations.

accounted for 33% of its population and 45% of its GNP.[209] The West Bank had been the most fertile land in the kingdom. Jordan's 'gain' of three hundred thousand highly politicized Palestinian refugees was also a loss.[210] The shattered Jordanian economy was unable to cope with the demands of the newcomers. Jordan's loss of East Jerusalem also impacted negatively on its tourist revenue.

Syria lost its upstream advantage on the Upper Jordan to Israel, but maintained its upper riparian status on the Yarmuk vis à vis the Kingdom of Jordan. This loss for Syria diminished its influence on Israel-Jordan water issues. Moreover, Israel's demonstration of strength had a negative effect in its peace negotiations with Syria. Syria refused to engage in peace talks with Israel until Israel withdraws to the pre-4 June 1967 line. Even talks on water have stalled as a result of this impasse. This lends tentative support to hypothesis **H5** which states: **If a state (Israel) is more powerful and is the upper riparian, then such a condition is not conducive to the emergence of a basin-wide regime.** The failure to conclude a basin-wide regime is especially troublesome for Jordan. In the absence of a treaty regulating water allocations with Syria, any benefits Jordan received in the 1994 Treaty of Peace with Israel must be viewed accordingly: Syria's extractions from the upper Yarmuk have led to diminished supplies for Jordan.

CHANGES IN ISRAEL'S ECONOMY AND WATER POLICY DISCOURSE

Since consumption due to over-pumping exceeded sustainable annual yield in the 1970s, Israeli planners had to deal with a water shortage. Access to the sources gained as

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[209] Rami G. Khouri, The Jordan Valley: A Life and Society Below Sea Level (London: Longman, 1981) p. 103.
[210] Lowi, op.cit., p. 149.

a result of war proved to be inadequate given the needs of a rapidly growing and industrializing country. The Israel policy network sought to rectify the demand-supply problem by investing in new technologies, such as sewage reclamation, desalination, and cloud seeding instead of adopting the effective, yet politically costly, policy of cutting allocations to agriculture.[211]

By 1986, however, changes had occurred in Israel's economy that would enable the government to cut allocations to agriculture. A smaller percentage (3.6%) of the labor force was employed in agriculture and the sector's contribution to the GNP declined to 2.1% in the 1980s.[212] By importing grain, Israel's food security was no longer dependent on an overly active agricultural sector. Of equal importance is the fact that the Israeli public was more critical of state policy during the debt crisis of the mid-eighties that engulfed the cooperative rural sector.[213] Due to mismanagement and an inability to compete on world markets, many farms needed government bailouts to stave off bankruptcy. The Israeli public, fed up with paying four times as much as agricultural

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[211] Lowi, op.cit, p. 151 These measures did not prevent Israel's water deficit of 1991, however, in which the equivalent of one year's supply was unavailable.

[212] Gila Menahem, op.cit., p. 300. Menahem wrote that, in 1970, agricultural exports represented 16.5% of the GNP while in 1994 agricultural exports dropped to 3.5%. Nevertheless, Menahem claims the sectoral allocation of water to agriculture was not reduced sufficiently given inadequate supplies in the 1990s due to entrenched agricultural interests in the policy-making process. Although the water cuts to agriculture were not sufficient, they signaled a change in Israel's water policy debate. See Zalmanovitch footnote below for an elaboration of this argument.

[213] E. Feitelson, "Implications of shifts in the Israeli water discourse for Israeli-Palestinian water negotiations," Political Geography, 21 (2002) p. 304.

users for water, put pressure on the government, which had become more sensitive to urban demands.[214] Ultimately, however, three successive years of drought from 1988 to 1991 forced the Israeli water establishment to make a cut in the water allocation to the agricultural sector. While the agricultural sector received 68% of the total supply in 1989, its sectoral allocation was cut by 37% in 1990.[215]

There is little doubt that water stress, the emergence of a diversified industrial economy, and the introduction of water-conserving technologies such as drip irrigation contributed to a shift in the water policy discourse of Israel. This shift meant that the government had more flexibility in its water negotiations with its Arab neighbors. No longer could agricultural interests be paramount in a society where the municipal and industrial demand for water was rising.[216] Before analyzing the dynamics of the negotiation process that led to the peace agreement between Israel and Jordan in 1994, I consider the economic context and planning priorities of the Jordanian government in the aftermath of the 1967 war.

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[214] Y. Zalmanovitch, "Transitions in Israel's policymaking network," Annals of the American Academy of Political and Social Science, 155 (January 1998), pp. 193-208. According to Zalmanovitch, the ascent of the Likud to power in 1977 and its ideology of relying on the market instead of the state for the distribution of the social product reflected the orientations of the rising urban middle class. The traditional policy-making community in which agricultural interests were entrenched fragmented once new urban associations sought to affect policy. The acceptance of market principles led to the weakening of the traditional rural-statist inclinations of the Labor Party as well. Nevertheless, the fact that the Water Commissioners are a part of the agricultural establishment means that the attempts by water professionals, environmentalists and economists to increase the water sector's economic efficiency meet with resistance. The point is, however, that that disagreement on water policy became commonplace after 1995 unlike the pre-1967 period when agricultural interests were preeminent without policy debate. For example, in 1995 the Arlosoroff Commission was formed at the behest of the government to assess the water economy. Although the commission recommended conservation, reduction of supply to agriculture, and reduced monopoly powers, the Minister of Agriculture rejected these policy changes.

[215] Lowi, op.cit, p. 153.

[216] "Roughly 28% of the water supply accounts for domestic household use. This domestic demand is relatively fixed, despite price ranges exceeding the marginal cost of desalinated water."Dery, op.cit, p. 98.

ECONOMIC CRISIS, WATER RESOURCE PLANNING, AND POLITICAL UNREST IN POST-1967 JORDAN

Refugee inflows, wartime damage to waterworks, and the loss of Jordan's most fertile agricultural land (the West Bank) contributed to the economic ruination of the Kingdom in the post-1967 period. Increased cross-border raids on Israeli settlements in the Occupied Territories by the PLO led to Israel's strike against the East Ghor canal in 1969. The US mediated between Israel and Jordan until Israel agreed to allow Jordan to repair the canal. In return, King Hussein promised to thwart PLO activity. Once he dealt a decisive blow to the PLO in Jordan, described below, the government focused on the development of the Jordan Valley, for it contained the most fertile land and would facilitate mass employment. From 1972 to 1982 the Jordan Valley Commission, the institution charged with the development plan, recommended the following:[217]

1. raising the Talal dam on the Zarqa tributary.
2. construction of the Maqarin dam on the Yarmuk.
3. extending the King Abdullah Canal (formerly called the East Ghor) by 18 km to irrigate 24 000 hectares in the valley.

The Talal Dam plan stalled due to the severely polluted waters of the Zarqa. The construction of the Maqarin Dam was never realized due to Israel's opposition to the scheme and the unwillingness of international financial institutions to fund the project without the consent of all affected riparians.

The extension of the King Abdullah Canal, however, was referred to as an engineering marvel and ultimately measured 110 km.[218] It exceeded the irrigation expectations of the planners. The personal involvement of Crown Prince Hasan in every

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[217] Lowi, op.cit, p. 155.
[218] Stephan Libiszewski, "Water Disputes in the Jordan Basin Region and their Role in Resolution of the Arab-Israel Conflict," Occasional Paper 13, August 1995, Environment and Conflicts Project. {http://cms.isn.ch/public/docs/doc_250_290_en.pdf }p. 13

planning stage indicates that expanding the irrigation capacity of the Valley was a top priority for the regime.

Unlike the diversified economy of Israel, Jordan is classified as a lower-middle income developing state. As such, its development trajectory conforms to the unsustainable model depicted in Karshenas' graph in Chapter 1. Its weak industrial sector and subsidized agricultural sector create further imbalances in the population-resource equation. Bearing these economic constraints in mind, I now turn to the domestic political context to attain an understanding of the dynamics of Jordan's foreign policy, especially as it related to Israel and their dispute over shares of Jordan waters.

The King's decision to destroy Feda'iyun (Palestinian commando) centers in Jordan in 1970,[219] referred to as "Black September" by Palestinians, resulted in a new state-society dynamic in Jordan that would give the King some latitude to maneuver in the foreign policy arena. Moreover, the Rabat Resolution of 1974, recognizing the PLO as the "sole legitimate representative of the Palestinian people," set the stage for Jordanian reluctant disengagement from the West Bank in 1988.[220] Although the 1974 resolution transferred the responsibility for negotiating the return of the Occupied Territories from Jordan to the PLO, the King continued to administer and lend financial support to West Bank Palestinians until 1988, for a reduction in the size of the Kingdom

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[219] Jordan's PM in 1970-71, Wasfi al-Tall, was the architect of "Black September." "He not only managed to chase Palestinian fedayin organizations from Jordan by eliminating their political and military bases, but also diminished the influence of the Palestinians in the government, public administration, and press." He advocated the construction of a Jordanian national entity in which East Bank Palestinians would have a marginal role. As cited in Joseph Nevo, "The Jordanian, Palestinian, and the Jordanian-Palestinian Identities," THE FOURTH NORDIC CONFERENCE ON MIDDLE EASTERN STUDIES, Oslo, 13-16 August 1998, p. 5.

[220] Marc Lynch, State Interests and Public Spheres (New York: Columbia University Press, 1999) Chapter 6, p. 3.

was most unpalatable. Once it became clear, however, that a distinct Palestinian identity had crystallized under Israeli occupation, the King opted to focus his energies on the consolidation of power among East Bankers and regime maintenance by securing steady sources of foreign aid. Nevertheless, this policy also generated opposition to his foreign policy agenda that could only be dealt with by Hussein's particular form of statecraft.

The problem was that the non-Arab foreign aid came in the form of IMF loans that demanded austerity measures from the Jordanian government. In response, PM Rifai cut the military budget and increased the prices of commodities such as bread, gasoline and cigarettes in 1988. In April 1989, violent protests against the austerity measures erupted in southern Jordan.[221] In order to pacify the public and prepare them for the next round of austerity measures, the King held the first parliamentary elections in 22 years for East Bankers only. Despite the fact that government loyalists won by a slim majority, a substantial number of seats were won by Muslim fundamentalist members. This proved to be problematic for King Hussein's foreign policy objectives.

Although Jordan's disengagement from the West Bank and the signing of the Oslo accords between Israel and the PLO in 1993 freed the King from the demands of the highly- politicized Palestinian refugee opposition, he now had to neutralize the Islamists who rejected any normalization with Israel.[222]

Under these circumstances, the King sought peace negotiations with Israel with the aim of addressing Jordan's development problems, which were exacerbated by population increases, the paucity of natural resources, and budgetary constraints brought

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[221] See (Brand 1992, Brynen 1992, Satloff 1992)

[222] Jordanian disengagement enabled the King and his foreign policy team to jettison advocacy of Palestinian water issues in international conferences. Instead, the Jordanian team could focus on the needs of Jordan vis à vis Israel.

about by the 1990-1991 Gulf War. The negative economic impact of that war is captured in the following figure: 1.52 billion dollars was lost in the last five months of 1990.[223] This figure includes losses from exports, remittances, tourism, deferred cash repayments from Iraq, and unfulfilled grants from Arab states. Unemployment rates also jumped from 20% to 30%.[224] Of particular import is the return of Jordanian workers from the Gulf who placed more demands on Jordan's water poor economy. As noted, the Jordan River basin suffered from three consecutive years of drought, from 1988 to 1991. The King believed that, by making peace with Israel, Western states would increase foreign aid, forgive debt, and increase foreign direct investment in Jordan.[225] Although its GNP and GDP plunged in 1993, government expenditure continued at the same high rate. Obtaining foreign aid that was tied to peace in the Middle East was the only way that Jordan's rentier economy could survive.

The King would use the foreign aid and the added temptation of possible political and economic liberalization to co-opt those Jordanians seeking democratization and to create divisions in society in order that those opposed to the peace process, e.g., the Muslim Brethren, would be neutralized. When this tactic failed to curb the opposition among religious groups in October 1991, the King ordered then-PM Masri to ban anti-peace rallies staged by these groups and suppressed the civil liberties that resulted from limited liberalization measures.

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[223] "Gulf War Effects on Jordan's Economy, " al-Dustur, Issue 8775 (February 24, 1992) p. 2.
[224] Ziad Swaidan and Mihai Nica, "The 1991 Gulf War and Jordan's Economy," MERIA, 6, 2 (June 2002) p. 2.
[225] Karla Cunningham, "The Causes and Effects of Foreign Policy Decision-Making: An Analysis of the Jordanian Peace with Israel," World Affairs, 160, 4 (Spring 1998), p. 196. In 1994 peace with Israel definitely restored revenue to Jordan. The United States wrote off Jordanian debt, raised aid levels, and rushed through Jordanian membership in the WTO.

This discussion indicates that, despite the domestic opposition to normalization with Israel, the Palace was able to overlook such dissent. In terms of two-level game theory, therefore, King Hussein was not able to increase his international bargaining power by claiming he was unduly constrained by what appears to be a small domestic win-set. From Israel's point of view, an authoritarian monarch can ratify an unpopular agreement more effectively than a democratic Prime Minister, who must achieve the support of a divided, yet powerful Parliament. In the final analysis, the King's relative freedom to make law, dissolve Parliament, ban parties, alter the rules for election, and defer elections indefinitely enlarge his domestic win-set and make international agreement with Israel more likely. Moreover, the signing of the Oslo accords between Israel and the PLO in 1993 freed the King from the relentless demands of the Palestinian refugee population. The signing of the 1994 Treaty of Peace with Israel lends credence to this claim and therefore appears to support hypothesis **$H6_A$: If negotiating parties successfully win both the international and domestic game boards simultaneously, the prospects for regime emergence increase.**

THE MIDDLE EAST PEACE PROCESS AND THE 1994 ISRAEL-JORDAN TREATY OF PEACE.

It was against this backdrop of domestic unrest, economic decline in Jordan, and environmental deterioration that the Middle East peace process was launched on October 31, 1991 in Madrid. Haddadin cites the following four factors to explain the launching of the peace process at that time:[226]

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[226] Munther J. Haddadin, "Negotiated Resolution of the Jordan-Israel Water Conflict," International Negotiation, 5, (2000) p. 280.

First, the conclusion of the Camp David Accords between Egypt and Israel in 1979 indicated that a key player in the Middle East core, Egypt, recognized Israel's right to exist. Arafat's recognition of Israel's right to exist in 1988 also signaled a shift in Arab policy.

Second, unlike the 1950s, when members of the Arab League appeared to speak with one voice, the Iraqi invasion of Kuwait revealed the myth of Arab solidarity.

Third, the transformation of the world from a bipolar world to a unipolar one led by the U.S. meant that the Middle East was freed from U.S.-Soviet rivalry.

Finally, the fact that the PLO had signed the Oslo Accords with Israel meant that King could safely engage in overt peace talks with Israel without being perceived as a traitor to the Palestinian cause. It is not coincidental, therefore, that "the day after the signing of the Oslo Accords in Washington, Jordan and Israel signed an agreement on the agenda for peace talks."

The process was structured upon two negotiating tracks-- bilateral and multilateral conferences. The multilateral track consisted of five working groups covering the areas of:

1. water resource management
2. refugees
3. environment
4. economic growth
5. arms control

The multilateral track negotiations involved Israel, a Palestinian delegation, Jordan, the EU, and Japan. Since both Lebanon and Syria boycotted the multilateral track, the conference was not basin-wide in scope. The multilateral track was designed to discuss technical issues in isolation so as to build confidence for more substantive negotiations at a bilateral level. It should be noted, however, that the multilateral track did not lead to treaties or joint development projects.[227] The core riparians in the Jordan River basin have shown a preference for bilateral diplomacy concerning water regimes without prejudice to their claims in the other working group areas.

The discussion on water issues between Jordan and Israel began on February 24, 1992 in the fourth round of bilateral negotiations. During the pre-negotiation phase, water, energy, and environmental experts from both states met to develop a Common Agenda.[228] In the Common Agenda, the parties agreed to secure equitable shares, to search for methods to alleviate shortage, and to cooperate. By focusing on these three elements, the parties were able to reduce uncertainty and risk.

Progress in this phase was made possible by the election of the Labor Party to power in Israel in 1992. Yitzhak Rabin, its leader, had adopted a new perspective on Israel's strategic situation. He believed that changes at the global and regional level had opened a window for peace. The disintegration of the Soviet Union eliminated a source of power for the Arabs. Consequently, the Arab ability to pose an existential threat to Israel was reduced. The crushing defeat of Iraq in the 1991 Gulf War also weakened the Arab states' resolve to attack U.S. allies in the region. For Rabin, these changes meant

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[227] Deborah Shmueli, "Approaches to Water Dispute Resolution," International Negotiation, 4, (1999) p. 315.
[228] Haddadin, op.cit., (2000) p. 277.

that he could focus on economics as the engine for regional peace. This is evident in his first address to the Knesset as PM in 1992, cited in Haaretz:

> National security was not only a function of the number of tanks, airplanes, and missile boats, but of many factors...Steps toward a rapprochement between Israel and the Arab states create a process that turns economics into the moving force that shapes regional relations instead of nationalist interests that were dominant in the past...Practically the only way to dry the swamp of radical Islam is through economic development and an improved standard of living.[229]

This new security conception, combined with changes in Israel's water policy discourse alluded to earlier, enabled the Israeli government to negotiate and compromise with the Arabs on the various tracks of the Peace Process. To substantiate this claim, consider the fact that Israel agreed to increase the diversion to Jordan from the Yarmuk summer flow at the expense of Israel's traditional share.[230] This confidence-building measure enabled Jordan to make concessions to Israel in later negotiation rounds. It should be noted, however, that "Rabin's slim majority in the Knesset"[231] contracted Israel's domestic win-set. His negotiating team could, therefore, offer only those limited concessions that would be acceptable to the broadest cross-section of Israeli parliamentarians.[232] Unlike the Jordanian team, the Israeli team could use this fact to enhance its bargaining power.

By the seventh round in October 1992, both Israel and Jordan agreed on a draft Common Agenda in which Articles 3 and 6 concerned water. While Article 3 dealt with

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[229] Knesset Minutes, July 13, 1992; Haaretz, June 29, 1994, B.3, as cited in Efraim Inbar, "Yitzhak Rabin and Israeli National Security," {http://www.biu.ac.il/Besa/books/25/analysis.html}

[230] Haddadin, op.cit., (2000) p. 277.

[231] Marc Lynch, op.cit, Chapter 6, p. 8.

[232] "As evidence that the Israeli team negotiated a treaty which fell within the domestic consensus, consider the fact that the treaty was ratified in the Knesset by a vote of 105-3 (with 6 abstentions). Although Ariel Sharon was a proponent of the "Jordan is Palestine" conception, he abstained rather than voting against ratification of a treaty that clearly endorsed the "Jordan is not Palestine" idea. Moreover, the Likud opposition leader, Netanyahu, endorsed the treaty." Ibid., p. 8.

water sharing and coping with shortage, Article 6 dealt with bilateral cooperation in the field of natural resource development in the Jordan Rift Valley.[233]

Four months later, Jordan's team offered a proposal in which Israel's desire to cooperate in the energy and environment issue-areas would be linked with Jordan's goal to secure an equitable water sharing agreement that also addressed issues of water quality and resource development. Interestingly, agreement was reached on every item in the environmental agenda; and the negotiating positions of each party regarding water issues proper became more commensurable. The presence of high-ranking officials from both countries--Israeli Foreign Minister Peres and Jordanian PM Majali, combined with the presence of US Secretary of State Warren Christopher, may have created a conducive diplomatic climate. King Hussein's desire to conclude a treaty as expeditiously as possible was also a contributing factor. For example, the King overruled the tough negotiating tactics of his chief negotiator, Fayz Tarawaneh, to accelerate the process.[234] The following points of contention remained:[235]

- The volume of water each party would receive from the Jordan River;
- Israel's proposal to link the delimitation of borders in Wadi Araba and the transfer of water across that common border to the north; and.
- Israel's proposal to retain wells it drilled in occupied Jordanian land in return for Israeli water transfers to Jordan in the arid North.

Although Jordan rejected Israel's position on these points, it did submit a counter-proposal for Israel's consideration. According to Dr. Munther J. Haddadin, who was another key member of Jordan's negotiating team during the Jordan-Israel bilateral peace talks, Jordan's proposal was based on the allocations agreed to in the Revised Unified

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[233] Haddadin, op.cit., (2000) p. 277.
[234] Lynch, op.cit., p. 8.
[235] Haddadin, op.cit., p. 279.

Plan of 1955, with adjustments made to account for Jordan's disengagement from the West Bank. Israel, by contrast, wanted modifications of the 1955 plan to reflect current realities. The list summarizes Haddadin's recollections in this regard:[236]

- Jordan would not agree to Israel's withdrawals from the Yarmuk River exceeding 25 MCM/a.
- Jordan wanted storage of Yarmuk floodwater totaling 60-70 MCM in LT.
- Jordan wanted the construction of a diversion dam on the Yarmuk to channel flow to the King Abdullah Canal.
- Israel wanted 50 MCM from the Yarmuk and would release 50 MCM to Jordan.
- Israel suggested that the joint development of dams would generate an additional 50 MCM.
- Israel offered to give Jordan 50 MCM from some other source provided Jordan contributed to the cost of implementing such a scheme.
- Israel preferred to maintain the water supply for the extant irrigated land in the Wadi Araba.

In the end, Jordan agreed to accept 50 MCM from some other source and agreed to finance some of the cost of doing so, but rejected the other parts of Israel's proposal delineated above. This supports Hypothesis **H3** which states: **If the lower riparian agrees to rent water from the upper riparian, then the upper riparian is more likely to agree to a regime.** Ultimately, the peace treaty, which was signed by both parties on November 11, 1994, generated joint gains in some areas and relative losses and gains in others when compared to the provisions of the Revised Unified Plan of 1955. The allocations stipulated in the treaty reflected current uses and geo-political realities.

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[236] Haddadin, op.cit., pp. 279-80.

Thus, in some areas Jordan received less than it would have received had it ratified the Unified Plan.[237] In this regard, Jordanian critics of the treaty argued that, since Jordan must lease wells on Jordanian territory (on a 25-year renewable basis) to Israeli settlements, Jordan failed to achieve full sovereignty over these areas.

On the other hand, both parties benefited in a manner not envisioned in the Unified Plan. For example, in the treaty each party agreed to cooperate to increase water availability and alleviate shortage through the creation of a joint committee. The Unified Plan did not mention such cooperation, only the creation of an international engineering board. Similarly, in the treaty the flow of the Jordan River directly upstream from Deganya gates on the river was divided on a 50:50 basis after accounting for current uses.[238] The Unified Plan, however, did not address the division of the Jordan River below LT. In the Unified Plan, therefore, Israel would have maximized its gain in this area. Although Israel would still get more than Jordan from the Jordan River flow due to the magnitude of its current uses, Jordan received significantly more than stipulated in the Unified Plan. Finally, the Unified Plan made no mention of Israel giving 50 MCM to

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[237] Nowhere is this more evident than in the areas of storage at the point upstream from Deganya gates on the Jordan River. While, the Unified Plan stipulated that 60-70 MCM of Jordan's Yarmuk flood water would be stored in LT for later Jordanian use during the dry summer, the treaty states that 20 MCM of Yarmuk winter flow would be released to Jordan. " Note that Israeli treaty negotiators insisted on the usage of "point upstream from Deganya gates on the Jordan River" to refer to the area from which water is delivered to Jordan from Israel. They would not countenance the usage of the term, Lake Tiberias, for such usage would imply a Jordanian claim to the lake." As cited in Uri Shamir, "Comment on Munther J. Haddadin's Diplomacy on the Jordan," Natural Resources Forum, 26 (2002) p. 77.

With respect to the allocation of groundwater, however, the Unified Plan did not give Israel any of it. Ground and technological realities prior to the 1967 war made this a moot point. The treaty stipulates that Israel could use up to 10 MCM of groundwater from wells and systems in Jordan if sources are not depleted. In return, the Israelis would give the Jordanians 10 MCM of desalinated water.

Regarding the issue of diversion and storage dams, the treaty stipulated that such a dam would be built on the Yarmuk at Adassiya and a storage dam would be built on Jordanian side wadis as well as on the course of the Jordan river. Although the Unified Plan also stipulated a diversion dam at Adassiya, it too envisioned a Yarmuk storage dam at Maqarin to be raised at Arab expense.

Finally, regarding the Yarmuk River, Israel would receive 25 MCM, while Jordan would receive the remainder of the flow. This stipulation is found in both the Unified Plan and the treaty.

[238] Haddadin, op.cit, p. 77.

Jordan from other sources with the proviso that Jordan would help finance such an arrangement.

The fact that Jordan was approaching a critical environmental threshold in 1990 can explain the King's willingness to conclude this bilateral treaty with Israel. Jordan had 300 MCM/person/year of water available for all purposes, including agriculture, domestic use and industry.[239] This put Jordan in the water stress zone for it had less than 500 MCM/person/year. As noted earlier, a combination of economic, environmental and political shocks from 1988 to 1994 pushed Jordan on the path of unsustainable development towards Malthusian catastrophe.[240] It was the desire to avert disaster and maintain the regime that brought Jordan to the negotiating table. The Jordan case thus enables us to accept hypothesis **H4** which states: **The likelihood of the emergence of a limited regime will vary with conflict setting and level of development; therefore, there is a higher probability for acceptance by developing states in arid zones which approach critical environmental thresholds.**

An equally important reason for the emergence of a water regime is related to what was excluded from the Israel-Jordan negotiating agenda. After the signing of the Oslo Accords between the Palestinian delegation and Israel in 1993, Jordan was freed from its obligation to defend Palestinian interests such as the "right of return" of Palestinian refugees.[241] By delinking the contentious refugee issue from the narrower Jordanian-Israeli relationship, both countries were able to reach a zone of agreement.

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[239] Hillel Shuval, "Approaches to Resolving the Water Conflict Between Israel and her Neighbors," Water International, 17 (1992), p. 134.

[240] In the 1990s total water consumption in Jordan was 875 MCM/a, while the estimated renewable water resource base of the country including groundwater sources was 900 MCM/a. As cited in N. Kliot, Water Resources and Conflict in the Middle East (London: Routledge, 1994) p. 231.

[241] The issue of refugees was deferred to the multilateral and quadrilateral final-status talks, according to the Oslo Accord.

There is support, therefore, for null hypothesis **$H7_0$: If water issues are linked to non-water issues, which are of vital importance to both parties, then there is a negative effect on the negotiation outcome.**

CONCLUSION

This chapter has analyzed the economic, political and environmental factors shaping the dynamics of the two-level negotiating game between the core riparians, Israel and Jordan, during the Johnston Mission of the 1950s and the Madrid Talks of the 1990s. It is useful to reiterate the changes in the global, regional, and domestic system that enabled the parties to sign a treaty of peace in 1994 and usher in a new era of overt cooperation.[242] At the global level, the demise of the Soviet Union in 1989-91 removed a source of support for those in the Middle East opposed to peace and normalization with Israel. Moreover, the 1990 Gulf War exploded the myth of pan-Arab solidarity and made the goal of seeking an alliance with the United States, the only remaining superpower, a political and economic necessity for many Arab states.[243] Since the United States tied foreign aid to the peace process, both Israel and Jordan had an incentive to come to the negotiating table.

At the regional level, the signing of the Oslo Accords between Israel and the Palestinians was the direct catalyst for King Hussein's decision to conclude the peace treaty with Israel. Although Jordan's disengagement from the West Bank occurred in 1988, the King could safely pursue Jordan's interests vis à vis Israel free of destabilizing Palestinian censure once the Palestinians negotiated in their own right.

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[242] King Hussein and various Israeli leaders had engaged in clandestine negotiations from 1968 to 1993.
[243] Arguably, the second Gulf War and the resulting American occupation of Iraq in 2003 has strained Arab relations with the US and eroded the diplomatic good will of the EU.

Finally, at the domestic level, both Israel and Jordan realized that severe water stress, combined with economic change, could either irritate or soothe fragile political relationships internally and externally. In the case of Israel, economic diversification and market liberalization emboldened industrial and household water consumers to demand a more efficient allocation of water. Although such entreaties had historically fallen upon deaf ears in an ossified institutional structure in which agricultural interests were sacrosanct, debate occurred and water allocations to agriculture were cut significantly. As noted earlier, this had positive reverberations in the Level I international game board. In the case of Jordan, a country burdened with poor economic and social statistics, the King could not afford to be intransigent in its negotiations with its powerful upstream neighbor, Israel. Achieving some measure of water security with peace and resultant foreign aid was an essential component of regime survival in the stressful domestic context of IMF-imposed austerity. Ultimately, the authoritarian nature of Jordan's regime enabled it to bypass opposition to the treaty.

In short, there is support for all of the relevant hypotheses except for H7:

H1: When Syria worked on its Headwater Diversion Project in 1963, it created an E-D crisis for the downstream riparian Israel by depriving it of a significant portion of its yearly water budget. This E-D crisis escalated to a M-S crisis between Syria and Israel with the exchange of fire near the Dan spring.

Similarly, when Israel drained the Huleh swamps and began diverting the Jordan River via a canal, it decreased water quality for the downstream riparian, Jordan, and aggravated an extant E-D crisis for that state. Jordan could not meet the irrigation and drinking water requirements of its Palestinian refugee population.

H3: When Jordan (the lower riparian) agreed to finance an arrangement in which Israel (the upper riparian) agreed to give it 50 MCM of water from other sources during the Madrid talks, the treaty followed soon after.

H4: The likelihood of the emergence of a limited regime will vary with conflict setting and the level of development: a higher probability for developing states in arid zones in a protracted conflict setting, which approach critical environmental thresholds. Both Israel and Jordan suffered from three years of consecutive drought from 1988 to 1991 just before the Middle East peace process began and this provided a strong incentive to negotiate a limited regime within the Arab-Israel protracted conflict setting.

H5: Once Israel, the more powerful state, enjoyed upper riparian status on both the Banyas and Yarmuk tributaries of the Jordan River as a result of the 1967 war, this condition was not conducive to the emergence of a basin-wide regime. Syria refused to negotiate due to contestation over border demarcation issues in the Golan Heights and pressured Jordan not to cooperate with Israel.

H6: When two states win both domestic and international game boards simultaneously, the prospects of regime emergence increase. Once economic changes within Israel triggered a more efficient sectoral allocation of water away from the wasteful, agricultural sector, this enlarged Israel's Level II winset and enabled compromise with Jordan at the Level I game that culminated in the Oslo Accord. Similarly, economic crisis within Jordan due to IMF austerity and the desire for regime survival through the procurement of conditional foreign aid, combined with disengagement from the Palestinian issue, enlarged Jordan's Level II winset.

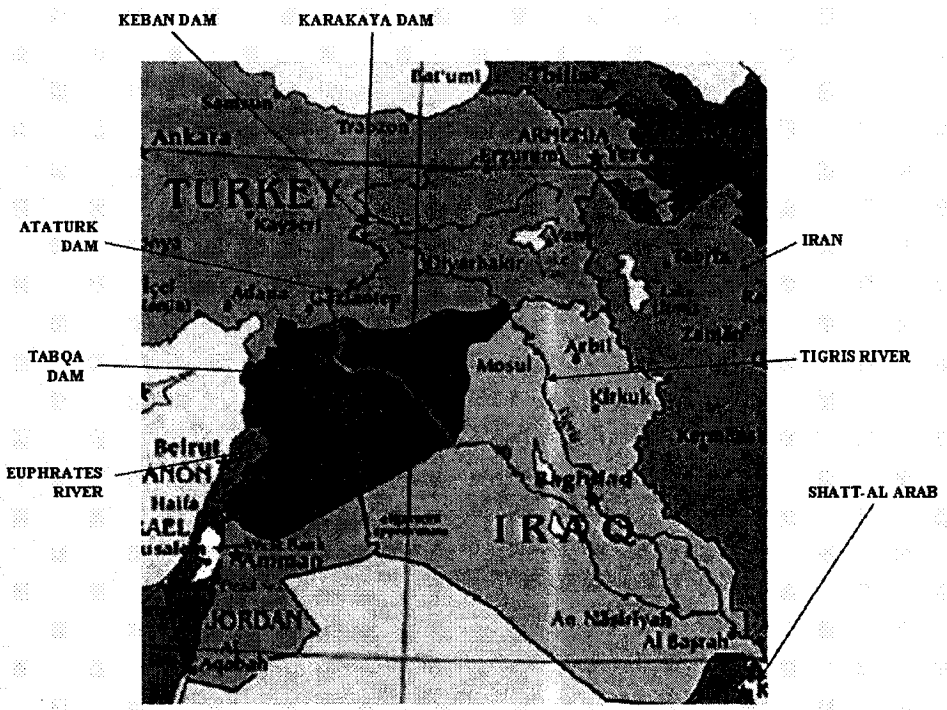
H7: If water issues are linked to non-water issues that are of vital importance to both parties, then negotiators can foster success. There was no support for this hypothesis. When Jordan, at the behest of the Arab League Political Committee in June 1954 (Round 2 of the Johnston talks), linked the 'right of return' of Palestinian refugees to resolution of the water dispute, negotiations with Israel stalled.

H8: Multilateral negotiations, which impose higher transaction costs on coalition members, are less likely than bilateral negotiations to lead to regime emergence. When Johnston attempted to resolve the water dispute by involving all the riparians in the basin, the process was hijacked by the political disputes among and within states. The uncertainty and inability to obtain credible commitments in such a scenario had a negative effect on regime emergence. By contrast, both Israel and Jordan generally complied with the allocations stipulated in the Revised Unified Plan of 1955 throughout the protracted conflict and this illustrates the utility of bilateral negotiations. The bilateral negotiations between Israel and Jordan also led to the 1994 Treaty of Peace.

CHAPTER 5: THE TURKEY-SYRIA-IRAQ CASE OVER THE TIGRIS AND EUPHRATES RIVERS

POLITICAL GEOGRAPHY AND HYDROLOGY OF THE BASIN

Figure 11: MAP OF THE TIGRIS AND EUPHRATES BASIN[244]



The Euphrates and Tigris rivers rise in the southeastern mountains of Turkey and eventually terminate in the Shatt-al Arab waterway. During its 2990 km long course, the Euphrates travels through varied climates and countries. Thus, 40.8% of the river lies within Turkey, which has a cool climate and relatively high levels of precipitation at

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[244] Adapted from the University of Texas at Austin Perry-Castenada Map Library {www.lib.utexas.edu/maps/}

1000mm/year; 23.7% lies within the semi-arid country of Syria that enjoys less than 250mm of rain per year over 59% of its land surface; and 35% lies within the arid country of Iraq that is endowed with less than 400mm of rain per year over 70% of its land surface.[245] By contrast, the Tigris River is 1900 km long of which 27.5% lies within Turkey, 70.3% lies in Iraq, and 2.1% lies on the North Eastern corner of the Turkish-Syria border.[246] Both rivers have a high discharge rate during the months from March to June, a low rate from July to October, and an average rate from November to February. These flow regimes become indispensable when analyzing the escalation of economic-developmental crises to military-security crises.

It should be noted that the Euphrates-Tigris basin has high evapotranspiration rates, and high rates of salinity that are aggravated by the poor irrigation and hydroelectric generation practices of the riparians triggered by population pressures. The unilateral development of dams on the Euphrates by Syria and, mostly, Turkey during the last four decades led to water quality and quantity problems for the furthest downstream state, Iraq.[247] From 1965 to 1973 Turkey constructed the Keban Dam in its southeast region while from 1968 to 1973 Syria constructed the Tabqa Dam. The next great phase of Turkish dam building occurred between 1976 and 1987 when the Karakaya Dam was built, and from 1983-1992, when the Ataturk Dam was built. Finally, Turkey's GAP mega project, which involves the creation of 22 dams for hydroelectric generation and an integrated development plan for the country's southeast region, began in the mid-1980s

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[245] Mehmet Tomanbey, "Turkey's Approach to the Utilization of the Euphrates and Tigris Rivers," Arab Studies Quarterly, 22, 2 (Spring 2000), p. 91.
[246] Ibid., p.91.
[247] John F. Kolars and William A. Mitchell, The Euphrates River and the Southeast Anatolia Development Project (Carbondale: Southern Illinois University Press, 1991)

and continues to the present time, posing the gravest danger for riparian relations in the basin.

THE HISTORY OF RIPARIAN RELATIONS IN THE TIGRIS-EUPHRATES BASIN

To enhance understanding of the links among hydro-climatic forces, development projects, and threats to basic values, let us examine the history of relations among the three Tigris-Euphrates riparians. In what follows, it will become clear that the demise of the Ottoman Empire at the end of World War I and the subsequent redrawing of the Middle East map by Britain and France severed the hydro-political unity of the Euphrates-Tigris basin. Moreover, it resulted in the birth of states whose nations were not coterminous with political boundaries. This disjuncture between state and nation contributed to the triangulation of conflict among the three riparians.[248]

TURKISH-SYRIAN FRICTION AND THE ROLE OF WATER

A particularly thorny issue that had long bedeviled Turkish-Syrian relations was the territorial dispute over the province of Hatay/Alexandretta. Historically, Syria had claimed the province through which the Orontes River flows. In June 1939, however, the French mandate in Syria gave the territory to Turkey to prevent a Turkish-German alliance on the eve of World War II. Until the middle of 2004,[249] Syria had refused to negotiate with Turkey on all rivers common to both states because doing so would imply de facto recognition of Turkish sovereignty over Hatay/Alexandretta. Moreover, since Syria enjoys upstream status on the Orontes, it did not want to see its share of water flow

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[248] Leif Ohlsson, Hydropolitics: Conflicts over Water as a Development Constraint (London: Zed Books, 1995) p. 106.

[249] With the signing of the Turkey-Syria Free Trade Agreement in December of 2004, Syria's long-disputed dispute with Turkey over Hatay/Alexandretta has been resolved. An entente was reached concerning Turkey's sovereignty over the territory during the trade negotiations.

increased to Turkey, which is downstream on that river. Turkey, by contrast, was keen to discuss the allocation of Orontes flow for it revealed Syria's double standard in advocating conflicting principles of international water allocation principles.[250] Since Syria is downstream on the Euphrates, it advocates a greater share of the water based on need and prior appropriation. Conversely, due to Syria's upstream position on the Orontes, it advocated absolute territorial sovereignty regarding the Orontes flow. Riparian position and concerns about sovereignty over Hatay/Alexandretta had thus complicated Syria-Turkey negotiations over water.

The problems generated by nation-state disjuncture are most evident in southeastern Turkey and northeastern Iraq where a large, non-Arab, Muslim minority group, the Kurds, reside. This marginalized ethnic group's political and economic aspirations were consistently neglected and suppressed by the governments of Turkey and Iraq for so long that they posed a secessionist threat to both of these regimes.[251] In an attempt to wrest greater concessions from Turkey on water allocations from the Euphrates, Syria aided Kurdish PKK rebels in their insurgency against Turkey. This aid aggravated Turkish threat perceptions of territorial dismemberment and reinforced the resolve of the most powerful upstream riparian (Turkey) to use its 'sovereign' waters as it saw fit. In addition, it provided an incentive for the Turkish military to forge a 'phantom alliance' with Israel in 1996 in which Israel could use Turkish airspace for training and Turkey would benefit from Israeli intelligence on PKK tactical plans.[252] There were

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[250]Mark Adams, "Water and Security Policy: The Case of Turkey," {Http://www.ndu.edu/nesa/docs/marksadams-water.pdf} p.13. Accessed on September 16, 2003.
[251] Ohlsson (ed.), op.cit., p. 108.
[252] N.E. El-Shazly, "Arab Anger at New Axis," The World Today, January 1999, pp. 25-27. See also "Water Sales Could Boost Turkey's Clout, " Wall Street Journal, 31 July 2000 and {Http://www.mof.gov.il}

water dimensions to this alliance as well. The prospect of a peace pipeline in which Turkey would funnel water to water-scarce areas in Israel and Jordan was touted in the Turkish and foreign media as a panacea for the severe water deficit in the region.[253]

THE TURKEY-IRAQ RELATIONSHIP

As mentioned earlier, both Turkey and Iraq wanted to contain their perceived Kurdish threat. Turkey's policy of neutrality during the Iran-Iraq war (1980-88) led to an agreement whereby Iraq would not object when Turkish forces launched raids against Kurd insurgents situated in northeastern Iraq in 1984. By 1988, however, that agreement was not renewed and Iraq began to tolerate anti-Turk PKK bases in northeastern Iraq. A case could be made that Iraq became wary of Turkey's designs on the Mosul oil field.[254] In the late 1980s, the Turkish press reported that the government intended to take control of Mosul in case Saddam's regime fell in the Iran-Iraq war. Historically, Turkey had grudgingly accepted its 5 June 1926 tripartite agreement with Iraq and the UK in which Iraq was given ownership of Mosul.[255] Once Iraq refused to allow Turkish forces to raid PKK camps in Iraq in the prelude to Gulf War I (1991), however, Turkish President Demirel stated:

> The border is wrong. The Mosul Province was within the Ottoman Empire's territory. Had that place been a part of Turkey, none of the problems we are confronted with at the present time would have existed...Had it been in the low areas at the foot of the mountains, the PKK militants would not have been able to assemble in that region...So let us correct the border line. [256]

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[253] Shazly, op.cit., pp. 27.
[254] Adams, op.cit., p. 14.
[255] Prior to this date the territorial dispute over Mosul had been referred to the League of Nations. Although the League sided with Iraq, Turkey resisted the transfer and even threatened armed conflict. Ultimately, the Brussels line became the agreed boundary between Turkey and Iraq as formulated in the 1926 tripartite agreement.
[256] As cited in Daniel Pipes, "Hot Spot: Turkey, Iraq, and Mosul," Middle East Quarterly, September 1995 (URL: www.danielpipes.org/article/270).

There is little doubt that such statements led to friction between the two countries. Another reason why Iraq refused to renew the 1984 security protocol concerns Turkey's refusal to release a minimum of 700 cu m/s of water to Syria in May 1990. Since Turkey had impounded the Ataturk Dam from January to February 12, 1990, both Syria and Iraq were without water a critical time in which winter water is stored for the growing season. This created and E-D crisis for the downstream riparians and lends tentative support to Hypothesis **H1** which states: **If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor, and the downstream state is pursuing unsustainable development of its water resources, then either an E-D crisis develops or an extant E-D crisis is aggravated for the downstream state.**

Although relations were strained further once Turkey joined the US-led Gulf War I coalition against Iraq, Turkey could not afford to alienate one of its most significant trading partners. Arguably, Iraq found Turkey to be a useful economic ally since it depended on Turkey to move its oil through Turkish pipelines during the sanctions regime imposed after Gulf War I. In the case of relations between Syria and Iraq, however, there was no incentive for pragmatic cooperation on any grounds, given the history of ideological rivalry.

SYRIA-IRAQ RELATIONS: THE QUEST FOR BAATH IDEOLOGICAL SUPREMACY AND THE WATER IRRITANT

During the 1960s, politics in the Middle East were characterized by the twin pressures of nationalism and pan-Arabism. While Arab states such as Syria and Iraq struggled to consolidate national power, they also espoused the ideology of pan-Arab

unity. In order to reconcile these conflicting aspirations, both states tried to delegitimize those nationalist tendencies in other states that opposed the ideology of the ruling party domestically. [257]

Bearing this dynamic in mind, let us analyze the nature of the Baath rivalry between Syria and Iraq. From 1963 to 1966 an orthodox Baath party ruled in Syria. Factional disputes laced with ideological undertones led to a coup in which the 'new guard' overthrew the 'old guard'. Despite assuming power, the new guard had yet to consolidate and 'legitimate' its power domestically. This consolidation process was threatened by developments in Iraq because Baathists espousing the ideology of the old guard had usurped power there in 1968. This ideological rivalry combined with the impoundment of the Keban Dam in Turkey and the Tabqa Dam in Syria contributed to a crisis between Syria and Iraq in 1975.

When Syria filled Lake Assad at the Tabqa Dam, Iraq received about 25% of the normal Euphrates flow and claimed that the livelihood and survival of three million Iraqi farmers were at stake.[258] This E-D crisis quickly escalated to a M-S crisis, short of war, when Iraq threatened to bomb the Tabqa Dam. Once again we find support for Hypothesis **H1** which states that **if a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor, and the downstream state is pursuing unsustainable development of it s water resources, then either an E-D crisis develops or an extant E-D crisis is aggravated for the downstream state.** Despite intervention by the Arab League and the good offices of

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[257] E. Kienle, Ba'th v. Ba'th: The Conflict between Syria and Iraq 1968-1989 (London: IB Tauris, 1990) p. 55.
[258] Ohlsson, op.cit., p. 105.

Egypt's Sadat and the Kingdom of Saudi Arabia, both parties began to amass troops along their common border. Last-ditch diplomatic efforts by the Saudis did, however, lead to crisis abatement without resolution of the water issue. There was some talk of Syria sharing water with Iraq on a proportional basis depending on the amount of water reaching Syria from Turkey,[259] but nothing substantive followed.

To appreciate the crises that ensued in the 1980s and 1990s, it is necessary to examine the economic, political, and social climate in Turkey during the planning and operational stages of Turkey's massive Southeast Anatolia regional water development project (GAP). Such an investigation will reveal why the interaction between domestic and international game boards has not yet resulted in a negotiated basin-wide resolution to this riparian dispute.

WHY TURKEY EMBARKED ON THE GAP PROJECT AND ITS CONSEQUENCES

The GAP project consists of 22 dams, massive irrigation schemes, and 19 hydroelectric facilities. It is designed to harness the full economic potential of the Tigris and Euphrates river system to develop the hinterland of southeast Anatolia. According to official statements by the Turkish Ministry of Foreign Affairs, GAP would be especially beneficial to the impoverished Kurds in the area. The Kurds, on the other hand, contest this argument by claiming that the dams would literally flood their land and destroy their way of life.

Apart from these differing interpretations on the benefits of the project, one thing is certain. There is a unanimous consensus within Turkey's government, among all non-Kurdish Turkish political parties, and the public on the necessity of completing the GAP

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[259] Lowi, op.cit., p.58.

project despite the heavy financial cost of the enterprise and the potential friction that would ensue with downstream neighbors.[260] The GAP is the sacred cow of Turkish politics and is not therefore amenable to debate. In fact, an incumbent's chance of reelection hinges on the level of funding allocated to the project during his tenure.

The GAP project covers nine provinces and has 10% of Turkey's population. Agriculture has the greatest share in the GAP region's economy. In fact, the share of agriculture in the regional economy is twice as large as the share of agriculture in the Turkish economy as a whole.[261] Industrial development in the GAP region lags far behind the national level despite the fact that state spending in the region is disproportionately higher.[262]

Although GAP was designed with the goals of irrigating 1.7 million hectares of land and producing 27 billion kw of hydroelectricity per year,[263] a policy shift occurred in 1989 in which GAP would be a vehicle for integrated regional development. As such, the government proclaimed that it would increase employment in manufacturing five-fold, increase agricultural income in the region to prevent migration flows to Western Turkey, and ensure that Turkey would become self-sufficient in food by depending on the GAP's irrigated land.[264] Moreover, the government hoped to lure citizens from outside the region to neutralize the restive Kurdish population. Thus, although GAP was 'sold'

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[260] Ali Carkoglu and Mine Eder, "Domestic Concerns and the Water Conflict over the Euphrates-Tigris Basin," Middle East Studies, 37, 1 (January 2001), p. 42.
[261] Ibid, p. 42.
[262] The exception to this trend is the booming economy of the Gaziantep Governorate in the GAP region. Arguably, the reason for the boom can be attributed to economic policy changes and irrigation management transfer that occurred after 1995.
[263] Ibid., p.42.
[264] Ibid., p.43.

as a vehicle for regional economic integration, it was a noteworthy part of Turkey's national security program.

At the Level II domestic game board, all Turkish political parties strongly advocated the project. To substantiate this claim further, consider the main players in Turkey's political scene. From 1983 to 1989 Prime Minister Turgot Ozal championed the GAP project. He was a hydraulics engineer and economic technocrat in Turkey's State Planning Organization. He also served as President of Turkey from 1989 to1993. The other figure, Suleyman Demirel, whose forty-year political career began as Director of State Hydraulic Works (DSI), was President of the country from 1993 to 2000. Both men were classmates in engineering school and were committed to Turkey's hydraulic mission.

To explain the consensus among elites in the policy-making establishment on the necessity of GAP, let us consider the institutional structure in which Turkey's security policy is formulated. According to Adams, the National Security Council (NSC) was established in 1961 and formulates security policy that reflects a 'shared' military and political outlook before it enters the public arena for debate.[265] Although the Council is comprised of top political and military leaders, it is clear that the military wing enjoys the balance of power. The fact that Turkey had three military coups from 1960 to 1980 substantiates this claim. Under these circumstances the Prime Minister and President must frame policies in a way that appeals to the military sensibilities of power centers in the NSC. Given the Kemalist legacy of preserving the secular and territorial integrity of the state, the political wing justifies the massive expenditure on GAP, in part, by alluding

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[265] Adams, op.cit., p.20. Originally cited in William Hale, Turkish Policy and the Military (London: Routledge, 1994) p. 294.

to the secessionist threat posed by the Kurds.[266] Once the NSC enlarged the scope of GAP, it became clear to downstream riparians that the water extractions upstream would increase dramatically and the resultant salinity from irrigation would create water quality problems as well. It is not surprising, therefore, that many of the flashpoints in the Euphrates-Tigris riparian dispute occurred after the Turkish policy shift on enlarging GAP's objectives in the late 1980s.

As mentioned earlier, Turkey began filling the Ataturk Dam in 1990. Turkey was informally bound, however, by a 1987 Security Protocol it had with Syria to guarantee its neighbor 500 cubic meters/second of flow. According to the agreement, Turkey would increase the flow the following month should a shortage occur in the previous month. As per the agreement, the Turkish delegation informed Syria and Iraq about the dam filling and that water would be shut off on January 13, 1990 for several weeks. As a result, Syria's drinking water, hydroelectric output and irrigation plummeted. Iraq's winter crops were severely damaged. Since the region was already suffering from drought, this additional water deficit aggravated an economic-developmental crisis for the downstream riparians.

At this point, it is helpful to evaluate Syria's dependence on agriculture for economic growth and regime stability. Syria must contend with an annual population growth rate of 3.4%. Most of the country's agricultural output is derived from 18.6% of cultivated land.[267] This means that much of the country's fertile land is undeveloped. Although Assad's regime relies on agrarian support for legitimacy, most of the dams built

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[266] T. Naff and R.C. Matson, Water in the Middle East: Conflict or Cooperation (Boulder: Westview, 1984) p. 84.
[267] Syrian irrigation figures are obtained from {http://www.fao.org}

failed to increase hydroelectric power or the area of cultivable land. For Syria, therefore, the stoppage of the Euphrates flow posed a serious threat. To substantiate this claim further, consider the fact that from 1989 to 1990 the country suffered from a severe drought that forced the government to increase food imports dramatically. The economy was already in decline due to the high level of military spending, the fall in oil prices, the reduction of Arab aid in response to Syria's support of Iran in the Iran-Iraq war, and the insufficient levels of foreign exchange to buy the inputs for industrial and agricultural production. Routine power outages and shortages of basic commodities became a daily feature of Syrian life. Inflation was at 70% and the Syrian economy turned out the same volume of goods in this period that it did in 1983 despite a population increase of 20% by 1989.[268] Turkey's filling of the Ataturk Dam and its effect on Syria's extant economic crisis lends support to Hypothesis **H1: If a downstream riparian anticipates adverse material consequences from the resource extractions of an upstream riparian and the downstream riparian is pursuing unsustainable development of its water resources, then an extant E-D crisis is aggravated for the downstream riparian.**

As the crisis continued, Iraq sent a note of diplomatic protest to the Turkish ambassador, and the Arab League condemned Turkey for its use of the water. It was only on February 12, 1990 that Turkey released water downstream. As the upstream riparian that is most powerful in the basin, Turkey can afford to ignore the protests made by its downstream counterparts. On July 25, 1992, therefore, in the absence of a basin-wide regime governing the allocation of water, the Ataturk Dam opened as one of the largest electric power generation facilities in the region. Once again we find support for

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[268] As cited in {http://www.Theodora.com/wfb/1990/Syria/Syria_economy.html} extracted from the 1990 CIA World Fact Book.

Hypothesis **H5: If a state is more powerful and is the upper riparian, then such a condition is not conducive to the emergence of a basin-wide regime.**

One might expect that, given the common interests between the mid-stream riparian, Syria, and the further downstream riparian, Iraq, a coalition would form against Turkey. Although no such coalition formed, an agreement was signed in Baghdad on April 16, 1990 whereby Syria would release 58% of the Euphrates flow to Iraq.[269] In practice, Syria released much less and participated in the US-led coalition against Iraq in the first Gulf War. Turkey was not threatened by the prospect of a formation of a genuine alliance between the downstream riparians.

Another incident occurred when Turkey refused to sign an agreement with Syria regarding a guaranteed flow from the Euphrates. With the aid of Syria, PKK (Kurdish Worker's Party) rebels killed 30 unarmed Turkish conscripts. Syria hoped that aiding the Kurd insurgency would increase its leverage at the international game board once water issues reached the agenda.

By 1995, however, Turkey began to fill the Birecik Dam, despite the negative externalities downstream. Nevertheless, Turkey was not immune to the destabilizing influence of Syrian aid to Kurdish rebels. As such, on October 2, 1998 a military-security crisis between Syria and Turkey developed. Tension mounted in the region as Turkey and Syria mobilized troops along their common border. Turkey threatened to bomb PKK bases in Syria and Syria controlled Lebanon.

The good offices of Egypt's President Mubarak led to crisis abatement at the Adana Conference, but no substantive agreement was reached on water allocation.

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[269]Aysegul Kibaroglu and Olcay Unver, "An Institutional Framework for Facilitating Cooperation in the Euphrates-Tigris River Basin," International Negotiation, 5, (2000), p. 325.

Turkey refused to accept Syria's negative linkage of water allocation to Syrian support of Kurdish separatism. Turkey was willing to discuss water in scientific forums that delink it from other political issues. The Euphrates-Tigris case also lends support to null hypothesis **$H7_0$ that the linkage of water issues to non-water issues, which are important to both parties, will have a negative effect on regime emergence.**

THE JOINT TECHNICAL COMMITTEE AND FAILED NEGOTIATIONS

In 1983 all three riparians had formed a Joint Technical Committee (JTC) to study issues regarding the Euphrates-Tigris Basin. Despite sixteen technical meetings and two high-level political sessions in ten years, nothing substantial resulted. The meetings failed because each riparian had a diametrically opposed view regarding riparian rights and even the definition of transboundary watercourses. In addition, the more powerful upstream riparian, Turkey, had not reached a critical environmental threshold that would make fruitful basin-wide negotiations an economic and political necessity. Furthermore, neither Iraq nor Syria has embarked on the sectoral reallocation of water from wasteful, agricultural uses to more efficient uses.

While Turkey advocates treatment of both rivers as one hydrological unit, Iraq maintains that separate regimes ought to govern them. Both Syria and Iraq argue that the Euphrates-Tigris Rivers are transboundary in nature and that they have historic rights to the water based on prior appropriation. By contrast, Turkey maintains that transboundary waters are only those that form a border between states.[270] Turkey has espoused the

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[270] M. Jouejati, "Water Politics as High Politics: The case of Syria and Iraq, " in H. Barkey, (eds), Reluctant Neighbor: Turkey's Role in the Middle East (Washington: US Institute of Peace Press, 1996) p. 132.

doctrine of absolute territorial sovereignty on several occasions. Given the Syrian and Iraqi legal position on the matter, both countries were contemptuous of any plan in which they would buy water from Turkey.

The position adopted by Syria since December 2004 with the signing of the Turkey-Syria Free Trade Agreement, however, has signaled a positive change in this regard. Syria, along with five other Arab countries, will be purchasing hydroelectric power from GAP's power grid. The project is financed by Kuwait. This lends tentative support to Hypothesis **H3** which states: **If in the course of negotiation between a lower riparian and upper riparian, the former agrees to buy water from the latter, the upper riparian is more likely to agree to a regime.** The fact that Turkey has not approached a critical environmental threshold does preclude an examination of Hypothesis **H4** which states: **The likelihood of the emergence of a limited regime will vary with conflict setting and the level of development: a higher probability for developing states in arid zones in a protracted conflict setting, which approach critical environmental thresholds; and a lower probability for such states in a non-protracted setting since they are more likely to opt for a Pareto-optimal basin-wide sharing regime**. As long as Turkey enjoys a relative abundance of water resources that are disproportionately utilized in the wasteful agriculture sector, and its economy remains stable, it can afford to hold out during negotiations with its downstream counterparts.

If, on the other hand, the deficit financing of GAP by a bloated public sector becomes untenable under the pressure for neo-liberal economic reform, economic change could alter the current political consensus in Turkey on GAP's benefits and change the

two-level game dynamics of negotiations[271]. In a similar vein, if Syria also embarks on substantial economic reform, then the Level II winset would expand and make Level I agreement more likely. These points will be addressed in subsequent sections.

Until then there are two bilateral agreements that have influenced water use between Turkey and Syria, and Syria and Iraq, respectively. As noted earlier, the 1987 Protocol between Turkey and Syria embodies Turkey's unilateral decision to release a minimum of 500 cubic meters of Euphrates flow per second to Syria for a specified time period. Although this arrangement is called a protocol, it is more properly construed as an informal agreement. Unlike a formal treaty, there are no stipulations regarding compliance or non-compliance. The protocol was the outcome of Turkey's President Ozal's visit to President Assad of Syria in Damascus in 1987. Ozal intended to pressure Syria into ceasing its support of the Kurd insurgency. The verbal agreement to release 500 cubic meters per second could be viewed as an incentive to secure Syrian compliance.

In retrospect, the protocol was ineffective. Syria continued to support the Kurd insurgency until the late 1990s. It was only when Turkey threatened military action against PKK camps in Syrian territory that Turkey was able to secure the extradition of Kurdish leader Abdullah Ocalan from Syria in 1999. Ocalan was subsequently captured by Turkish agents in Kenya, and the Kurdish insurgency lost its momentum. Despite Turkey's Kurdish problem, which was aggravated by Syrian support from 1987 to 1999,

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[271] This insight follows from my model depicted in Figure 2 Causal Pathways. The assumption is that once agricultural water use becomes significantly less important to GDP production, negotiators will compromise with co-riparians to benefit from the exchange of trade in other goods and services.

Turkey continued its GAP project and refused to concede to Syrian demands for at least 700 cubic meters of water per second.

In 1990 a bilateral accord between Syria and Iraq was signed in the wake of the Ataturk Dam-filling incident. According to this accord, Syria would release 58% of the Euphrates flow to Iraq provided Turkey released a sufficient amount for Syrian uses. It should be noted, however, that there is no basin-wide consensus on what constitutes necessary or sufficient uses. Each riparian submits data on needs and uses that are contested by the other. As such, Turkey has proposed a "Three Stage Plan for Optimum, Equitable, and Reasonable Utilization of the Transboundary Watercourses of the Tigris-Euphrates Basin."[272]

This plan begins with a trilateral inventory of water and land resources in the basin that accounts for seasonal fluctuations. Next, a system would be designed that would determine optimum and fair allocation of available water. Finally, the use of water-conserving technologies and the diversion of water from wasteful agricultural practices are cornerstones of the plan. Until December 2004 neither Syria nor Iraq had responded favorably to this approach. These countries preferred ad hoc negotiations based on equal volumetric division of the waters at the prevailing flow rate.[273] Such an approach is highly impractical given the seasonal variation in the basin.

In sum, the history of JTC negotiations reveals the obstacles inherent in multilateral contexts. There is tentative support for **Hypothesis H_8** which states: **Multilateral negotiations, which impose higher transaction costs on coalition**

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[272] Turkish Ministry of Foreign Affairs, "Water Issues Between Turkey, Syria, and Iraq," PERCEPTIONS: Journal of International Affairs," 1, 2 (1996), pp. 101-107.
[273] Kibaroglu and Unver, op.cit, p. 326.

members, are less likely than bilateral negotiations to lead to regime emergence. The information provided by the riparians on water need and water extractions has been tainted by each riparian's exaggeration of water need and inefficient utilization of scarce resources. As such, the JTC could not effectively monitor these factors once dams became operational. Consequently, unilateral dam and irrigation projects in the absence of a regime only precipitated crises among riparians.

NEO-LIBERAL ECONOMIC REFORM AND POLITICAL CHANGE IN TURKEY: THEIR IMPACT ON THE TWO-LEVEL NEGOTIATING DYNAMIC OVER WATER.

In this section the political, economic and social crises that provoked reform will be discussed in the context of Turkish state formation. Next, I shall explain how the crises and demands for structural adjustment by international financial institutions (IFIs) triggered change in the irrigation sector. To understand the nature of the change I shall focus on the issue of Irrigation Management Transfer (IMT), which involves the policies of decentralization, devolution, some form of privatization, and democratization. Since IMT ultimately entails the devolution of decision-making authority and payment responsibility to lower levels of government, private firms, and irrigation user groups to improve the sustainable development and management of natural and financial resources, it is touted in the development economics literature as the most effective way for debt-

ridden states to get their fiscal houses in order.[274] IMT is thus conceived as the remedy for bloated, expensive, and inefficient public irrigation sectors.

It will become evident, however, that IMT can be a bitter pill to swallow for those bureaucrats who have a vested interest in maintaining an over-centralized state, and irrigation users who initially resist the demand to pay the real cost of the water they use.[275] Ultimately, both bureaucrats and irrigation users reluctantly embrace the transfer once the benefits of doing so outweigh perceived costs.

Finally, I shall conclude with an analysis of how a comprehensive IMT scheme could facilitate a reallocation of water to more efficient uses and eventually enlarge the domestic winset in which international water treaty agreements can be ratified. Implicit in this argument is the distinction between decentralization and devolution. While the former term refers to a "relocation of administrative functions away from the central government to local offices of the national bureaucracy, the latter term refers to the relocation of power, as in capacity and decision-making authority, away from the center to local political structures, government and/or user groups."[276] By extension, decentralization can occur without devolution. In fact, Turkey's experience with IMT[277] suggests that much more must be done for devolution to occur. Throughout this section, advocacy of the principles of devolution does not entail unequivocal support for

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[274] Overview Paper, "Sharing Lessons From Global Experience, June 2001," {http://www.fao.org/ag/agl/aglw/waterinstitutions/overview.stm}

[275] For a full analysis of the pitfalls and complexities of neo-liberal reform see pp. 190-195 of this dissertation. For a purely economic analysis of the benefits of water commodification within a Water Allocation System Optimization Model see Franklin M. Fisher et Hossein Askari, "Pour Une Gestion Optimale," {Http://www. Imf.org/external/pubs/ft/fandd/fre/2001/09/pdf/fisher.pdf

[276] Hakin Altinas, "Devolution and Decentralization Patterns of Local Governments in Turkey," Paper prepared for the EGPA Annual Conference, Potsdam 4-7 September, 2002, p. 1.

[277] The IMT experience in Turkey referred to here was chronicled in the study conducted by Mark Svendsen and Gladys Nott, "Irrigation Management Transfer in Turkey: Processes and Outcomes," Paper presented for the World Bank Economic Development Institute's Participatory Irrigation Management Case Studies Series, June 29, 1999, p. 18.

privatization. Privatization involves a shift in ownership of water supply organizations to private firms within the country and/or huge multi-national conglomerates. The drawbacks of privatization involving multi-nationals will be discussed at length on pages 190-195 below.

DEFENSIVE MODERNIZATION, THE DEFEAT OF THE OTTOMAN EMPIRE, AND THE LEGACY OF THE 'TANZIMAT SYNDROME'.

Many of the ills plaguing the contemporary Turkish state began during Ottoman rule in the late 19th century and continued throughout the nation's war of independence after World War I. Under Ottoman rule, the state only modernized in a "defensive fashion" to stave off military defeat at the hands of European powers. The Ottoman rulers engaged in reforms to buttress military institutions, improve the administrative arms of government, and prevent the disintegration of a vast, multi-lingual, and multi-religious empire. The reforms of 1856, which were called the Tanzimat Reforms, bequeathed citizenship rights upon the subjects of empire such as equality before the law, freedom of religion etc., in order to prevent an alliance from forming between the Empire's Christian minorities and European powers.[278] On the face of it, the reforms appeared to be radical. In reality, however, they were only a partial transformation. Despite the development of a strong military and a centralized, bureaucratic structure, the Ottoman state failed to develop and nurture a vibrant civil society, which would serve as a conduit for the articulation of social preferences to political parties and eventually the government.

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[278] Hakan Yilmaz, "Europeanization and Its Discontents: Evidence from Turkey," Paper prepared for the Annual Meeting of the European Consortium for Political Research, 18-21 September, 2001, pp. 1-5.

Arguably, the territorial dismemberment of the Ottoman Empire had created what Turkish political scientist Yilmaz has termed the Tanzimat Syndrome. The Syndrome involves the perception that bequeathing rights to ethnic groups, religious groups, local government, or private enterprise will lead to the demand for more rights to the point of separation from the state. According to Yilmaz, the disintegration of the Empire was made possible because foreign powers were able to align with disaffected groups.

Once the Empire collapsed, Turkey's rulers reasoned that it was the state's decision to bequeath rights that aided the process of disintegration. In other words, the rulers believed that the state could not secure the loyalty of historically oppressed segments of society by engaging in late-stage reform.[279] This conception served to enlarge the distance between the rulers and ruled. The state's links with society were partial as they relied upon extant patron-client networks. During the phase of defensive modernization, the Ottoman state was designed to control a primarily rural society with a small urban elite. The central government was far removed from the daily politics and needs of the disparate regions. This over-centralized, bureaucratic mindset continued in the immediate post-independence period.

As such, the leaders of Turkey's ruling Republican Peoples' Party attempted to fashion a secular and modern state without disempowering the wealthy landholders, merchants, and retired bureaucrats from the Ottoman era. This served to perpetuate the clientelist networks that existed before. To create a secular and cohesive country, Ataturk used the state as the engine for development and industrialization. This entailed an over-expansion of the bureaucracy and state subsidies for public sector companies. The state

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[279] Yilmaz, op.cit., p. 5. I maintain that even Ataturk subscribed to this notion and was thus suspicious of a decentralized state structure.

that emerged was unwilling to devolve power to local government for the center had weak societal links. Moreover, the center distrusted an 'overly vibrant society' for it could unleash the traditional influence of Islam and give expression to militant ethnic-subnationalism. For this reason, the non-elected coercive institutions of state power such as the military were given the role of guarding Turkey's nascent democracy.

In the post-World War II period, the emergence of the Democratic Party did nothing to change the patronage structure alluded to earlier. The Democratic Party achieved power in 1950 by capitalizing on public disenchantment with the Republican Peoples' Party's modernizing project and the deprivations that resulted from the war.[280] The Democratic Party contributed to even greater state expansion and over-centralization, however, by making publicly funded credit available to several industries called State Economic Enterprises (SEEs). The party also suppressed Republican political opposition by asking the Army to intervene and restore order. The coup effectively ended Turkey's first experiment with democracy.[281]

By the 1960s it became apparent that the over-centralized, heavily-bureaucratized Turkish state was incapable of serving the ever-expanding needs and expectations of burgeoning urban centers. The absence of a healthy power balance between the central and provincial governments meant local people had to address their infrastructural needs in an extra-constitutional way. Thus, if a village needed a road-building permit, a local notable would have to 'buy' it from a willing bureaucrat in Ankara.[282] This form of clientelism led to the underdevelopment of water and sanitation structures in those

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[280]Ilter Turan, " The Turkish Political System: Instability and Hurdles," in Bertil Duner (ed.), Turkey: The Road Ahead? Papers presented for the Swedish Institute of International Affairs, Stockholm 2002, pp. 6-7.
[281] Ibid. p. 9.
[282] Ibid., p. 10.

regions where such networks were weak. On the other hand, in regions where the patronage structures were firmly entrenched, the state elites had to appease their clients in order to stay in power. This meant that the state would extend credit to risky, inefficient enterprises by borrowing from international financial institutions. As a result, interest rates became too high for private sector borrowing. This analysis reveals the relationship between over-centralization and clientelism, and how they lead to crises of governance and economy.

A new era of private sector activity began in the 1980s as Turkey eschewed the tenets of Import Substitution Industrialization (ISI) and focused on export production. The impetus for this change came from the structural adjustment policies of the IMF and World Bank. Turkey's debt ratio was so high, its inflation was running in the double digits, and it could not afford to make payments on its substantial foreign loans without liberalizing its economy. Turkey's export production remained uncompetitive, however, due to a plethora of state regulations of markets, investments, production, and trade. This legal web was the product of the state formation dynamic in Turkey.

The economic stress, combined with the failure of Turkey's institutions to serve the demands of society, led to political fragmentation and ultimately to poor governance. As Turan argues, this fragmentation was manifested in the politicization of the bureaucracy and the proliferation of political parties without clear platforms, each vying for the loyalty of this or that clientelist network.[283] Since the civil service was the largest employer, bureaucrats wanted to advance their public careers and accumulate resources. Given the short tenure of high-ranking bureaucrats, these civil servants nurtured their

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[283] Turan, op.cit., p. 12.

links with rival politicians representing fragmented coalitions in power.[284] Since these politicians had clientelist links with some businessmen, those businesses would benefit from lucrative government contracts awarded by the corresponding 'captured' bureaucracy. A series of weak coalition governments and a rise in state-society tension led to military intervention to restore order and 'preserve the foundations of Ataturk's Republic'—the euphemism for a justifiable military coup.

The fact is, however, that the crisis of governance was the result of over-centralization. The local government budgets were subject to central government review and suspension. The policies created at the center were insensitive to local needs and hence failed most of the time. Citizens had no say in the decision-making and implementation process. Even if individuals at the local level wished to make a difference, they had to gain the support of national officers of political parties. Since these national party officers were part of the clientelist structure, efforts by policy entrepreneurs were thwarted.

In short, political parties in Turkey were not receptive to grass roots organizations or maverick candidates who articulate citizen preferences. They only sought votes at election time to remain in power. Moreover, even officials at the local level such as mayors played the role of policy brokers instead of service and development providers. Without jurisdictional and fiscal autonomy, mayors tended to negotiate with central government politicians to attract scarce resources for their clients at the local level. In return, politicians at the center secured the voting support of the mayor's clients. This clientelist arrangement resulted in poor governance and service provision. The parochial

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[284] Turan, op.cit., pp. 13-14.

concerns of local clients were more likely addressed than the pressing needs of the masses at the local level.

IRRIGATION MANAGEMENT TRANSFER IN TURKEY.

Given the nature of Turkey's bloated public sector, the persistence of clientelism, weak political parties, and a weak civil society, one would dismiss the prospects for irrigation management transfer. Yet, it is the economic and political crises engendered by these conditions combined with the pressures of IMF conditionality, which are forcing the Turkish state to transfer management to local levels. Burgeoning populations require well maintained, expanded irrigation areas with fixed water supplies. The lack of funds available to the DSI for operations and management of irrigation works and equipment meant poor irrigation facility upkeep. The scarce funds that were available were swallowed up by the high cost of unionized labor in the DSI department.[285] Moreover, Turkey's water development projects hinge on international funding, which is based on IMF conditionality. Since the conditions for funding relate to the level of decentralization and devolution, Turkey has had little choice but to embark on that journey. Arguably, the constraints alluded to earlier have made the journey an arduous one.

Nevertheless, the process itself has accelerated since 1993. The DSI accelerated transfer in the four pilot regions of Adana, Antalya, Izmir, and Konya.[286] Prior to transfer, DSI operated all irrigation structures and canals to the village level. Farmers enjoyed abundant and cheap water supplies due to government subsidies. In fact, the government

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[285] Mark Svendsen and Gladys Nott, "Irrigation Management Transfer in Turkey: Processes and Outcomes," Paper presented for the World Bank Economic Development Institute's Participatory Irrigation Management Case Studies Series, June 29, 1999, p. 18

[286] Ibid., p. 18.

rarely collected even the nominal fees for water usage that were levied on farmers. The high inflation rate in the country made it nearly impossible for farmers to pay on time anyway. With transfer, however, a new legal entity called an irrigation association (IA) has been created that manages the operations and management (O&M) functions of irrigation works.[287]

According to the Svendsen and Rust study,[288] Irrigation Associations in Turkey have the following functions:

1. The IAs must deliver water that they obtain free from the DSI to farm terminals and distribute it in an equitable fashion while containing operating costs.
2. The IAs generate income through irrigation fees, membership fees, goods and service fees, and fines for late payment.
3. The IAs must buy and maintain the heavy equipment to fulfill their role.

During the transfer process, DSI would train IA staff. The DSI would still retain ownership of the irrigation facilities.[289] Equally important is the fact that the Ministry of the Interior reviews and approves the annual and periodic budgets of the IAs. This indicates that the transfer is a state-directed, top-down initiative akin to decentralization, but not devolution.

An examination of the composition of the IA will demonstrate that grass roots interests are still not firmly entrenched. The General Assembly of the IA consists of extant village and municipal leaders, and additional members who are elected by irrigators.[290]

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[287] Mark Svendsen and D.H. Rust, "Creating and Consolidating Locally Managed Irrigation in Turkey: The National Perspective," Irrigation and Drainage Systems, 15, (2001) p. 352
[288] Ibid., pp. 351-371.
[289] Svendsen and Nott, op.cit., p. 31.
[290] Ibid., p. 32.

Since farmers' interests are represented indirectly in the few additional members who are elected to the IA, government still enjoys the balance of power.[291] Moreover, village notables who benefited from historic patron-client relationships could still benefit from the new institutional relationships. Only when village leaders are elected to the IA at large will civil society flourish in the irrigation sector. The social capital created could then promote local and national government accountability and transparency.

In order to evaluate the results of the IMT, I shall rely upon the study conducted by Svendsen and Nott of the World Bank. The study states that in 1995 there was an increase in the cost of irrigation service to farmers. IAs were able to collect 72% of the fees levied.[292] Although this figure is impressive compared to the low collection rate of DSI, the fees have not pressured farmers to conserve water. Higher fees are not charged for those farmers who grow water-intensive crops in vast areas. I contend that a widespread shift in allocation from wasteful agricultural sectors to productive industrial sectors will occur once Turkey approaches critical environmental thresholds. Until then, the incentive to do so will not be apparent to both water managers and consumers.

With respect to the effectiveness of the irrigation services delivered by the IAs, the authors of the study found that productivity would have been enhanced had the IAs had access to the old equipment in DSI's hands. Currently, the IAs have no legal way to federate with other IAs in order to increase their budget for equipment purchase.[293] A partnership between the center and local government in this regard is thus a prerequisite for successful devolution. Another factor that impedes IA effectiveness is the absence of

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[291] Svendsen and Nott, op.cit., p.66
[292] Ibid., p. 48.
[293] Ibid. p. 66.

pre-specified water rights. In Turkey surface water was claimed on an ad-hoc basis. Thus, if someone appropriated water from the banks of a river, it was not clear why he would pay an IA for water he already had.[294] Only if the IAs have secure, exclusive, and enforceable water rights will profound devolution occur.

The next question that arises is whether the transfer has reduced the operating costs of DSI. According to Svendson and Nott, DSI's costs actually rose.[295] The central government has been unable to cut back on redundant personnel due to the strength of labor laws and labor unions.[296] On the other hand, DSI maintenance expenditure has reduced significantly.

In sum, the transfer of O&M functions from DSI to the IAs has created some institutional capacity at the local level. This transfer is far from complete, however, for the reasons specified earlier. In order to ratify water treaty agreements reached at the international level, the domestic level winset must be enlarged. Should the following conditions enabling market allocation of water with some government oversight obtain in Turkey, it is possible[297] that water will be allocated to more efficient uses domestically and water conservation could be institutionalized:

- Turkey must experience some degree of water scarcity in order that water is valued highly in economic terms.
- Although agricultural output amounts to a small proportion of the national economy, it still employs significant parts of the population. This employment

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[294] Svendsen and Nott, op.cit., p. 66. It should be noted, however, that as of 2005 nearly 75% of Turkey's water sector is formalized. Water rights are clearly becoming entrenched.
[295] Ibid., p. 66.
[296] Ibid. p. 59.
[297] It is important to note that IMT is only one among many policy options available to decision-makers to enlarge the domestic win-set. Other options include reliance on virtual water, investing in technology to conserve water, and legislation that cuts water allocation to inefficient sectors.

trend must change so that more people are employed in the productive industrial sector.[298]

- Although Turkey has the infrastructure to transfer water from one user to another, it still needs to inventory extant supplies and measure consumed amounts in a manner accepted by co-riparians.

- Turkey must develop a clear and enforceable set of water property rights, so that markets can compensate those who are giving up rights to entities such as IAs.[299]

- Turkey must provide job re-training to those water users who have given up their water rights to IAs. To this end, the World Bank has already sanctioned loans.

- IAs must be given more administrative and fiscal autonomy in order to weaken clientelistic structures and improve the service delivery role of mayors.[300]

Since the GAP regional development program will result in the massive exploitation of water resources and have a tangible effect on both Level II and Level I game boards, IMT must occur in a comprehensive fashion in the south east region.

Prosperity in the GAP region would strengthen national security and integration only if power is devolved to local levels. This necessitates an intellectual "glasnost" among Turkish policy-makers, so that policy is no longer formulated through the prism of the "Tanzimat Syndrome." The center would willingly devolve power to local levels in areas of direct concern to citizens. Thus, issues of cultural identity and water delivery and use, for example, would be under local jurisdiction. This would engender trust in both Kurdish and Turkish farmers towards the institutional responsiveness of IA's to their needs. Implicit in this argument is the assumption that such user groups would have an ownership stake in the IA's administrative, and O&M functions. Consequently, user

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[298] Anna Knox and Ruth Meinzen-Dick, "Collective Action, Property Rights, and Devolution of Natural Resource Management, "CAPRI Working Paper #11 January 2001, International Food Policy Research Institute, p. 6.
[299] Ibid., p. 6.
[300] Ibid.,. pp. 6-7.

groups would be willing to bear the costs of improved service and even consider job re-training. Better governance at the local level in the GAP region would thus enable the allocation of scarce water from wasteful, agricultural use to more efficient industrial uses. In fact, this has already occurred in the thriving export city of Gaziantep in the GAP region. Perhaps, such changes have weakened the clientelist structures in the agrarian sector and will enable the central government to compromise with downstream riparians.

An argument could be made that the economic changes within the Turkish irrigation sector may have had some positive reverberations on the Level II game board. In March 1999, Turkish-Syrian tensions eased and the two states opened their borders to facilitate family reunions during religious holidays. This small step is a good confidence-building measure considering the hostility that has characterized their relationship. Similarly, for the first time since 1988 a Turkish economic delegation was dispatched to Damascus to discuss the creation of a joint economic commission on May 7, 2000. Of greatest significance, however, is the Free Trade Agreement that was signed between Turkish PM Recep Tayyip Erdogan and Syrian Minister of Trade, Mohammed Naji Otri on December 26, 2004. Since Damascus had withdrawn its reservations over the agreement after an entente was reached on Turkey's non-negotiable sovereignty over Hatay/Alexandretta, the two states plan to double their current yearly trade of $1 billion USD and engage in significant agricultural and water resource development cooperation. Currently, there are proposals on the table for joint dam development on the Orontes.

Syrian President Bashar Assad's willingness to cooperate with Turkey on an issue that has historically stalled negotiations may be motivated by a desire to contain the diffusion of Kurdish nationalist sentiment in the wake of its resurgence in Iraqi national

politics. Turkey has also pledged to increase the water flow to Syria. Turkey is also keen in containing Kurdish power following the US-led invasion of Iraq. In addition, five Arab countries including Syria will be linked to Turkey via power grids generated by the GAP and funded by Kuwait. This development lends tentative support to hypothesis **H3** which states: **If a lower riparian agrees to rent water from the upper riparian, the upper riparian is more likely to agree to a regime.** The fact that the NSC in Turkey has decided to clear its 822 km long frontier of landmines bodes well for increasing Turkish-Syrian trade. Syria will be given the right to open a Syrian Consulate in the Gaziantep governorate in South East Anatolia in order to participate more effectively in the free trade pact. Since the city of Gaziantep is the most developed and diversified in terms of agriculture, industry and commerce and exports to over 40 countries worldwide, it is the ideal location for the consulate. The agreement will result in substantial mutual gains for all riparians should the dynamics of IMT in Syria and Iraq promote a more efficient sectoral allocation of water. These developments prevent wholehearted acceptance of those explanations that privilege pure power considerations and riparian position over domestic economic and political change.

In what follows, the institutional structure of Syria's water resources will be analyzed.

STRUCTURE OF SYRIA'S WATER RESOURCE INSTITUTIONS

The highly-centralized structure of Syria's water resource institutions, combined with the incompatible methods employed by each government department to procure data on available water supplies and agricultural land use patterns, has resulted in a water policy that does little to slow down the rapid rate of groundwater depletion. In addition, the absence of Water User Associations, comprised of farmers, who would pay most of

the costs of O&M, has led to weak government cost recovery. According to Bakour and Kolars, landowners pay only 20% of heavily subsidized irrigation costs.[301] Pumped water is free and farmers are given credit at low interest rates to buy the pumps. The taxes that are collected from landowners are nominal and are unrelated to the volume of water utilized by each holding. This situation is untenable in a semi-arid country in which 90% of available water is utilized in the wasteful agricultural sector.

Instead of devising methods to curb the demand for water, the Syrian government maintains there is enough water in the Euphrates-Tigris basin to exploit. Hence, plans have been made to irrigate 91, 000 hectares in the Euphrates basin and another 150, 000 hectares in the Euphrates tributary of Khabour.[302] High-level officials such as the Prime Minister preside over the planning process in both the Planning Supreme Council and Agricultural Supreme Council. The Ministry of Irrigation, on the other hand, coordinates water use in the agricultural, industrial, and municipal sectors. Although the Ministry is charged with issuing licenses for digging wells, most farmers dig their own unlicensed levels. Resource management laws are thus ineffective.

THE ETHNO-CLASS STRUCTURE OF HAFIZ ASSAD'S REGIME AND THE PRIMACY OF SUBSIDIZED AGRICULTURE

This is not surprising given the nature of state-society relations in Syria. Hafiz Assad's minority Alawite government was able to rule Syria with its majority Sunni population for so long because of the structure and ethno-class composition of his power elite. Prior to 1980, Assad had a coterie of twelve primarily Alawite notables occupying

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[301] Bakour and Kolars, "The Arab Mashrek: Hydrologic History," in P. Rogers (ed.), Problems and Perspectives on Water in the Arab World (Cambridge: Harvard University Press, 1994) pp. 121-146.
[302] {Http://wwwdams.org/kbase/submissions/showsub.php?rec=env108}

key posts in the military, security, and intelligence departments.[303] These notables were by and large related to Assad by ties of blood or marriage. Each of these men enjoyed the same amount of power and had overlapping responsibilities.[304] This would ensure that they would neutralize one another in their desire to keep their positions. More importantly, this structure prevented the formation of a destabilizing coalition against Assad himself. It should be noted, however, that some Sunnis were also given high profile posts such as Defence Minister. Assad sought those Sunnis who had the same lower to middle class rural backgrounds as Alawite power brokers in order to weaken the threat posed by the privileged, Sunni Damascene elite landlords, who ruled the country prior to the Baathi revolution. Given the rural class background of Assad's base, therefore, it is no surprise that providing cheap irrigated land and heavily subsidized agricultural inputs would be cornerstones of his policy.

After 1980, however, Assad also gave patronage appointments to members of the old Sunni Damascene elite to give the appearance of a more 'representative' government. This tactic was necessary because the regime had brutally suppressed the Sunni Muslim Brotherhood in 1982 at Hama following the group's attacks against the regime in Aleppo and Homs. In addition, Assad wanted to acknowledge the economic contributions of the Sunni bourgeoisie during his limited market reforms of the 1980s without giving them real decision-making power in government. It is conceivable that in order to co-opt the old Sunni elite, the government invested more resources in the agricultural sector during this period than prior to 1980. To substantiate this argument consider the following table comparing investment in the agricultural sector in the fourth and fifth five year plans:

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[303] {Http://lceb2.locgove/cgi-bin/query/r?frd/cstudy:@field(docid+sy0093)}
[304] Ibid.

Table IV: AGRICULTURAL INVESTMENT FROM 1976-1980 AND FROM 1981-1985 IN SYRIAN POUNDS.[305]

BUDGET OUTLAY	4TH YEAR PLAN (1976-1980)	5TH YEAR PLAN (1981-1985)
TOTAL INVESTED IN ECONOMY	54.2 BILLION	101.5 BILLION
AMOUNT INVESTED IN AGRICULTURE SECTOR INCLUDING (WATER RESOURCES) FOR HYDROELECTRICITY AND IRRIGATION	12.9 BILLION	27.3 BILLION

These statistics reveal that agricultural investment more than doubled by 112% from the fourth to fifth year plan periods while the overall investment in the economy grew by 87%. [306] This is important because during the fifth year plan period hydroelectric capacity plummeted due to the low water level in Lake Assad caused by increased Turkish extractions for the Keban and Ataturk Dams. Despite the drop in available water resources, the Syrian government raised the procurement prices for a variety of water intensive crops in order to stimulate production and meet the goal of food self-sufficiency. A country such as Syria that suffers from a total water deficit of 3, 104 m^3/year cannot afford to pursue policies that deplete scarce resources.[307] Moreover, the planning process in Syria is flawed because policies are formulated by those who have too much to gain from the status quo. As such, money is thrown into ambitious public sector projects without accounting for the possibility of drought, water management

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[305] Investment figures obtained from the United States Library of Congress Country Studies at {http://lcweb2.locgov/cgi-bin/query/r?frd/cstudy:@field(docid+sy0093)}

[306] It should be noted that the overall increase in investment in the economy during the fifth year plan period was triggered by the discovery of high-grade light petroleum deposits in the country's northeast region. Since the mid-1980s, oil has accounted for the bulk of Syria's export earnings. Nevertheless, agriculture continues to receive large budgetary allocations.

[307] Consuelo Varela-Ortega, "Economic Incentives in Water Management: Efficiency, Cost Recovery, and Equity," from CGIAR Challenge Program on Water and Food, Baseline Conference, Nairobi, Kenya, 2-6 November 2003, p. 26.

inefficiency, and ultimately environmental degradation. A cursory examination of Syria's petroleum industry underscores this point.

THE USE OF WATER IN SYRIA'S PETROLEUM INDUSTRY

Since the mid-1980s foreign oil companies have been invited by the Syrian government to explore the country's petroleum reserves as a joint venture with the government. Although oil exports have been the largest source of earnings, there has not been a reduction in agricultural investment. In fact, the Alawite-dominated military personnel have been encouraged by the government to buy land and engage in cash crop production. By doing so, the regime hopes to secure its survival. The commitment to agriculture, combined with the reliance on petroleum extraction, has strained water resources further. Surface and groundwater is indispensable to the petroleum industry in order to push the oil from subterranean reservoirs. In a process variously termed enhanced recovery or miscible displacement recovery[308], large volumes of water and chemical agents that promote miscibility between oil and water, are injected into oil wells. The use of surfactants or polymers with the water improves the capillary dynamics in the well and allows easy extraction of oil reserves. The problem is that surface water can be depleted and groundwater becomes contaminated. Syria's dependence on petroleum and agriculture exports thus imperils the environment. Moreover, the prospects for devolution of authority and power in the water sector are slim since the public sector with its state-owned enterprises provides the bulk of employment in the country.

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[308] See {http://www.spe.org} for a glossary of industry terms used by the Society of Petroleum Engineers.

THE ECONOMIC AND POLITICAL CONDITIONS FOR A SECTORAL REALLOCATION OF WATER TO MORE EFFICIENT USES

Nevertheless, should Syria's petroleum reserves be depleted, the regime may have to borrow from international financial institutions to stave off an economic crisis. At that time, the pressure to liberalize the economy will be much greater than it is currently. There are already indications that declining oil reserves and its negative impact on the Syrian economy motivated President Bashar Assad's diplomatic overtures to Turkey. In fact his visit to Ankara in January 2004 marked the beginning of a new era of economic cooperation between the two states. As the pressure to liberalize the Syrian economy increases, the Sunni business elite, which has been the junior partner in Hafiz Assad's "military-mercantile alliance,"[309] would try to enrich itself in the private sector economy because the regime could not buy its loyalty with oil rents. Bearing in mind that the Sunni bourgeoisie did benefit from the limited market reforms of the 1980s[310] and that its desire for more profound change was suppressed by the regime's ability to patronize them with oil rents once oil prices increased, this scenario is quite plausible.

In short, the end of Syria's rentier economy, coupled with a profound economic crisis, will give the regime the incentive to move away from a public sector economy and explore public-private partnerships. The assumption implicit in this argument is that the social basis of regime support will be reconfigured so that the bourgeoisie will become an equal partner in the ruling coalition. Historically, Syria sought to appease the landholders along the Euphrates with a cheap and abundant supply of water in order maintain Alawite

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[309] Gary C. Gambill, "Obstacles to Economic Reform in Syria," Middle East Intelligence Bulletin, 3, 7 (July/August 2001), {Http://www.shrc.org/English/world_view/2001/html.}

[310] In the mid-1980s, the regime implemented limited market reforms because of the occurrence of three factors: the value of Syria's crude oil exports plummeted due to the low price of petroleum, the country did not receive the grants from the Gulf states due to Syria's support for Iran in the Iran-Iraq war, and the 1983-1984 drought destroyed Syria's agricultural exports.

control of the regime. Even though minor fluctuations in summer water flow at the Tabqa Dam could cut off Syria's irrigation water and energy production, the regime would continue to appease the landholders.

During a dramatic economic resource crisis, however, the regime will realize that it is the bourgeoisie that will trigger capital accumulation in a vibrant private sector and not etatist elements who have subverted economic rationality. Consequently, the etatist elements will slowly witness the erosion of their power and influence on politics.[311] Perhaps then, will there be an incentive for the sectoral reallocation of water to more economic uses. Syria would then have more incentives to negotiate with co-riparians to develop a basin-wide regime. Turkey's proposal to sell water has already found a receptive audience among industrial consumers within Syria. It appears that the Level II winset is slowly enlarging and may facilitate agreement on the Level I game board. Trade developments thus signal the movement of Level I and Level II games in the direction predicted by the theoretical framework.

By writing thus, I am not advocating complete government disengagement from the water supply sector. On the contrary, governments must enter into public-private partnerships designed to guarantee economically viable water services to all. As such, stakeholders must be consulted when decentralization and devolution occur. Moreover, firms must be held to good corporate governance principles. In cases where firms

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[311] Raymond A. Hinnebusch argues that political figures and bureaucrats who utilized populism, nationalism, and patrimonialism for state formation contribute to a state of affairs in which public sector consumption, corruption, and patronage undermine economic rationality and lead to a crisis of capital accumulation. Since productive private and international firms are encumbered by a web of bureaucratic and legal regulations, they are deterred from contributing to the growth of the economy. The crisis of accumulation is aggravated by the insatiable appetite of inefficient public sector firms for non-existent financial benefits. See Hinnebusch's article for a full elaboration of this argument: "The Political Economy of Economic Liberalization in Syria," International Journal of Middle East Studies, 27, 3 (August 1995), pp. 305-320.

abdicate their contractual responsibility to provide fairly priced supplies to the most vulnerable groups in society, governments must have the ability to terminate such contracts. To facilitate riparian dispute resolution in the Tigris-Euphrates basin, such structural change in Syria is helpful.

IRAQ: PRESENT AND PAST AND THE PROSPECTS FOR IRRIGATION MANAGEMENT TRANSFER

If we recall, events at the international game board can also reverberate at the domestic level. The quasi-sovereign character of Iraq today has put the stability of that country into question. It is not clear whether the country will disintegrate into warring ethno-religious factions. Should the Kurds decide to secede in Northern Iraq, Turkey's concerns for its own territorial integrity will influence its stance on domestic water development and its international negotiating position. In fact, an important component of the December 2004 Free Trade Agreement between Turkey and Syria concerns joint methods to combat terrorism. Both Turkey and Syria wish to contain Kurdish nationalist aspirations.

Even before the demise of Saddam Hussein's regime, water allocation decisions in Iraq had strong, domestic political rationales and corresponding international effects at the Level I game board. The reverse was also true. First, Saddam's minority Tikriti regime had to appease the majority of Shiite farmers with an abundant and inexpensive water supply. Second, the regime would also use water as a weapon to neutralize the restive Marsh Arabs by draining their habitat and decimating their way of life. Third, the fears of an Iranian invasion during the Iran-Iraq war led to the construction of defensive moats around government centers. A stable water supply was needed for this reason too. Finally, the perpetuation of the regime under the crushing effect of the sanctions regimes

imposed after Gulf War I entailed the pursuit of food security. Ensuring a cheap water supply was a cornerstone of this policy.

All of these factors influenced Iraq's negotiating position primarily with Syria and secondarily with Turkey. Iraq would insist on sufficient flows from Syria under these circumstances. Arguably, the sanctions ban on Iraqi oil exports made agricultural development even more important. In what follows, it will become clear that agrarian development was, however, hampered by government policy in the context of a rentier economy subjected to the exogenous shocks of war and sanctions.

Before we can address the prospects for IMT in the newly-constituted Iraq, it is necessary to evaluate the institutional structure of water resources during Saddam Hussein's regime. Iraq had an extensive irrigation infrastructure that was centrally managed and funded by the massive oil rents received. The Ministry of Irrigation had 17 State Companies and Commissions responsible for the construction of hydroelectric dams, irrigation water storage sites, pumping stations, treatment plants, and gravity canals.[312] All Operations and Management functions were handled by the Ministry's 15 Directorates that were located in the capital cities of each governorate. The State Agriculture Supply Company of the Ministry of Agriculture provided extension and equipment for farmers. The inputs for agricultural output such as tractors, seed, and fertilizer were provided by the Ministry and the Agriculture Cooperative Bank to the farmers at a highly subsidized rate. The government purchased these inputs with the substantial oil rent it received. These subsidies stimulated production by private farmers and increased agricultural income in the mid-1980s. The ability to rent land cheaply and

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[312]Fahmi K. Bishay, FAO, UN Rome 2003, { Http:// www.fao.org/DOCREP/006/Y9870E}

the lure of profits drew even high-ranking state officials into the business of buying and leasing agricultural land. What is troubling about this trend is that high outputs were solely due to government intervention and not the result of a dynamic market. Consequently, farmers produced food for domestic consumption. The foodstuffs were not competitive in the international market. Moreover, there was no incentive to conserve water by planting crops that were less irrigation-intensive.

Following the first Gulf War in 1990, however, sanctions constrained the import of essential inputs and led to a massive decline in agricultural production levels. During the sanctions regime, the government distributed food rations to the population. In addition, the UN oil-for-food program led to a decline in Iraq's agricultural production as more workers sought public sector jobs that paid relatively higher wages that were tax exempt. At the level II game board, Iraq asked Turkey to release 700 cu m/s to Syria, so that it could water its crops. Turkey refused and Iraq retaliated by refusing to renew the 1984 security protocol in which both Turkey and Iraq had the right to pursue Kurdish insurgents for five kilometers within each other's borders.

By the late 1990s, two severe droughts further imperiled Iraq's food security. At a macroeconomic level, spiraling inflation led to a significant depreciation of the Iraqi Dinar. The government borrowed heavily from EU countries and Russia in order to pay for its food-rationing program. This practice served to stifle private sector agricultural growth in the country even further.

In short, Iraq's rentier economy enabled the regime to expand its public sector in unsustainable ways and led to economic distortions in the private sector. The exogenous economic shock of the Iran-Iraq war pressured Hussein's regime to privatize collective

farms. The subsidy system noted earlier did not, however, enable Iraq to enjoy the fruits of limited agrarian liberalization when the country was engulfed in war and sanctions in the 1990s. Turkey's impoundment at the Ataturk Dam from January 1990 to February 1990, combined with Turkey's refusal to release more water downstream during severe drought, only amplified Iraq's E-D crisis.

Given the centralized, highly subsidized nature of irrigation management in Iraq and the recent devastation wrought by war, it is unlikely that Iraq will embark on management transfer anytime soon. The country has suffered from damage to its hydraulic infrastructure, and its economy is in a shambles. Once the economy is rebuilt and the country becomes truly sovereign, it is possible that the country's agrarian sector will evolve along more rational, economic lines. Although positive economic developments in Iraq will help reinvigorate water negotiations at the international level, economic and political reform is fraught with conflicts between the demands of efficiency and equity.

THE POLICY CHALLENGE OF RESOLVING THE CONFLICT BETWEEN EFFICIENCY AND EQUITY IN DEVELOPING STATES

Some readers may find that my solution neglects the conflict between efficiency and equity--a very real problem for policy-makers in developing states. Throughout this dissertation I have advocated the sectoral reallocation of water to more efficient uses. I have argued that a water pricing mechanism must be implemented to curb wasteful use of a scarce resource and neutralize the effect of rent-seekers opposed to a transboundary water regime. Once the true value of water is reflected in its price, how will governments ensure allocation fairness across economically diverse groups in society? Why is some

level of allocation fairness necessary for enlarging the Level II winset during Level I negotiations? A theoretically informed definition of the term, "efficiency" presupposes an answer to these questions. In the philosophical aside that follows I shall provide two variants of the term. While the first definition is based upon the tenets of neoclassical economic theory, the second is based upon institutional economic theory.

THE NEO-CLASSICAL AND INSTITUTIONAL ECONOMIC CONCEPTIONS OF EFFICIENCY

According to the neoclassical approach, efficiency concerns the ability of an unregulated market to allocate economic resources to the most productive uses. Since the players (both individuals and firms) in the market are rational, economic actors, they will seek to maximize profit. This self-interested drive to maximize profits will generate wealth that will ultimately lead to an increase in prosperity for the entire society. According to Adam Smith, the economic man is led by an "invisible hand" to promote an end [general interest of society] which was no part of his intention.[313] The underlying assumption is that each player produces only those goods that yield the best profit. Technological innovation is an inevitable by-product of this production process. The price of goods would be determined by the laws of supply and demand in the context of perfect competition. Ultimately, most people would be able to acquire what they needed because the prices determined by the market would be "fair."

From an institutional economic perspective, however, an efficient allocative result depends upon the following factors: First, the nature of a firm's contractual relations to

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[313] Adam Smith, Edwin Cannan (ed.), An Inquiry into the Nature and Causes of the Wealth of Nations, (London: Methuen and Company, 1904) Book IV, Chapter 2, paragraph 2.9. {http://www.econlib.org/library/smith}

suppliers, customers, and shareholders influences its profitability.[314] Second, stable, enforceable agreements and full information are necessary to reduce uncertainty and therefore, lower transaction costs.[315] Relatively capable governing and legal institutions would be necessary to accomplish this goal. It should be noted, however, that lowering transaction costs still does not result in perfect allocative efficiency. Hence, as Douglass C. North maintains, the cost of service production is the sum of production and transaction costs.[316]

To obtain the efficient allocative outcome suggested by the neo-classical framework, therefore, transaction costs would have to be non-existent. Since transaction costs are inevitable and especially high in developing or transition economies, however, the government (provided it retains sufficient capacity to monitor transaction costs) can still play a constructive role in the economy. Asset specificity would then determine whether a public or private firm or a combination of both would produce the good or service more efficiently.[317]

In the case of supplying water, the infrastructural costs are extremely high. Consequently, private firms would be reluctant to move into this sector. Moreover, since

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[314] Oliver Williamson, The Economic Institutions of Capitalism (N.Y: The Free Press, 1985). As cited in Jairo Parada, "Original Institutional Economics and the New Institutional Economics: Revisiting the Bridges or the Divide," 6, Fall 2002, p. 53. {Http://www.cas.umkc/econ/oeconomicus}

[315] Transaction costs refer to the cost of doing business. Douglass North, "The New Institutional Economics and Development, "{Http://www.econ.iastate.edu/tesfatsi/NewInstE.North.pdf}

[316] Douglass C. North makes a rather compelling argument about how institutions can lower transaction costs so that firms can realize the gains from neo-classical conceptions of trade. He maintains that "institutional development and change are related to learning over time in an environment of strong competition." He writes that "the greater the degree of monopoly power, the lower is the incentive to learn. In such cases, firms enjoying monopoly status have little incentive to engage in innovation. Political culture, governments and their legal foundations, therefore, affect the long-term performance of economies by regulating the market in particular ways." An unregulated market is not necessarily the panacea for the economic development issues faced by developing countries. See Douglass C. North's Nobel Prize winning article, "Economic Performance Through Time," American Economic Review, 84, 3 (June 1994), pp. 359-368.

[317] Jarmo J. Hukka and Tapio S. Katko, "Refuting the Paradigm of Water Service Privatization," Natural Resource Forum, 27, 2003, p. 145.

it is not viable to build several networks and facilities in the same physical area, the business of supplying water leads to a natural monopoly.[318] Thus, even if private firms supply water, the lack of competition would imply higher prices. Without government mandated performance standards, higher prices in an unregulated market do not necessarily translate into better service due to innovation or wider accessibility.[319] Furthermore, consumers could reject such prices and seek unregulated alternatives such as tapping water from unclean ponds, extracting water from transboundary waters, or digging wells that affect ground water levels etc. In short, the neo-classical approach abstracts too much out, especially the transaction costs affecting water supply in developing economies.

The institutional approach, on the other hand, expands the concept of productive efficiency to include the idea of adaptive efficiency.[320] In other words, the presence or absence of both clearly defined property rights and institutions that enforce agreements will lower or increase transaction costs and affect the profitability of firms and the economic health of society in ways not envisioned by neo-classical theory. The institutions themselves need not be efficient, however, due to the presence of those who have a stake in perpetuating a particular system. This point has been emphasized in the Turkish, Iraqi, and Syrian cases.

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[318] Hukka and Katko, op.cit., p. 143.

[319] In contrast, to the neo-classical approach, the institutional approach acknowledges the relevance of Arrow's Theorem that there is no consistent way to aggregate the preferences of individuals to give a single preference that can be regarded as the preference of society. Hence, profit-maximizing entities could produce what in hindsight was least profitable because of a failure to gauge consumer preferences accurately. In such cases, the invisible hand did not maximize economic well-being for the firm or for society.

[320] According to Douglass North, adaptive efficiency concerns the performance of an economy through time. {Http://www.econ.iastate.edu/tesfatsi/NewInstE.North.pdf}p. 8.

Bearing in mind the pitfalls associated with embracing neo-classical concepts of efficiency in the context of water privatization, I shall delineate those factors that determine how governments balance efficiency and equity concerns.

With respect to the institutional development of water resource management, highly centralized structures may be in utter financial shambles with poor management of infrastructure and shoddy service; whereas, in cases of successful management devolution, O&M and cost recovery are effective. In the latter case, water user associations ensure that institutions are accountable to their concerns. In return, the water users agree to be bound by the institutional rules on permitted withdrawals. This bodes well for Level I negotiations since policy-makers have solid information on the withdrawal patterns of domestic constituents and can fashion international proposals that will be likely ratified domestically.

The structure of the economy in general also affects the balance between efficiency and equity. A robust economy with an equitable society will be able to recover the costs of O&M without depriving vulnerable groups. If vulnerable groups are ignored, they do not have an incentive to comply with any new water use rules mandated by international agreement.

The form of privatization adopted such as service contract, management contract, lease, concession, divestiture, or Build-Own-Operate-Transfer is also a factor. Privatization can manifest in different ways depending on whether it is the government, the firm, or a combination of both who:[321]

1. Owns the asset.

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[321] Karen Bakker, "Archipelagos and Networks: Urbanization and Water Privatization in the South," Geographical Journal, 169, 4 (December 2003), p. 330.

2. Funds and plans infrastructural development.
3. Receives income from tariffs.
4. Receives income from the partnership.
5. The type of subsidies used to help poor groups gain access to a reliable water supply. If the government has financial resources such as petroleum rents, these could be used in this way.
6. The enforcement of regulations that are designed to make multi-national businesses invest in infrastructural development. If sustainable development concepts become entrenched in the contracts governing business investment, then it is possible to implement conservation programs. If conservation prevails at the Level II game boards, the likelihood of creating a transboundary-sharing regime increases.
7. The existence of public-private partnerships regarding the ownership of public water resources and infrastructure.

Even if these factors are all favorable, it is still true that an equitable distribution may elude policy-makers. When governments relinquish control of public resources to private firms, the latter is accountable to their shareholders and not to the citizenry. Arguably, in the undemocratic regime of Syria, the government was never truly accountable to its citizenry anyways. Nevertheless, since a firm's concern is profit maximization and not public welfare, it is more inclined to limit infrastructural development. In underdeveloped areas such policies will only harm the interests of the underprivileged. In addition, multi-national water companies prefer monopoly

concessions with little or no governmental intervention. Should corporations such as Bechtel and the French companies[322] be awarded water contracts in developing countries, they would push out smaller, indigenous water firms. The lack of competition pushes prices upward and prevents the poor from gaining access to the vital resource.[323] Moreover, the profit motive implies firms will encourage greater consumption of the good among those who can afford to pay for it by providing ingenious ways of extracting even more water. This does not augur well for water conservation and impedes enlargement of the Level II winset. Given these facts, some critics of commodifying water and privatization urge governments to stay away from divestiture, the wholesale selling of public resources to multi-nationals. This is easier said than done since the structural adjustment programs (SAPs) of international financial institutions (IFIs) often demand that governments do just that to qualify for debt relief and development funding.

CONCLUSION

In sum, the ability of any government to trim its public sector and reallocate water to more economic uses is determined by its economic-developmental level and political acumen.[324] Hard political choices would have to be made in which the ability to compensate the losers in the privatization game is also diminished by the paucity of funds

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[322] The following French conglomerates have 70% of the global private water market: Vivendi, Suez Lyonnaise des Eaux, and Saur/Boygues.

[323] Interestingly, Bechtel's policies in Cochabamba, Bolivia caused massive unrest among the poor in 1999 when the water system was privatized. The cost of water was so high that people had to go without food to pay for it. "Families earning a minimum wage of 60$ per month were charged 20$ per month for water. A general strike was declared by 500, 000 people. At first, the Bolivian government sided with Bechtel and violently suppressed the peaceful protests. Ultimately, however, the government was forced by public outrage to cancel the contract. The corporation is currently suing the government of Bolivia in the World Bank court for 25 million dollars in lost profits due to premature termination of its concession." As cited in Andrea Buffa, "Bechtel: Profiting from Destruction," an article from Public Citizen Global Exchange Corporate Watch, Washington DC, June 2003.

[324] As noted, the SAPs of IFIs and other economic powers also exerts pressure on governments to engage in sectoral water policy reform.

in the national coffers and the weakness of governing institutions[325] in general. Ultimately, a viable public-private partnership could diminish some of the pitfalls of commodifying water and limited privatization. The foregoing analysis of the Tigris-Euphrates case reveals that each riparian is at a different stage on the road to a sectoral reallocation of water to more productive uses.

Although Turkey has made tremendous strides in this regard, the country still has a long way to go before the domestic winset is sufficiently enlarged. The approach of a critical environmental threshold may be the catalyst necessary to push Turkey even further on the sectoral reallocation road. Furthermore, Turkey's desire to become a full-fledged member of the EU gives EU member states a constructive role as a third-party mediator. In fact, Syrian and Iraqi protests over development financing of the Ilisu Dam in the GAP region in 1999 led to the imposition of strict conditions on British and Swiss consortium financing. The British Foreign Office stipulated that credit guarantees to the Balfour Beatty Firm would not be forthcoming if Turkey failed to consult all affected parties, such as the Kurds and the downstream riparians. The EU can, therefore, influence all three riparians. Currently, the EU has development projects in the GAP region that address the environmental and economic concerns of affected parties.

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[325] North, op.cit., p. 359. "Institutions refer to the formal constraints of rules and laws and the informal constraints of norms and conventions that form the incentive structure of society."

The fact that Turkey is adopting a more conciliatory tone towards Syria and is discussing joint water development plans as a spin off from the December 2004 Free Trade Agreement suggests widespread water cooperation is a very real possibility.[326]

Since Turkey has made significant progress in IMT with nearly 75% of its water sector formalized, it has been able to ensure a reliable supply to the majority of its citizens. The wasteful agriculture sector can no longer depend on overly cheap exclusive water supplies and has taken the lead in using the scarce resource more sustainably. The fact that this process has been underway for the last ten years implies it may have influenced Turkey's decision to conclude the landmark Trade Agreement with Syria that has a significant water component.

Being the mid-stream riparian, Syria plays a vital role at the Level I game board. To date however, Syria has not used its oil rents to restructure its economy and reconfigure the basis of regime support along democratic lines. Instead, its over-reliance on petroleum revenue has endangered its scarce water resources further. Those in government, agriculture, and the petroleum industry[327] have a stake in perpetuating the status quo of wasteful, water use and have contracted the Level II winset so as to preclude ratification of a basin-wide treaty. Yet, the decline in Syria's petroleum reserves and its continued economic problems, have contributed to Bashar Assad's cooperative overtures towards Turkey. It is conceivable then that real economic and political change could occur at the Level II game board that reverberates at the Level I

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[326] This casts some doubt on the realist argument that the more powerful, upstream riparian would have no real incentive to initiate and engage in transboundary water cooperation. Economic changes within Turkey could very well result in the same outcome that obtained in Israel. Water would no longer be the cornerstone of Turkey's development plan. Instead, as agriculture becomes a less important contributor to GDP, Turkey will seek even greater cooperative trade links with her southern neighbors.

[327] As discussed earlier, these groups are not mutually exclusive. The clientelist networks in Syria have robbed civil society of the dynamism and social capital usually provided by autonomous social groups.

game. This may give Syria the impetus for initiating the pre-negotiation phase with Turkey on managing transboundary water. Already Syria has agreed to buy water in the form of hydroelectric power from Turkey.

As the furthest downstream riparian, Iraq has the most to gain from a treaty. Of the three riparians, however, it is least likely to fulfill its water needs in the short term in its current state of socio-economic and political turmoil. The US war against Iraq has reduced it to nothing more than a failed state. The trajectory of state formation and nation-building in Iraq will thus determine the shape and outcome of its negotiations with co-riparians. The fact that Saddam Hussein's regime has been toppled, however, does have a tangible and immediate effect on its relations with Syria. The ideological friction that characterized Syrian Baath and Iraqi Baath relations in the past no longer exists. The potential for cooperation between these two riparians has increased as a result. In fact, Syria is allowing Turkey to export goods to Iraq via Syrian rail lines and permits Iraq to export its oil through Syria. In addition, Iraq's substantial oil reserves promise a steady source of income for many years, which will hopefully be channeled into national reconstruction. During that process, Iraq could develop the social and institutional adaptive capacity to reallocate water to the most productive and sustainable uses.

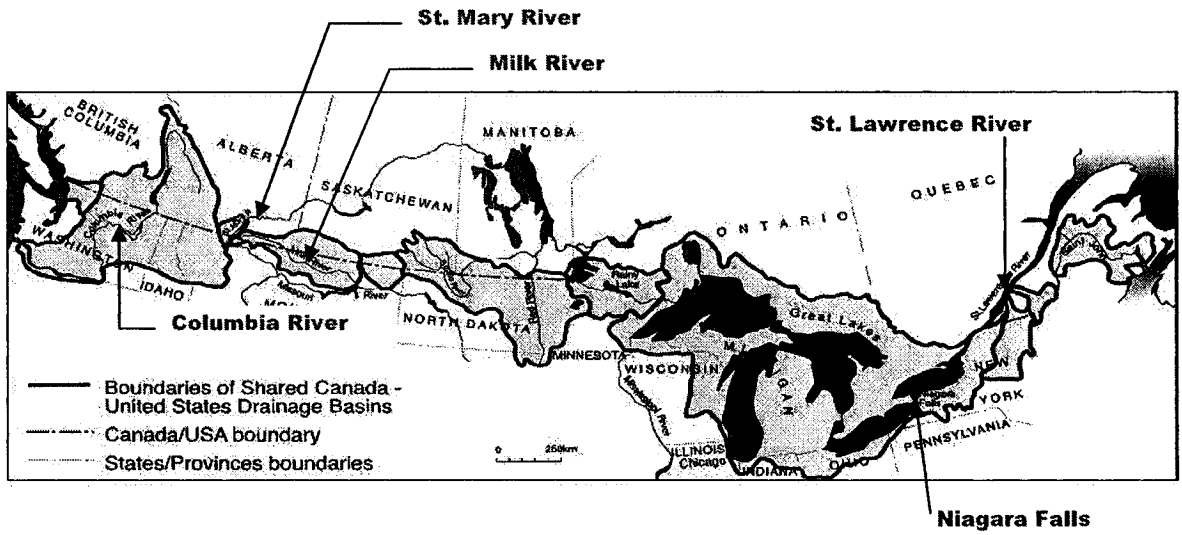
Finally, the Tigris-Euphrates case study has revealed that Level I negotiations will stall if riparians insist on negative issue linkage. Syria's attempt to wrest water concessions from Turkey by aiding the Kurdish separatists in that country in the late 1980s did not enable either country to win both domestic and international game boards simultaneously. Once Syria stopped aiding the Kurd insurgency and relinquished its claim on Hatay/Alexandretta, however, cooperative interactions occurred. I remain

cautiously optimistic, therefore, about the prospects for the emergence of a regime in the basin. Turkey's proposal to catalog the water resources of the region and determine riparian need based on the principles of effective and equitable management is a good first step. To date, even scholars cannot agree on the exact amount of available resources. Ultimately, the prospects of regime emergence will be influenced by the nature of macro-economic and political change and the scope and quality of irrigation management transfer among the riparians. The signing of the Turkey-Syria Free Trade Agreement in December 2004 suggests positive change is in the air.

CHAPTER 6: THE CANADA-UNITED STATES CASE OVER THE GREAT LAKES AND ST. MARY AND MILK RIVERS

POLITICAL GEOGRAPHY AND HYDROLOGY OF THE BASIN

FIGURE 12: MAP OF THE CANADA-UNITED STATES FRONTIER[328]



Over 300 streams, lakes, and rivers cross or form the border between the two countries. For the purposes of this study, my principal focus concerns two riparian disputes involving the Great Lakes and their main system outlet, the St. Lawrence River, and the St. Mary and Milk rivers. The Columbia River dispute will be discussed tangentially in the conclusion of this chapter to illustrate the nature and effect of irrigation management transfer in the west.

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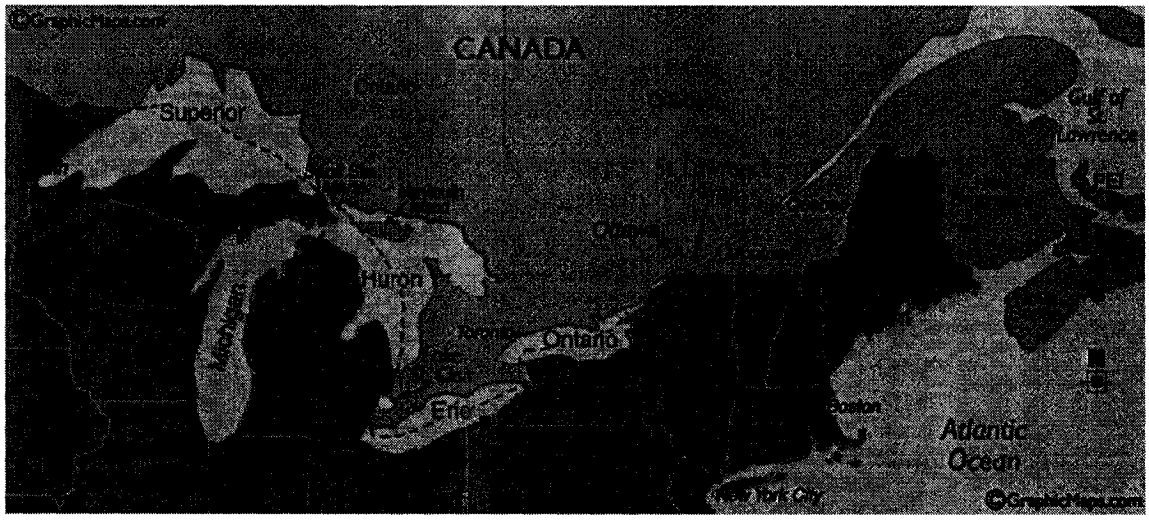
[328] Itay Fischendler, "Can Basin Management Be Successfully Ignored: The Case of the US-Canada Transboundary Water, "Occasional Paper #52, SOAS Water Issues Study Group, University of London, May 2003, p. 27.

FIGURE 13: DETAIL MAP OF THE GREAT LAKES SYSTEM[329]



As the world's largest body of fresh surface water, the Great Lakes contain 18% of the world's fresh water. The lakes have a combined surface area of 244 100 km^2 and drain an area of 750 000 km^2.[330] While the northern part of the Great Lakes basin has a colder climate, poorer soil, and expansive forest, the southern part has a warmer climate and fertile soil. Accordingly, 1/4 of Canada's population and 1/10 of the U.S. population reside in the southern part.

Lake Superior is the largest by volume and is flanked by the Canadian province of Ontario and three American states: Michigan, Minnesota, and Wisconsin. Lake Superior's water levels are regulated for hydroelectric generation. Industrial and agricultural pollution continues to dominate the policy agenda here.

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[329] Source: {Http://www.GraphicMaps.com}
[330] "Great Lakes," {Http://Encarta.msn.com. 1997-2005}

Lake Huron, the third largest by volume, has extensive agricultural and fishing industries, which are vital to the economies of Michigan and Ontario. Lake Huron's water levels are unregulated and rise or fall by 2 meters depending on precipitation/storm conditions.

Lake Erie, the smallest in volume, has suffered from the impacts of urbanization and agriculture, and is utilized by four American states, Michigan, New York, Ohio, Pennsylvania, and Ontario. Its water level is also unregulated. Consequently, higher than average lake levels have led to shoreline erosion problems and lower than average levels have adversely affected shipping, power generation and wildlife habitat.

Lake Ontario, by contrast, is deeper than Erie through smaller in area, and is utilized heavily for agriculture by Ontario and to a lesser extent by New York. Quebec is considered an interested party in this case since the lake's outlet is the St. Lawrence River. The lake's water levels are regulated for hydroelectric generation. Industrial, agricultural and municipal pollution has been a predominant issue here.

Finally, although Lake Michigan lies entirely within the United States its water level concerns Canada. Should the State of Michigan face water shortages in Lake Michigan, it could tap the transboundary Lake Huron to make up the short fall.

HISTORY OF RIPARIAN RELATIONS IN THE GREAT LAKES BASIN

Due to the vast area covered by the Great Lakes system it is not surprising that many institutional structures shape the riparian relationship between Canada and the United States. Two federal governments, eight US states, two Canadian provinces, four region-wide institutions, 120 Native authorities, and thousands of local government

institutions[331] all work to implement the recommendations of the International Joint Commission (IJC), which was created by the 1909 Boundary Waters Treaty.

Prior to the signing of the treaty, however, the disjuncture between political and hydrological boundaries led to riparian disputes in the Great Lakes Basin. Specifically, it was very difficult to achieve a consensus on the apportionment of shared waters given the institutional fragmentation and the plethora of stakeholders having competing interests. Moreover, Canada favored a broad, basin-wide approach in which transboundary waters and their tributaries would be apportioned, while the United States favored a more restrictive approach covering only transboundary waters.[332] Two projects in the early 20th century illustrate this point: Canada's plan to divert Niagara Falls water in Lake Erie and the state of Illinois' plan to divert water from Lake Michigan (The Chicago Diversion Project).[333] When Canada announced its plan to divert Niagara water from Lake Erie, the same water used in US hydroelectric production, the U.S. State Department argued for the regulation of transboundary Great Lakes water. This case lends tentative support to hypothesis **H1**, which states: **If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor and the downstream state is pursuing unsustainable development of its water resources, then an E-D crisis develops for the downstream state.**

Conversely, when the State of Illinois pumped 141.58 cubic meters per second of water from Lake Michigan through the Chicago Diversion Channel,[334] Canada exhorted

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[331] L.P. Hildebrand, "Cooperative Eco-System Management Across the Canada-US Border, " Oceans and Coastal Management, 45(2002) p. 431.
[332] Fischendler, op.cit, pp. 3-4
[333] Ibid., pp. 3-4.
[334] Note that the interests of other Great Lakes states could be compromised if the Chicago Diversion was permitted. As such, a coalition of Great Lakes states opposed to out of basin transfer developed.

the US to negotiate and establish an international regime to govern all transboundary waters and their tributaries. The inability to agree on limiting or expanding the scope of a transboundary regime stalled the negotiations. Nevertheless, a temporary International Water Commission (IWC) was established three years later in 1905. The IWC had only investigative power and there was no resolution of its scope or jurisdiction.[335] Dissatisfaction with the ad hoc commission rose sharply, however, once it became evident that it could not facilitate crisis resolution during the 1907 drought in the mid-south of the United States. The state of Minnesota wanted Great Lakes water, specifically from Lake Michigan, to be pumped and transported via the Chicago Diversion Channel into the Mississippi river. The Mississippi river had abysmally low water levels due to drought. Interestingly, Canada was not alone in its hostility to the diversion plan. The Great Lakes border states also protested the proposed out of basin transfer. From a U.S federal government perspective, water within a state fell under that state's sovereign jurisdiction. Insisting upon the Harmon Doctrine did little to abate the hostility of the Great Lakes border states and the Canadians represented by Great Britain. Moreover, the U.S. could not ignore the fact that Canada enjoyed upstream status on several rivers of vital importance such as the Milk River further west.[336] With these realities in mind, the US government denied Minnesota's diversion proposal and commenced talks with Great Britain on the prospects for establishing a permanent treaty and commission governing transboundary Canada-US water.

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[335] Canada House of Commons Debates, 1909, p. 6585-6586.

[336] According to Itay Fischendler, who has done an exhaustive archival study of the Commons Debates and Congressional Record of that time, the US needed Canada's consent to irrigate the lower southeast valley in Montana due to Canada's upstream status on the Milk River before it loops into the US. In addition, the US was concerned about Canada's water extraction from the Niagara River. These factors catalyzed the talks. See Itay Fischendler, op.cit.

THE ECONOMIC AND POLITICAL CONTEXT IN EARLY 20TH CENTURY AMERICA

A discussion of the political and economic context of the time will situate the players influencing the negotiation process. The policy agenda of US President Theodore Roosevelt, from 1901-1909, is important in this regard. President Roosevelt's policy agenda evolved in response to the effects of the post-civil war industrial revolution. The industrial revolution had generated great wealth and power for the captains of industry and the men controlling the levers of capital. It was an era in which business trusts and monopoly capital threatened to undermine the foundation of the U.S. free enterprise system—competition. In virtually all sectors of the economy, the trusts had driven up the costs of services to consumers. The railroad companies, the processed food companies, and the electric utility companies had all thrived in an unregulated economy.

Roosevelt articulated the values of a growing middle class, small merchants, and of small agriculturalists who had become leery of the power of the business elite. In fact, these small interests coalesced against the railroad transportation monopolies due to the exorbitant costs of rail transport. They wanted inexpensive waterway transportation instead. The problem was, however, that the large hydroelectric power companies had merged with similar companies in order to manage the high capital investment costs of waterpower projects. These monopolies had title to navigable waterways and enjoyed special privileges from previous administrations. Conservationists, such as Gifford Pinchot of the National Forest Service, denounced the corporate grab for waterpower sites and pressed Roosevelt's government to regulate power projects devoted to

navigation.[337] For Roosevelt, the federal government was obligated to facilitate the free market system while conserving the nation's natural resources. As a conservationist, Roosevelt supported the 1902 Newlands Bill on reclamation and irrigation that expanded the nation's forest reserve and dams in the West. He also established waterpower sites and encouraged state level conservation. Under these circumstances, it is not surprising that the steel and electric production companies in Lake Superior were scrutinized by the federal government for violation of anti-trust laws and the inter-state commerce clause. After all, the President had already vetoed the Muscle Shoals Bill on March 3, 1903, which would have established hydroelectric facilities by the Thompson Company on the Tennessee River. The Ohio Chairman of the House Rivers and Harbors Committee, Theodore Burton, explained the President's veto thus:

The proposed legislation (Muscle Shoals) sets a precedent in which the government barters away for nothing that which is of greater value than the costs of the works themselves and bestows privileges on monopolies.[338]

The Senate Committee on Interstate and Foreign Commerce defeated the Muscle Shoals Bill and gave the federal government the power to prevent monopolies from grabbing waterpower sites. This action effectively neutralized the effect of rent-seeking coalitions opposed to the negotiation and subsequent regulation of transboundary water.

As noted, when the US discussed transboundary North American waters issues with Britain, the US alluded to the nature of American federalism. The Harmon Doctrine had established state hegemony over all water within its boundaries. This view was emphasized when the US negotiators wanted to give the impression that its latitude to

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[337] M.N. McGeary, Gifford Pinchot: Forester-Politician (Princeton: Princeton University Press, 1960) pp. 73-74.

[338] Congressional Record, 57th Congress, 2d Session, 1901-1903, Vol. 36, Part 3, p. 3072.

maneuver with the states was limited. By limiting the domestic win-set thus, the US negotiators hoped to extract greater concessions from the U.K and Canada.

The US federal government was able to moderate its Level I position, however, because Roosevelt invoked the inter-state commerce clause to regulate companies dealing with water resources. In this way, the federal government legitimately regulated state domains. To substantiate this point, consider Roosevelt's response to the over extraction of water at Niagara Falls by the big electric power companies. When approached by the American Civic Association about the possibility of the Falls being reduced to a mere trickle, the President urged its members to inundate the Congress and the Senate with letters expressing their concerns. The members of the association in concert with other concerned residents of the Great Lakes region also flooded Rideau Hall in Ottawa to lobby Governor General Earl Grey.[339] Once the Governor General wired the President about the public outcry, the President urged Congress to draft legislation to conserve Niagara water. On June 29, 1906, the President signed the Burton Bill, which restricted the use of Niagara water. The Burton Act authorized the Secretary of War to grant revocable permits for water diversion on the US side of the Niagara River under the following conditions[340]:

1. Total withdrawal could not exceed 441.74 cubic meters per second.
2. No single corporation could divert more than 243.52 cubic meters per second.

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[339] "Movement to Save Niagara: Persons All over the Country ask President Roosevelt to Act," The New York Times, 31 August 1905, p. 7.
[340] {Http://www.memory.loc.gov/ammem/amrvhtml/cnchron4.html}

3. Chicago could divert a modest amount of water from Lake Michigan for sanitation purposes.

Although Illinois and the Mississippi Basin states opposed any regulation of Great Lakes water, the President had just enough votes in both Houses and widespread public support to go ahead with his plan. In other words, the Level II domestic win-set was sufficiently large to foster Level I agreement.

This did not mean, however, that federal negotiators completely ignored the water diversion needs of Illinois during international talks. US negotiators thus insisted upon the exclusion of tributary waters. In fact, US Secretary of State Elihu Root convinced Britain and Canada that if the US forbade all Lake Michigan water withdrawals by Illinois, the coalition of Mississippi basin states would ensure that the treaty died in the Senate. To compensate Canada for the lower water levels due to periodic Chicago diversions, Root offered Canadian Niagara water power interests an extra 10 000 cubic feet per second of water above US private interests.[341]

THE CONSTELLATION OF DOMESTIC FORCES IN THE DOMINION OF CANADA

During the 1906 talks regarding the establishment of a permanent treaty and commission, the Dominion of Canada also moderated its Level 1 negotiating position by maneuvering within the framework of its federal structure. According to the BNA Act, the provinces have jurisdiction over the natural resources within their boundaries. Water that flows over international frontiers, however, is under federal jurisdiction. Although

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[341] J.Q. Dealey, "The Chicago Drainage Canal and St. Lawrence Development," The American Journal of International Law, 23, 1929.

Canada preferred to negotiate a treaty in which all transboundary waters and their tributaries were regulated, it settled for the US formulation excluding tributaries. By doing so, the U.K. delegation reasoned that the provinces could not oppose the treaty. It should be noted that the provinces of Ontario and Quebec would have preferred even stricter water withdrawal limits by US water companies and were against any U.S. out-of-basin water transfers. The provincial governments were receptive to the emergence of a domestic coalition of forces comprised of merchants, manufacturers, craftsmen, and agriculturalists, who wanted to obtain inexpensive and reliable hydro-electric power directly from the municipal government instead of from the large, private power monopolies.[342] These groups fought for the organization of the Hydro-Electric Power Commission in Ontario. In 1906 the Municipal Electric Commission recommended that municipalities should obtain a power concession from the Niagara Falls Park Commission and construct their own generating, transmission, and distribution system instead of contracting out to the Electric Development Company and buying its surplus power.[343] Interestingly, the U.S. negotiators were able to appeal to such Canadian sentiments because of President Roosevelt's own distaste for the power monopolies. By May of 1906, the Ontario legislature passed the Hydro Act, which established public ownership of generating facilities.

Canada's federal government also feared that the large U.S hydroelectric trusts that had operated in the region would expropriate its water resources. Consequently, water and power export licenses to US firms were forbidden. Paradoxically, while

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[342] Some of these large American companies enjoyed lucrative concessions to develop Niagara water sites.
[343] Harald S. Patton, "Hydro-Electric Power Policies in Ontario and Quebec," Journal of Land and Public Utility Economics, 3, 2 (May 1927), pp. 132-144.

Canada's federal government feared the large US power monopolies, it was willing to accommodate domestic combines. The Canadian Pacific Railway and a plethora of other large-scale corporate enterprises thrived during the period. For Canadian leaders such as Mackenzie King, combines were efficient forms of organization and thus the best vehicle for national economic development. The Liberal party maintained that removing the tariff on any commodity controlled by a combine to the detriment of the consumer would deter monopoly pricing. In reality, however, this method did little to break monopoly power. Although anti-combines sentiment was confined to the municipal level as mentioned earlier, it was a force to be reckoned with. In Quebec this was manifested as waterpower concessions and service franchises granted to private corporations subject to public regulation. Moreover, household, farm, and industrial interests coalesced against the high water and power fees exacted by the monopolies in both Canada and the US. This enlarged the zone of agreement at the Level I game board.

In order to address Canada's federal government concerns about out-of-basin US diversions, the U.K delegation insisted upon the inclusion of a reference mechanism that could be used by the commission to study any question whether transboundary or tributary.[344] In practice, this reference mechanism has enlarged the scope of the 1909 treaty to address externalities arising from out-of-basin diversions.

It will be clear in subsequent sections that Canada used its riparian position to advantage during disputes over the St. Mary and Milk rivers. In fact, it was Canada's actions in this dispute that pushed the Level I negotiations to Phase II of the negotiation process. The road to treaty making was not always smooth, however. Canada's

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[344] M. Cohen, "Some legal and Policy Aspects of the Columbia River Dispute," The Canadian Bar Review, xxxvi, pp. 25-41.

perceptions of US foreign policy, combined with the pressures from anti-preservation, domestic Canadian forces, led to an insistence on general principles for the regulation of all transboundary water. In the following sections, the interaction between the Level I and Level II game boards during the negotiations that led to the BWT of 1909 is discussed.

Although Secretary of State Root enjoyed a good rapport with Governor-General Earl Grey, Prime Minister Laurier's chief advisor, Aylesworth, still distrusted the US and the U.K due to the outcome of the 1903 Alaska Boundary dispute.[345] Canada's government believed its interests were compromised by Britain during the dispute over the boundary of the Alaskan panhandle. President Roosevelt was perceived as a blustering nationalist who "spoke softly and carried a big stick." These perceptions of the US were dominant in Canadian politics from 1900 to 1905 and effectively killed Canada's political will to resume negotiations with the US on outstanding water issues during that time. In addition, industrial centers in Ontario distrusted US preservationists who wanted to restrict withdrawals. As such, not one of these interests petitioned Governor General Grey to preserve the Falls.[346] Noting these realities, Prime Minister Laurier was keen to conclude an agreement with the US that would protect Canada's right to generate electricity at the Falls. Moreover, the tension over the Mary and Milk rivers also highlighted the need for creating a workable regime. As such, he appointed his confidante, who shared his vision, George C. Gibbons, as the Chair of the Canadian side of the negotiations in 1906.

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[345] Dreiziger, N.A.F., " The IJC of the US and Canada: A Study in Canadian –American Relations 1895-1920," (Doctoral Dissertation, University of Toronto, March 17, 1974) p. 76.
[346] Ibid., p. 82.

NEGOTIATING POSITIONS OF CANADA AND THE US AT THE IWC JOINT SESSION

In the US, a powerful lobby for the preservationist agenda emerged among the Coal syndicates of Pennsylvania.[347] They feared that widespread electrification would eliminate the coal industry. Until a treaty with Canada was concluded, President Roosevelt urged Congress to enact legislation that would cancel any new hydroelectric generation charters in the Falls and permit diversions for household and navigation uses only. Since Congress needed a report on existing withdrawal amounts from both sides of the border to frame a meaningful bill, the President hoped this time pressure would force Canada to the table. Canada, however, delayed its response and consequently, the Rivers and Harbors Committee of the House of Representatives framed the legislation, which would become the Burton Act cited earlier.[348] Finally, Gibbons presented his proposal to the Prime Minister's cabinet. He delineated three points[349]:

1. There can be an equal division of Falls water only if the same principle applies along the entire US-Canada border.
2. Protecting the navigation use of the Falls is more important than protecting its scenic beauty.
3. Since issues of Canada's power generation are vital, the water level of Lake Erie is important. As such, the Chicago diversion must be severely restricted.

At the Joint Session of the International Water Commission on April 26, 1905 in Buffalo, New York, Gibbons presented his proposal. The US responded by rejecting the point about applying the principle along the entire border. It insisted that the regime created should apply only to the Great Lakes. At first, this might suggest that we should reject Hypothesis $\mathbf{H_4}$ that states **there is a higher probability that industrial states will**

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[347] Dreiziger, op.cit., p. 79.
[348] Ibid., p. 86.
[349] Ibid., pp. 91-94.

opt for a basin-wide regime in a non-protracted conflict setting. It would be premature do so, however, since ultimately the US did agree to the incorporation of a reference mechanism in the treaty. For practical purposes, this mechanism served to enlarge the scope of the treaty by permitting IJC impact assessments of tributary diversions on transboundary water.

This first round of talks produced only a report detailing the ideal withdrawal limits at the Falls that would preserve them. Canada suggested that withdrawals should not exceed 1019.40 cubic meters per second while the US wanted to restrict withdrawals to 509.70 cubic meters per second.[350] The US also maintained that the Chicago Diversion should be limited to 283.17 cubic meters per second. Canada wanted even greater limits on this diversion. Although no agreement was reached on the nature and scope of the regime, both parties agreed that a treaty must be negotiated.

As noted earlier, in the US domestic arena the Burton Act was signed into law by the President on June 29, 1905. In that law a limit was placed on the amount of electricity that could be imported from Canada with the added provision that revocable permits could be issued for more imports if necessary. The province of Ontario was miffed at the US import quota since only the Canadian-owned company was affected disproportionately. The US power companies operating in Canada were given more generous contracts. As the more powerful riparian, the US was able to exert significant economic pressure on Canada. It is for this reason that Prime Minister Laurier was eager to begin the Pre-negotiation phase in February 1909. According to Dreiziger, the Prime Minister wanted a preliminary agreement on all issues to be discussed before official

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[350] Dreiziger, op.cit., pp. 92-93.

treaty talks commenced.[351] Of all the issues listed by the US, only one dealt with the water dispute. In addition, the US position on the North Atlantic fisheries and sealing irritated Laurier further. As such, he deferred any comment on the water issue until the IWC issued a final report. Laurier's unwillingness to comment irked the US team. Nearly eight months had passed since the US submitted the list and Canada stalled.

A pivotal shift occurred in the negotiation process, however, that strengthened Canada's Level I stance. By November, Gibbons of the IWC, along with his US counterpart, agreed that a treaty should govern all transboundary water cases and not be confined to the Great Lakes. In addition, they agreed that the treaty should provide a mechanism in which injured parties in both countries can seek compensation from the country responsible for the injury.

Despite this consensus among IWC members, the gap between Ottawa and Washington had widened over the Burton Act import quotas. Laurier instructed the British Ambassador to the US to inform the President that Canada would be forced to place export tariffs on Canadian goods and resources. This meant that US electric companies having contracts in Canada would have to pay more to do business. With threats of a trade war, IWC members submitted the first draft of a Boundary Waters Treaty. In it there were seven articles covering:[352]

- the nature of the permanent international commission,
- the matters under its purview including the protection of fisheries,
- the duties of its commissioners,
- the reference mechanism,

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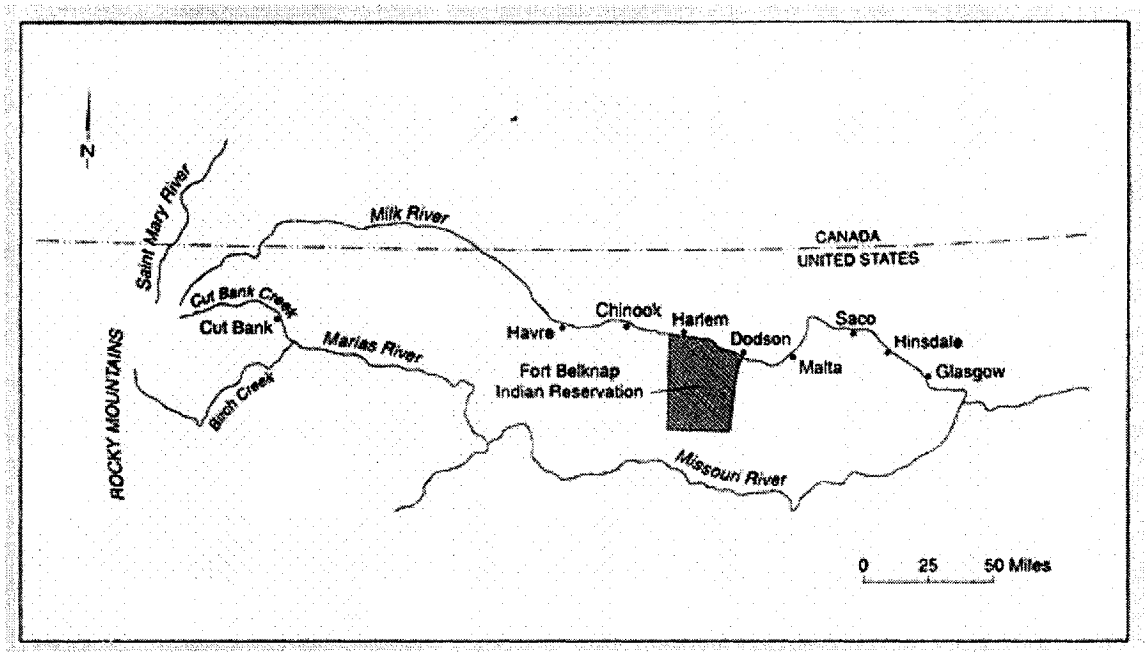
[351] Dreiziger, op.cit., p.94.
[352] Ibid., p. 164.

- the principle of free navigation and equal division of all surplus transboundary water,
- the prohibition of pollution, and
- the restriction of Falls water.

Secretary of State Root wanted to restrict the enforcement power of the international commission envisioned in the draft, for the appointed members of the commission could be construed as usurping the power of the Senate. He also wanted to exclude formal consideration of tributary water and wanted to eliminate all references to the regulation of fisheries. The US refusal to accept Canada's linkage of fishing issues with the question of transboundary water apportionment lends tentative support to **null hypothesis $H7_0$ which states if waters issues are linked to non-water issues, that are of vital importance to both parties, then there is either no effect on the negotiation outcome or there is a negative effect on the outcome.** Finally, he wanted to exclude the Mary and Milk River. The interests of Montana farmers would be compromised and the President's plan to reclaim the West would be hindered if Alberta were permitted to do as it wished. To understand the intricacies of this dispute and how it affected progress at the Level I game board, consider the political geography of the St. Mary and Milk rivers. The outcome of the Great Lakes dispute will then be discussed on page 199.

THE ST. MARY AND MILK RIVER DISPUTE

FIGURE 14: MAP OF THE ST. MARY AND MILK RIVERS[353]



The Milk River rises in western Montana, flows through 160km of southern Alberta, and then loops back to the US and terminates in the Gulf of Mexico.[354] The state of Montana is thus upstream and downstream on the Milk River. The St. Mary, by contrast, rises in Glacier Park in northwest Montana and flows north into the Oldman River near Lethbridge, Alberta and terminates in Hudson Bay. The province of Alberta is thus downstream on the St. Mary River. At their closest point, the two rivers are only a few kilometers apart. The St. Mary River enjoys a more dependable flow than the Milk River, which has a variable water supply from the spring snowmelt. It is for this reason that farmers in the Lower Milk Valley in Montana wished to divert water from the St. Mary to the Milk through a system of canals.

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[353] {http://www.albertawilderness.ca/Issues/MRR/features.htm}
[354] Ibid.

As early as 1891, the US Department of Agriculture conducted surveys on the nature of such a canal. At first, the engineers suggested that dams be constructed on the St. Mary to store water. This stored water would then be diverted through a 48.28 km canal to the north part of the Milk River. Thereafter, the water flows through Canada for 347.61 km before re-entering the US. Once in the US, the water would be stored in a reservoir in Havre, Montana for irrigators further downstream.[355] By 1903 the US Department of the Interior granted permission to the Reclamation Service to begin its Milk river project.

To appreciate Canada's reaction to the unilateral development plan in the US, consider Prime Minister Laurier's policy agenda at that time. Laurier was intent on colonizing the West and bringing those areas into Confederation. He encouraged the construction of the second transcontinental railway to achieve that end and wanted to lure settlers to those areas with the promise of fertile agricultural land. In 1905, both Alberta and Saskatchewan become provinces within Canada. Under these circumstances, the Dominion government of Canada would not accept unilateral US diversion plans on the St. Mary River, as these would diminish Canada's appropriations on that river. In July 1904, therefore, Canada granted permission to two applicants who wished to divert Canada's water from the Milk River to the St. Mary through a canal. This canal project was called the "Spite Ditch" in the popular press of the time. Since the US plan, if implemented, would have caused an E-D crisis for Canada, Canada employed a tit for tat strategy with the US.

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[355] Wm. Joe Simonds, "The Milk River," Bureau of Reclamation History Program, Denver, Colorado, Research on Historic Reclamation Projects, 1999, from Http://www.usbr.gov/dataweb/html/milkrive.html

Since the US feared that the Spite Ditch would compromise the interests of irrigators in the Lower Milk River Valley, it sought a conference with Great Britain (on behalf of Canada) in December 1904 to discuss the prospects of hammering out an equitable water agreement. President Roosevelt's Secretary of State, E. Root, described the crisis to the US Senate thus:

> We had started to use the waters of the St. Mary River and were met by a protest from Great Britain because they were afraid that we would injure the settlers below in Canada. They had started to use the water of the Milk in Canada and were met with protests from us because they would injure Montana settlers. It was apparent we had to make some agreement or else both countries would grab all they could. They had us at a decided disadvantage. They could ruin a lot of people and very large area of farms.[356]

The US State Department then presented its proposal to resolve the Mary and Milk river dispute to the British ambassador. The US treated the Mary and Milk rivers and their tributaries as one drainage system. It argued that there should be equal apportionment of the water during the irrigation season. An international commission would be created to supervise the division and would ensure that Canada could not divert Milk river water.

Prime Minister Laurier did not want to conclude a separate treaty on the Mary and Milk rivers. He supported the IWC premise that one treaty would govern all transboundary water issues. He also rejected the equal apportionment principle because he believed Alberta's water needs were greater than Montana's due to the large areas of fertile land in the Prairies. In March 1908 the Canadian cabinet endorsed the Prime Minister's position.

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[356] Wm. Simonds, op.cit.

Certain that Canada would not compromise on the principle of one treaty governing the entire frontier, Secretary of State Root embraced the IWC draft proposal with minor modifications. He insisted that no dispute could be submitted to the IJC without the consent of both federal governments. This meant the IJC did not usurp the Executive power guaranteed by the U.S constitutional separation of powers doctrine.

THE BIRTH OF THE BOUNDARY WATERS TREATY (BWT)

During the US Senate treaty ratification process, however, a rider was attached to the treaty. The rider stipulated that the treaty would not affect any extant territorial or riparian rights of the owners of river beds in the St. Mary's rapids in Sault Ste. Marie Michigan. Using a states' rights argument, the author of the rider, Senator Smith of Michigan, argued that the draft BWT, with its equal apportionment provision, injures the proprietary rights of the Chandler-Dunbar Company that owns the riverbed on the US side.[357]

Liberal senators in Parliament, Canada's commercial interests, and Alberta's MPs attacked this rider. These objections did delay treaty ratification in Canada. The MPs maintained that Canada conceded too much to the US. The MPs argued that the US planned to build reservoirs at the head waters of the St. Mary River and that Canada could also use these sites to store its share of the water, provided Canada shared in the construction costs of the sites. This particular argument was offered to the US team by Canada's negotiators. Although the US was receptive to the idea of sharing the construction costs of storage reservoirs, it insisted that the planned reservoir was a diversion dam rather than a storage site. Ultimately, engineers from Alberta and their US

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[357] Dreiziger, op.cit.,p, 238. Note that the facts presented in the subsequent paragraph are derived from Dreiziger's historical narrative.

counterparts agreed that Alberta could store its share of the water in the Upper Milk basin.

In its final form, Article VI of the 1909 BWT enshrined the principle of equal apportionment of the St. Mary and Milk rivers, but stipulated that "more than half may be taken from one river and less than half from the other by either country depending on flow levels for the irrigation season. As such, "between the 1st of April and 31st of October, inclusive, annually, the United States is entitled to a prior appropriation of 14.15 cubic meters per second of the waters of the Milk River, or so much of such amount as constitutes three-fourths of its natural flow, and that Canada is entitled to a prior appropriation of 14.15 cubic meters per second of the flow of St. Mary River, or so much of such amount as constitutes three-fourths of its natural flow."[358]

The 1909 Boundary Waters Treaty signed between the US and the U.K (on behalf of Canada) has stood the test of time and continues to serve all parties well. It established the International Joint Commission that is composed of six members, three appointed by the US President with the advice and approval of the Senate, and three appointed by the Governor in Council in Canada on the advice of the Prime Minister.[359] These members are charged with resolving transboundary water issues based on the common good rather than partisan national interests. It is in this spirit that the IJC has reconciled or averted over 130 US-Canada riparian disputes in a span of ninety years.[360] Although the treaty formally concerns boundary water only, its scope is enlarged by the reference mechanism. The treaty also has a litigation mechanism in which injured parties (those

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[358] {http://www.ijc.org/rel/agree/water.html}
[359] {http://www.ijc.org}
[360] Ibid.

affected by cross-border externalities) are bestowed with the same rights and remedies as those in the country where the externalities arose.

According to Charles Bourne, the treaty came into being because both parties limited the number of domestic players who could potentially 'spoil' the talks.[361] Roosevelt's willingness to expand the powers of the federal government in the realm of inter-state commerce regulation and environmental conservation, combined with Canada's willingness to oppose the interests of the big hydro-electric power monopolies at home, lowered negotiation transaction costs and enlarged the Level II winsets in both states. This supports hypothesis **H6** which states: **If negotiating parties win both Level I and Level II games boards simultaneously, the prospects for regime emergence increase.** Moreover, Canada's weakness as the less powerful country was offset by her upper riparian status on many important transboundary waters such as the Milk River. In other words, since the US is more powerful and has lower riparian status on many watercourses, it has the incentive to conclude a transboundary regime. This supports hypothesis **H5** which states: **If a state is more powerful and is the lower riparian, then such a condition is conducive to the emergence of a basin-wide regime.**

Prime Minister Laurier responded to the Canadian critics of the treaty by arguing that, despite the asymmetries of power between the parties, Canada did protect many of its interests in the treaty. The fact that the treaty governs all transboundary water along the entire frontier is a testament to Canada's negotiating prowess. Moreover, the inclusion of the reference mechanism enables the IJC to investigate and issue reports on

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[361] C.B. Bourne, "Canada and the Law of International Drainage Basins," in R. MacDonald and D.M. Johnston (eds.), Canadian Perspective on International Law and Organization (Toronto: University of Toronto Press, 1974) pp. 469-499.

the environmental and economic feasibility of tributary projects impacting on the riparians.

In practice, neither country has completed projects that have been disfavored by the IJC. In this way, then, the regime is truly basin-wide, despite the formal exclusion of this wording from the treaty text. It should be noted, however, that the BWT of 1909 makes no mention of the Chicago Diversion. In other words, the US was unwilling to give up its sovereign decision-making power regarding extractions from Lake Michigan to an international body. Laurier was roundly criticized for failing to incorporate a prohibition on the Chicago Diversion in the treaty. On the other hand, the U.S Supreme Court has regulated extractions from Lake Michigan in response to a suit launched by affected Great Lakes states. This has also served Canada's interest.

THE PAST AND THE PRESENT AND EVERYTHING IN BETWEEN.

When Canada announced its plan to divert Niagara water from Lake Erie in 1902, the same water used in US hydroelectric production, the U.S. State Department had argued for the regulation of transboundary Great Lakes water. Canada's diversion plan aggravated an E-D crisis for the U.S. since it would adversely affect its own hydropower production. This supports hypothesis **H1**, which states: **If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor and the downstream state is pursuing unsustainable development of its water resources, then an E-D crisis develops for the downstream state.**

If the establishment of the International Water Commission in 1905 is construed as the precursor to the permanent International Joint Commission created in 1909, then the regime emerged without the longstanding talks characteristic of the other case studies in this dissertation. The fact that both Canada and the U.S. enjoyed relatively cordial relations during this period and benefited from their robust industrial economies supports hypothesis $\mathbf{H_2}$ which states: **If two states with diversified economies engage in negotiations over the allocation of transboundary water in a non-protracted conflict setting, then the likelihood of regime emergence increases without longstanding talks.** The underlying assumption is that governments are able to reflect the true price of water by eliminating or reducing subsidies to wasteful water use sectors and/or they can promote conservation by regulating water use. President Roosevelt established waterpower sites and encouraged state level conservation. He used federal power to scrutinize the steel and electric production companies in Lake Superior for violation of anti-trust laws and the inter-state commerce clause. The President broke the monopoly power of the steel and electric companies by encouraging free market energy competition with the coal industry. This latitude to maneuver is clearly a function of a robust, diversified economy.

A corollary of this argument is that the transfer of irrigation management to farmer-controlled and financed irrigation districts could promote more efficient and sustainable water use. As mentioned earlier, the Newlands Reclamation Act of 1902 established the U.S. Bureau of Reclamation (USBR). The USBR was charged with designing and constructing dams, river basin projects and irrigation drainage systems in order to foster settlement of the arid lands of the American West. The 1902 Act

enshrined the policy of irrigation management transfer to water user associations once the public works projects were built. Although the comprehensive devolution of O&M functions to farmer irrigation districts occurred only sixty-seven years later, the principle of limiting government involvement in this arena was firmly rooted in US political culture at the turn of the century.[362]

To lend additional support to Hypothesis $\mathbf{H_2}$ the 1972 Great Lakes Water Quality Agreement (GLWQA) between the U.S. and Canada will be analyzed. It was concluded under the auspices of the IJC and is designed to restore and maintain the chemical, physical, and biological integrity of Great Lakes Water. During the meetings between Canada and the US, there was a consensus on the urgency of curbing the release of pollutants from point sources on transboundary waters. It was the first time that a broad-based ecosystem ethic influenced deliberations. Until then, the water boards that governed the multitude of transboundary waters issued recommendations on maintaining water levels and implementing allocations. The discovery of dangerous levels of

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[362] According to Douglas L. Vermillion, "IMT in the Columbia Basin, USA: A Review of Context, Process, and Results,"(FAO-INPIM, International email conference June –October 2001, "irrigation districts are quasi-municipal corporations that are established by state governments for supplying and delivering water to irrigable land. The unpaid members of these district boards are elected by water user associations for a fixed term. The districts have full authority to plan and implement O&M, set and collect fees, impose sanctions on defaulters including land expropriation, and raise extra funds for infrastructural upgrades from non-members by selling water and/or hydropower. The state government issues the water right and sets the rate at which water can be withdrawn, establishes the total annual volumetric withdrawal limit, and establishes the area of irrigable land allowed to be irrigated by the water right. The US Bureau of Reclamation then retains the water right for a particular irrigation district. Since the USBR is the holder of the water right, it owns the infrastructure. The farmers sign repayment schedules with the irrigation districts stipulating their financial responsibility for repaying the costs of infrastructure development. The farmers also had increasing control over irrigation management including over how funds were used and enjoyed cost-effective O&M. " Hence, the real level of irrigation fees in per acre and volumetric terms declined by 22% during the 20 year period of IMT from 1961-1983 in the Columbia River Basin and after transfer while the volume of agricultural produce per acre more than doubled." Farmers used less water more efficiently to reap maximum benefits because they had payment responsibility. In fact, the Quincy irrigation district in the Columbia basin expropriated and resold over 20 landholdings of owners in payment arrears of three years. The threat of sanctions and the advent of targeted sprinkler technology have led to less agricultural water use post IMT."

phosphorus in Lake Erie in 1969 by the IJC reference committee, however, provided the catalyst for the 1972 agreement.[363] This supports hypothesis **H4** which states: **The likelihood of the emergence of a limited regime will vary with conflict setting and the level of development, a higher probability that industrialized states, which approach critical environmental thresholds, are more likely to opt for a basin-wide regime in a non-protracted conflict setting.**

In 1978 this agreement was updated and focused on preventing pollution of areas adjacent to boundary waters. The agreement enlarged the scope of the IJC by making it responsible for the management and clean up of a vast, densely populated ecosystem. It did so in the following ways:[364]

First, the GLWQA makes citizen involvement in hearings and investigations a vital part of the management process.

Second, it promotes increased accountability between the IJC and the two countries and between the countries' citizenry.

Third, it established a Water Quality Board that is comprised of the heads of each country's environmental agencies as well as provincial and state officials. This board is the main advisor to the IJC.

Fourth, it assumes equality and parity in the structure of its institutions and in its obligations. As such, both Canada and the U.S share costs equally.

Canada's upper riparian status on some waters counterbalances the inherent advantages of the more powerful southern neighbor, the USA. In this way, Canada's

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[363] Excessive levels of phosphorus lead to oxygen depletion and lake deterioration. This process is called eutrophication and culminates in massive algae growth. Ultimately, this deterioration poisons fish and affects human health.

[364] Lee Botts and Paul Muldoon, "Great Lakes Water Quality Agreement: Its Past Successes and Uncertain Future, " Hanover, New Hampshire, November 1996 {www.on.ec.gc.ca/glwqa/glreport}

issue-specific power, stemming from the relative abundance of water resources in upstream positions, has created an opportunity for an exchange of benefits through trade. It is for this reason, that there is support for **hypothesis H_3** which states: **If a lower riparian agrees to rent water from the upper riparian, the upper riparian is more likely to agree to a regime.** In the Canada-U.S case, the U.S had purchased hydroelectric power from Canada's Niagara companies.

Going back in time, Canada's need for such revenue made it even more dependent on the good will of the US. This was illustrated in the discussion about Roosevelt's decision to jump-start the Pre-negotiation phase of the Boundary waters talks in February 1909 by curbing electric imports from Canada. This tactic prompted Laurier to come to the table. The subsequent presentation of positive inducements led to regime emergence.

Going forward in time, developments within the US also contributed to the momentum for concluding the 1978 agreement.

THE EFFECT OF FEDERALISM ON THE 1972 GREAT LAKES WATER QUALITY AGREEMENT

During the 1970s, an influx of U.S federal environmental legislation made environmental quality a national priority. This legislation was prompted by public and scientific concern over the pollution of the Great Lakes and its harmful effect on human and animal health. A critical environmental threshold was reached in June 1969 when a major tributary of Lake Erie, the Cuyahoga River, caught on fire due to saturation from petrochemical waste. This embarrassed the US federal government and forced it to clean up the area. In fact, a Harris poll conducted in 1970 indicated that 54% of the American public was willing to pay $15 dollars a year in taxes to finance federal water pollution

programs.[365] Severely high phosphorous loads in the other lakes led to oxygen depletion and algae blooms. The contamination of fish and the resultant deformities in bird species also catalyzed ministerial level bi-national meetings in the 1970s. Against this backdrop, the US federal government set environmental standards and policy goals that the states must implement with or without federal assistance. Within six years a robust anti-pollution regime emerged within the framework of the 1909 BWT.

It should be noted, however, that anti-pollution legislation such as the Clean Water Act of 1972 permits private groups to sue the Environmental Protection Agency (EPA), the body responsible for the promulgation and implementation of environmental standards, for not implementing the law. Since many corporations[366] are legally opposed to stringent EPA standards, they become the target of lawsuits launched by environmental interests and withdraw all investment in environmental protection for the duration of the suit. In addition, the economic interests legally challenge the regulations in the courts should the administration in Washington be perceived as "pro-environment." Conversely, if they believe the administration favors industrial interests over environmental ones, they will lobby the government in order to repeal or weaken the regulation through legislative action.

Although the pluralist system of interest representation in the US enables profit-maximizing firms to pursue their self-interest to the detriment of the greater public good by shirking the cost of environmental protection, the anti-pollution regime has been

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[365] Stanley Kutler, The Wars of Watergate: The Last Crisis of Richard Nixon (New York: Knopf, 1990) As cited in Dr. Michael Donahue, "The Case for Good Government and Why a Comprehensive Review of the GLWQA is Needed," Toledo Journal of Great Lakes Law, Science, and Policy, 2, 1 (Fall 1999), p. 6.

[366] More than one half of the nation's 500 largest industrial corporations and their lobby organizations are located in the Great Lakes watershed. Among these are the American Automobile Manufacture Association, The American Iron and Steel Institute, the American Forest and Paper Association and the Chemical Manufacture Association.

strengthened by cooperative mechanisms between Canada's provinces and US states. The voluntary Council of Great Lakes governors inadvertently advances the environmental interests of Canada's Great Lakes riparians, as well as those of the Great Lakes states against the Chicago and Mississippi water diversion interests. As a result of lobbying efforts by this organization, the US Congress passed the Water Resources Development Act in 1986, which prohibits the diversion of any Great Lakes water without the consent of all eight Great Lakes states' governors.

The nature of Canada's federalism with respect to environmental policy has also had a distinct effect on the emergence of the robust Great Lakes Water Quality Agreement (GLQA) anti-pollution regime. Unlike the US case, Canada's federal government must be conciliatory vis à vis provincial government natural resource interests. The federal government cannot usurp provincial power and develop authoritative policy on implementing national water pollution standards. Policies are the byproduct of significant negotiated compromises between the affected provincial governments and the federal government because the provinces have jurisdiction over waste management, conservation, hydroelectric production, industrial pollution and forest management. Moreover, the provinces are inclined to put a higher priority on provincial economic development than the federal government. As such, provinces may favor more diluted anti-pollution protocols than the federal government.

On the other hand, a diversified economy enables provincial policymakers to mitigate the negative effect of industrial and agricultural interests opposed to a more

efficient and environmentally sustainable water policy.[367] The Province of Ontario was able to implement the agreement by reducing phosphorus loads in the Lakes, reducing agricultural runoff, and improving sewage treatment. The Ontario Water and Sewage Systems Act also requires municipalities to incorporate the true cost of water supply including O&M costs in their user rates. Finally, the fact that the director of the regional office of Environment Canada in Ontario and the US EPA's regional administrator are co-chairs of the Water Quality Board also explains the nature of federal-provincial and inter-state government policy coordination.

Ultimately, Canada's federal system engenders inter-governmental administrative cooperation in which provinces enjoy a privileged position. In game theoretic terms, multiple equilibria are possible due to the different policy trajectories of the provinces and the reactive response of the federal government.[368] A weaker federal government in Canada thus comes to the international negotiating table with incremental environmental agendas without having the power to act decisively in the absence of provincial consent.[369] Once the federal government achieves a harmony of provincial interests, however, Canada presents a more uniform policy once international negotiations reach phase two of the negotiating process. At the close of negotiations, the Prime Minister

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[367] It should be noted, however, that compared to other OECD nations in Europe, municipal water rates are among the lowest in the world in Canada. Since the government subsidies for capital infrastructure have not been eliminated, the rates are artificially low. In addition, flat rate pricing discourages conservation. In the US during the late 1980s government subsidies for capital costs was 20-50%. See R. Repetto, "Skimming the Water: Rent Seeking and the Performance of Public Irrigation System," Report 4, (Washington: DC, World Resources Institute, 1986) The water prices that are charged cover recurrent expenditures, but do not cover capital costs. As such, many irrigation districts have resorted to selling hydroelectricity to non-irrigators to fill the capital cost reserve fund.

[368] John Martin Gillroy, "American and Canadian Federalism: A Game Theoretic Analysis," Policy Studies Journal, 27, 2 (1999), p.375.

[369] Ibid, p. 382. As illustrated in this chapter, Canada's negotiators do improve their bargaining strength by claiming that various international proposals would not obtain provincial consent. This reliance on the need to develop a provincial harmony of interests has enabled Canada to hold out for a more preferred international outcome provided the Americans do not tire of the tactic.

must then distribute the concessions earned at the Level I game to key provinces with the aim of preserving national unity. It is for this reason that the federal government deferred to Ontario and Quebec to implement the 1972 and 1978 Great Lakes Water Quality Agreement.[370]

By arguing that the federal governments in both countries won both international and domestic game boards simultaneously, I am not suggesting that the political atmosphere in 1972 was particularly balmy. In fact, Trudeau and Nixon were often at loggerheads over the trajectory of foreign policy in the other country. Although Nixon had placed a surcharge on Canadian imports to offset the US balance of payments crisis in 1971 and Trudeau had cut Canada's troop contribution to NATO by one half, the water negotiations progressed without delay. Since the IJC was insulated from the broader political context, the commissioners could focus on scientific solutions to common pool resource issues. This provides further evidence that linkage to political issues during water negotiations did not occur in 1972. As former Canadian Ambassador to the United States, Allan Gottlieb said, "Canadian diplomats have long taken the position that linkage is not in Canada's best interest. Each area of contention being difficult enough to resolve, connecting one to the other would complicate the negotiations."[371] This was illustrated in the negotiations leading to the 1909 BWT. PM Laurier's attempt to link the fisheries issue with the transboundary allocation issue was strongly rebuked by US Secretary of State Root. **Hypothesis H_7**: which states **that the linkage of important**

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[370] The 1978 Amendment to the GLWQA of 1972 prohibited toxic discharge and was designed to "virtually eliminate persistent toxic substances." (Article II) It broadened the scope of the 1972 agreement by including provisions to address the deleterious environmental impact of agricultural forestry and urban sprawl. In short, it approaches the problem of water pollution from the premise that activities affecting the air and land affect water.

[371] Allan Gottlieb, "Speech: A North American Community of Law," Borderlines Conference at the Woodrow Wilson International Center for Scholars, Washington, DC, February 27, 2003.

water and non-water issues would foster negotiation success must therefore be rejected.

THE 1987 PROTOCOL TO THE GREAT LAKES WATER QUALITY AGREEMENT

In 1987 the two countries concluded the Protocol to the GLWQA after the IJC published its studies on nonpoint source pollution and sediment contamination. These negotiations proceeded smoothly with the participation of scientists, and concerned citizen groups. State and provincial representatives also had an unprecedented role during the talks. Before initiating the process, no actor placed rigid parameters on the agenda. It was designed to address the totality of the environmental issues affecting the Great Lakes region. The elimination of purely political considerations from the talks clearly heartened up the process. In addition, there was widespread consensus on the urgency of cleaning up the most damaged zones. At the province-to-state level, Ontario and Quebec became parties to the Great Lakes Governors Toxic Substances Control Agreement. Since the federal governments in both Canada and the US during the late 1980s[372] were cutting back on environmental spending, the provinces and states were forced to collaborate in order to preserve the gains made by the anti-pollution regime. Thus common interests at the Level II domestic game board in 1986, made agreement on the Level I game board swift. The 1987 Protocol thus lends additional support for hypothesis $\mathbf{H_6}$ that states: **If negotiating parties win both international and domestic game boards simultaneously, the prospects for regime emergence increase.**

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[372] President Reagan cut funding to the EPA in 1982 and 1983. The EPA received $11.6 million in 1981, $3.8 million in 1982 and zero dollars in 1983.

THE IMPETUS FOR THE GREAT LAKES CHARTER ANNEX 2001 AND THE DRAFT IMPLEMENTING AGREEMENTS

Despite the fact that the original BWT of 1909 formally excluded issues concerning tributary water, the reference mechanism has enabled the IJC to enlarge its scope and has had a positive influence on the emergence of a more comprehensive regime. The IJC's Final Report on the Protection of the Waters of the Great Lakes issued in February 2000 provides additional support to Hypothesis $\mathbf{H_4}$, which states that **there is a higher probability that industrialized states are more likely to opt for a basin-wide regime in a non-protracted conflict setting:**

To avoid endangering the integrity of the Great Lakes basin ecosystem, the governments should not approve any proposal for a major new or increased consumptive use[373] of water from the Great Lakes basin unless full consideration is given to its cumulative impacts, and unless effective conservation practices are implemented, sound planning practices are applied and 95% of the waters are returned to meet the requirements of the Great Lakes Water Quality Agreement.[374]

The IJC recommended these standards in response to a reference made by the governments of Canada and the US on Great Lakes basin water use in 1999.[375]

It should be noted, however, that the IJC's standards have been undermined since the Great Lakes states and provinces failed to delineate basin-wide caps on net withdrawals and failed to define which impacts are forbidden in the Great Lakes Charter Annex of 2001.[376] According to the Great Lakes Commission on Water Use Database, agriculture enjoys a consumptive loss allowance of 90% and public drinking water supply

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[373] Consumptive Use refers to water that is withdrawn or withheld that is lost and not returned to the basin.
[374] Transboundary Focus, 25, 1 (Spring 2000).
[375] The Nova Corporation in Ontario wanted to export bulk water from the Great Lakes. The Canadian and US government put the issue to the IJC in order to prevent such extraction.
[376] This annex was signed by the 8 US Great Lakes governors and the premiers of Quebec and Ontario to protect the watershed and update the water management system.

has a loss allowance of 15%.[377] Consumptive loss is defined as the amount of water that is not directly received by the stream from which it was taken. In other words, water used for septic tanks must undergo treatment before returning to the source stream. In this treatment process, some of the original water amount is lost. As such, the consumptive loss allowance for agriculture means much less water will be returned to the basin.

The federal governments in both countries have urged the members of the Great Lakes Charter to develop an implementation regime that will complement the IJC standard. In addition, Canada amended the International Boundary Waters Act in December 2002 to prohibit bulk removal of Great Lakes Basin water. The Province of Ontario also banned out-of-basin diversions. Similarly, the US Congress amended the Water Resources Development Act of 1986 in September 2000 to prohibit out-of-basin diversions from the Great Lakes.

THE COMPLEXITY OF THE GREAT LAKES CHARTER NEGOTIATIONS AT THE SUB-NATIONAL LEVEL

Although the Canada-US negotiations over Great Lakes water is strictly bilateral in that it involves two countries, the Great Lakes Charter negotiations can be conceived as multilateral since it involves eight US states and two of Canada's provinces. This distinction enables us to test hypothesis $\mathbf{H_8}$ that states bilateral **negotiations are more likely to lead to regime emergence than multilateral negotiations.** A review of the competing sectoral interests within the states and provinces will reveal that it is much more difficult for the states and provinces to accommodate all of these interests, than it is for Washington and Ottawa to pass laws which fail to address the interests of those

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[377] {Http://www.glc.org/wateruse/database/pdf/consusetablepdf}

lacking political influence. The Great Lakes Charter Annex was open for public comment until October 18, 2004. An examination of these comments sheds light on the diametrically opposed viewpoints of environmentalists, agriculturalists and industrialists regarding the water management criteria established by the Charter parties. Some of the draft criteria that elicited the comments concern the following issues:[378]

1. How many days of average water withdrawals should be allowed before a permit is required?

Environmentalist and Municipality View: use a 30-day consecutive time frame.
Agriculturalist View (Ontario Federation of Agriculture and the Michigan Farm Bureau): use a 120-day period to reflect the seasonality of agricultural water use.
Public water supply sector View: use an annual averaging period due to the cyclical nature of public water supply use.
Industrialist View (National Association of Manufacturers, Alliance of Automobile Manufacturers, and BP North America): no need for permits and enforcements since conservation efforts should be voluntary. Moreover, past water conservation efforts should be acknowledged to qualify for a permit exemption.

2. Should consumptive use amounts or withdrawal amounts determine when a regional review threshold is reached?[379]

Agriculturalists: use neither term and adopt efficient use instead.
Environmentalists: use amounts withdrawn
Industrialists: use consumptive use

3. What should the regional review threshold be?

Industrialists (DuPont Engineering): raise thresholds from 37,854,000 to 94,635,000 liters per day for diversions and consumptive uses.
Agriculturalists: raise threshold to higher than 18,927,000 liters per day for consumptive use
Environmentalists: threshold for triggering review should be 3,785,400 liters per day for water withdrawals averaged over 30 days.

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[378] July 15-October 18, 2004, Draft annex Implementing Agreements Public Comments, Great Lakes Governors pp. 1-6.
[379] A regional review threshold refers to the point when all charter members must investigate instances when more water was withdrawn than stipulated in the permit.

Municipalities: lower threshold to 3,785,400 liters per day for in basin use and diversion
NY Power Authority: cap threshold to 3,785,400 liters per day so that its regulatory capacity is consistent with its mandate given by the Federal Water Resources Development Act.

It is evident that environmentalists and municipalities share a common interest in lowering thresholds for review and adopting stricter conservation standards in general than the industrialists. On the other hand, agriculturalists are opting for more sustainable criteria than the industrialists. Technological efficiency and irrigation management transfer, combined with the declining importance of agriculture relative to industry to the economy, may explain their viewpoints.

Ultimately, each Charter state and province is faced with the unenviable task of creating standards that are minimally acceptable to all sectors while achieving the goal of sustainable water use. Moreover, the standards that are created must be consistent with Federal and international obligations. It appears therefore, that regime emergence in a bilateral setting is less daunting. In any case, the tremendous strides made by the US and Canada in taking concrete measures to preserve the physical, biological and chemical integrity of the Great Lakes is a testament to the strength and resilience of the IJC. The fact that both countries are among the wealthiest in the world also underscores the importance of institutional and economic capacity in influencing the pace and character of resource reconstruction.

CHAPTER 7: CASE-CROSS COMPARISON AND CONCLUSION

In this dissertation I have studied riparian regime emergence in protracted and non-protracted conflict settings involving developing states in arid and semi-arid zones and developed states in relatively water abundant zones.

In all cases there was support for **Hypotheses H_1, H_4,** and H_8. As noted, H_1 states: **If a downstream riparian anticipates adverse material consequences from the resource extractions of its upstream neighbor, and the downstream state is pursuing unsustainable development of its water resources, then either an E-D crisis develops or an extant E-D crisis is aggravated for the downstream state.** This is precisely what occurred on April 1, 1948, when East Punjab (India), the upstream riparian, discontinued the delivery of waters from the UBDC to the lower part of the canal in West Punjab (Pakistan), the lower riparian, once their standstill agreement expired without prior negotiation. The action aggravated an E-D crisis for Pakistan by reducing its exogenous supply during a crucial moment in the growing season.

Similarly, during the 1950s when Israel, the upstream riparian, began to drain the Huleh swamps to cultivate more land and divert Jordan river water via a canal at the Gesher Bnot Ya'acov, the extant E-D crisis for Jordan, the downstream riparian, was aggravated. These actions sparked the exchange of fire between Israeli and Arab forces around the DMZ. For Jordan, the diversion of Jordan River water by Israel was increasing the saline quantity in downstream water. Jordan could not meet the irrigation or drinking needs of the Palestinian refugees.

The same dynamic occurred when Syria, the upstream Euphrates riparian, filled Lake Assad at the Tabqa Dam in 1975. Iraq received about 25% of the normal Euphrates flow and claimed that the livelihood and survival of three million Iraqi farmers were at

stake. This E-D crisis quickly escalated to a M-S crisis, short of war, when Iraq threatened to bomb the Tabqa Dam. Similarly, when Turkey, the upstream riparian, cut off water for several weeks to both Syria and Iraq while filling the Ataturk Dam in 1990, Syria's drinking water, hydroelectric output and irrigation plummeted, and Iraq's winter crops were severely damaged. Since the region was already suffering from drought, this additional water deficit aggravated an economic-developmental (E-D) crisis for the two downstream riparians.

When Canada, the upstream riparian, announced its plan to divert Niagara water from Lake Erie in 1902, the same water used in US hydroelectric production, the US State Department argued for the regulation of transboundary Great Lakes water. The fact that Canadian water plans would negatively affect American growth created an E-D crisis for the U.S.

H_4 states that **the likelihood of the emergence of a limited regime will vary with conflict setting and the level of development: a higher probability for developing states in arid zones in a protracted conflict setting, which approach critical environmental thresholds; a lower probability for such states in a non-protracted setting since they are more likely to opt for a Pareto-optimal basin-wide sharing regime; and a higher probability that industrialized states are more likely to opt for a basin-wide regime in a non-protracted conflict setting.** On the other hand, H_8 states that **multilateral negotiations, which impose higher transaction costs on coalition members, are less likely than bilateral negotiations to lead to regime emergence.** The logical implication of these hypotheses is unassailable and is evident in the Tigris-Euphrates case. Since multilateral negotiations are hypothesized to have a

negative effect on regime emergence, it follows that riparian disputes involving more than two developing states in a non-protracted setting will find it more difficult to conclude a basin-wide regime; and it proved to be so for Turkey, Syria and Iraq. In other words, any inherent structural advantages of a riparian dispute involving developing states in a non-protracted setting are diminished by the number of riparians involved.

By contrast, in both the Indus and Jordan River protracted conflict cases, India-Pakistan and Israel-Jordan respectively, bilateral negotiations with the aid of World Bank and U.S. mediation, respectively, did lead to a limited regime because critical environmental thresholds were approached. In the Indus case, both Pakistan and India were burdened with poor social and economic statistics at independence, which were aggravated by the mass migrations accompanying partition. The inability of Pakistan to consolidate state power and satisfy citizens' need made the country especially vulnerable to climatic variation and upstream extraction policies. The partition of the subcontinent and the severance of hydrological unity meant India had to develop East Punjab relatively quickly to satisfy the appetite of the refugees. It is not surprising, therefore, that both states participated in negotiations that led to a limited regime.

Both Israel and Jordan suffered from three consecutive years of drought from 1988 to 1991 just before the Middle East Peace Process began. The economic changes in Israel triggered a reallocation of water to more efficient uses and enabled it to compromise with Jordan. Since Jordan was in severe economic decline, its ability to deal with environmental red flags unilaterally was hampered. These conditions favored regime emergence. When water negotiations occurred in the multilateral setting of the Johnston

talks thirty-six years earlier, however, the process was hijacked by the ideological politics of the Arab League Political Committee.

Finally, in the Canada-U.S case, Canada received one water regime covering the entire frontier and a reference mechanism that enlarged the scope of the treaty by enabling the IJC to issue reports on the impact of tributary water use on transboundary flow. As noted earlier, the U.S initially wanted to confine the regime to the Great Lakes proper and then conclude separate treaties over the other transboundary waters. Although they wanted the IJC to deal with transboundary water only, the 1972 Great Lakes Water Quality Agreement and the 1987 Protocol further enlarged the scope of the regime by adopting the ecosystem approach to environmental management. As such, activities that harm the chemical, physical and biological integrity of the basin fell under the jurisdiction of the IJC. The review of the complexities of the Great Lakes states charter Annex negotiations at the multilateral sub-national level also support hypothesis $\mathbf{H_8}$. The fact that these negotiations are ultimately shaped by the IJC bilateral framework, however, does enhance the comprehensiveness of the bilateral regime.

In all cases there was no support for $\mathbf{H_7}$ which states: **If water issues are linked to non-water issues that are of vital importance to both parties then negotiators can foster success.** It appears that diplomats are averse to linkage proposals since it bogs down complex water negotiations with other costly political considerations. Linkage was used in protracted conflict settings to stall negotiations. For example, India would have preferred if Pakistan had offered to remove the obstacles it imposed on evacuee property in return for the "appointment of an ad hoc tribunal consisting of two judges of the highest judicial standing from each country to apply itself to the solution of the dispute

over the canal waters." Pakistan refused such a quid pro quo for transboundary water negotiation, preferring instead an international tribunal that would be more sympathetic to its position. In the same way, Jordan used linkage due to the influence of the Arab League Political Committee during round two of the Johnston talks to stall negotiations. By stating that resolution of the water dispute would hinge on the "Right of Return" of Palestinian refugees to Israel, Jordan was able to stall further talks.

Even in non-protracted conflict settings linkage had a negative effect on regime emergence. As noted, Syria tried to wrest greater concessions from Turkey on water allocations from the Euphrates by aiding the Kurdish separatists in southeast Turkey. The negative issue linkage failed, and Turkey continued its unilateral development plans. In the US-Canada case, diplomatic practice suggests that linkage had fallen out of favor due to its failure in early years of the Boundary Waters Treaty negotiations. US Secretary of State Root rebuked Prime Minister Laurier's linkage of the fisheries issue with the transboundary water allocation problem. Despite the tensions between Nixon and Trudeau over Canada's decision to reduce its NATO troop commitments, the Great Lakes Water Quality Agreement was hammered out without reference to the political irritations.

In three out of four cases there was support for $\mathbf{H_6}$, which states: **If the negotiating parties successfully win both the international and domestic game boards simultaneously, the prospects for regime emergence increase.** Since the Tigris-Euphrates case has yet to be resolved, we cannot claim the hypothesis is invalid. Instead, the economic and political changes among the riparians Turkey, Syria and Iraq could very well create the Level II conditions conducive to Level I agreement, despite the

difficulties associated with multilateral negotiations discussed. The process of devolution, decentralization, and democratization, that is a part of Irrigation Management Transfer (IMT), was cited as an example of domestic change that could enlarge the Level II winset. The December 2004 Free Trade Agreement between Turkey and Syria may indicate movement in that direction.

Critics may argue that, since change such as IMT was not necessary for regime emergence in the Indus, Jordan, and Great Lakes water disputes, why would it be theoretically relevant at all. To answer this question, a significant part of the Tigris-Euphrates case study focused on the dynamics of state formation among the riparians. Unlike the state formation dynamic in India, Israel, Canada, and the USA, the riparians in the Tigris-Euphrates dispute suffered from severely over-centralized, heavily bureaucratized state structures that were captured by clientelist networks. The inefficient, bloated public sectors in such countries were incapable of serving the infrastructural needs of their citizens, despite becoming indebted to international lending institutions for financing grandiose water projects. Arguably, the fact that the Turkish economy was so dependent on International Financial Institutions (IFIs) could explain its economic woes. The resultant crisis of governance and economy, combined with internal secessionist threats abetted by neighboring states, and frequent episodes of praetorian rule, militated against a more efficient allocation of water resources domestically.

Although both Pakistan and Jordan shared these attributes, the more powerful state in their riparian dispute was not similarly besieged during Level I negotiations. The fact that Turkey, the most powerful state, was weakened as result of the "Tanzimat Syndrome" discussed in Chapter 5, has necessitated the kind of economic and political

changes associated with IMT. Turkey's success with IMT has meant that 35-75% of water users are in the formal water sector receiving reliable service. This bodes well for Level I negotiations since Turkish policy-makers have the institutional capacity to effect reforms domestically. The joint Turkey-Syria Orontes River plan that is a part of the December 2004 Free Trade Agreement between these countries supports this claim further.

It should be noted however, that the fiscal burden of state-owned irrigation was also felt by the Indian government in the 1970s. As a result, the government launched the Command Area Development Program (CAD), which recognized farmer participation in irrigation management. Between 1985 and 1990, pilot projects for IMT had begun; and, after 1990, water user associations having responsibility for O&M and physical infrastructure below the outlet have emerged. Nevertheless, a significant portion of water users in central and south India are in the informal water sector where self-supply dominates. The reliance on wells, pumps, and tube wells has reduced the farmers' stakes in managing surface irrigation systems.

Changes in Israel's economy also facilitated the enlargement of the Level II winset. There is little doubt that water stress, the emergence of a diversified industrial economy, and the introduction of water conserving technologies such as drip irrigation contributed to a shift in the water policy discourse of Israel in the late 1980s. Israel thus drastically cut its sectoral water allocation to agriculture and focused on municipal and industrial uses. This gave the government more flexibility in its negotiations with Jordan during the Peace talks.

Hypothesis H_2, which states that, **if two states with diversified economies engage in negotiations over the allocation of transboundary water in a non-protracted conflict setting, the likelihood of regime emergence increases without long standing talks,** is supported in the Canada-US case. However, more cases would have to be studied in detail. Yet, it appears that the large-N studies conducted by Aaron Wolf do support such a finding. The formalized water sectors in advanced economies and high level of governance generally enable faster, more fruitful negotiations. The prospect of environmental catastrophe, as demonstrated by the 1969 Cuyahoga River fire in the US, also provides the impetus for more far-reaching anti-pollution regimes.

In four out of four cases, there was support for **Hypothesis H_3** which states: **If, in the course of negotiations between a lower riparian and an upper riparian, the former agrees to rent water from the latter, the upper riparian is more likely to agree to a regime**. In the Canada-US case, the US, as the lower riparian on Lake Erie, purchased hydroelectric power from Canada's Niagara region. Canada's desire to maintain that revenue stream gave it an incentive to hammer out details of the regime.

In the Indus case, when Pakistan attempted to divert the waters of the Sutlej, India responded by offering the carrot of supplying the water to the Bahawalpur State Distributary on the Eastern Canal in exchange for maintenance and seigniorage charges. Since Pakistan rejected this offer, negotiations labored on.

In the Jordan River case, Israel agreed, during the Madrid talks, to give 50 MCM to Jordan from other sources with the proviso that Jordan would help finance such an arrangement. Jordan agreed and the peace treaty followed soon after. As noted in Chapter 4, other factors also explain the outcome.

Similarly, in the Tigris-Euphrates case, Syria agreed to purchase hydroelectricity generated in Turkey's GAP region as part of a regional economic development plan funded by Kuwait.

In all four cases, too, **Hypothesis H_5** was supported. The Canada-US case supports the first part of the hypothesis which states: **If a state is more powerful and is the lower riparian in an international conflict, then such a condition is conducive to the emergence of a basin-wide regime.** Although the US was originally opposed to a basin-wide regime, preferring individual treaties on each river, it did ultimately accept one regime to govern all transboundary waters in which the IJC reference mechanism would enlarge the scope of the treaty. Although diversions of water from Lake Michigan were not strictly under the purview of the 1909 treaty since it lies completely within the US, the US Supreme Court regulated withdrawals from this water body in order to address the concerns of affected Great Lakes states. Moreover, the US federal government used various policy instruments to curtail out-of-basin transfers in order to meet its international treaty obligations. The ecosystem ethic embodied in the 1987 Protocol also brings the question of Lake Michigan levels and quality under IJC jurisdiction through the "back door."

The other three cases support the second part of the **hypothesis H5** which states: **If a state is more powerful and is the upper riparian, then such a condition is not conducive to the emergence of a basin-wide regime.** As the upper riparian and relatively more powerful state, India was not interested in integrated basin-wide management. Instead the World Bank had to allocate the eastern rivers for India's sole use and the western rivers for Pakistan's sole use.

In the Jordan river case, following the change in Israel's riparian status to upper riparian on the Banias and Jordan rivers in the wake of the 1967 war, there was little hope for a basin-wide regime including both Syria and Jordan. As the upper riparian and relatively more powerful state, Israel was willing to conclude a limited regime with Jordan. Contested borders with Syria meant Syria would not negotiate over water without prior settlement of border demarcation issues.

Finally, in the Tigris-Euphrates case Turkey, as the upper riparian and most powerful state, has little incentive to conclude a basin-wide regime with downstream riparians Syria and Iraq. However, the absence of a protracted conflict setting means the prospects for regime emergence increase once critical environmental thresholds are approached and significant positive political and economic changes occur in all countries. At a minimum, Turkey may conclude bilateral treaties with each riparian should some of these conditions obtain. Already there is movement in this direction with the Free Trade Agreement concluded between Turkey and Syria in December 2004. Shared water development on the Orontes River is a part of the agreement.

THE BROADER THEORETICAL IMPLICATIONS OF RIPARIAN CONFLICT STUDY

In this study I sought to ascertain the environmental, economic, and political conditions under which bilateral or multilateral negotiations would result in a limited or basin-wide regime governing transboundary water in protracted conflict settings. Since determining the factors that contribute to riparian disputes presupposes such an endeavour, I developed the theoretical relationships among riparian conflict, economic-developmental crisis, and military-security crisis. This revealed how the constraints

posed by ecological forces in a conflict setting and the political opportunities presented by a particular economic-developmental context shape the decisions of policy-makers during the negotiation process and affect the nature of the regime. To attain an understanding of this process, I focused on how the state formation dynamic influenced the government's water resource allocation preference set at the domestic level and shaped the contours of the zone of agreement at the international level. This approach generated findings that were more nuanced than those commonly reported in the "water wars" literature. While the latter method tends to exaggerate the link between crude Malthusian formulations of water scarcity and full-blown international conflict, the former acknowledges the role of important intervening economic and political variables that have conflict-mitigating effects.

This begs the question of whether one must include a country's regime type (authoritarian or democratic) as an independent variable to determine if the pathways observed in this dissertation are not spurious. The fact is however, in all of the cases studied here, with the exception of the Canada-U.S case, the dyads involved were either mixed or involved two or more authoritarian states (i.e, democratic India and authoritarian Pakistan; democratic Israel and monarchical Jordan; democratic Turkey with episodes of Praetorian rule and authoritarian Syria and authoritarian Iraq). The large-n studies conducted by Aaron Wolf also suggest that many water treaties were negotiated between authoritarian states or states with a significant democratic deficit. This suggests that it might be more helpful to focus on how the state formation dynamic influences water allocation policies within a given state-society context. In other words, a formally democratic state that lacks some substantive democratic properties due to

Praetorian intervention could still enlarge the domestic winset by giving stakeholders a say in water allocation policies. This would not mean, however, that such a state is more democratic as a result of this tolerance of societal preferences in this particular issue area. Nevertheless, an interesting avenue for future research would be to rigorously operationalize the variable of regime type and then generate hypotheses about whether it hastens transboundary water cooperation and under what particular conditions.

I also discovered that there was support for the hypothesis clusters derived from both Realist and Liberal Institutionalist paradigms. The modified version of hegemonic stability theory, which was augmented with insights from resource economics and two-level game theory, revealed that the exercise of hegemonic power in shaping the nature of the regime that emerges does not prevent mutual gain from the regime. By mutual gain, I do not mean equal gain. In other words, even if the more powerful state in a riparian conflict presents a "power-constrained choice set"[380] to the weaker state in which only a limited regime is on the table as opposed to a Pareto-optimal basin-wide regime, both parties can benefit. The regime enables them to overcome the collective action problems posed by unregulated transboundary water use. The fact that the more powerful state has "agenda power and can engineer some outcomes in its favor"[381] does not mean that the weaker party loses out completely. The two-level game analysis in this study illustrated that Level I agreement (international level) is dependent on the range of acceptable outcomes at the Level II game board (domestic level). Hence, the needs of the key groups at the domestic levels in both states must be addressed to some degree to enlarge

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[380] See Terry Moe's article, "Power and Political Institutions," APSA Perspectives on Politics, 3, 2 (June 2005), p. 227 for the author's reflections on the tendency of rational choice theorists to focus excessively on the structures of cooperation without accounting for effect of power asymmetry on political institutions.
[381] Moe, op.cit., p.216.

the Level II winset and enter the zone of agreement at the Level I game. During the Indus Treaty negotiations, Pakistan insisted that India must contribute to the cost of building Pakistani link canals from West Pakistan to East Punjab since India would enjoy sole use of the eastern rivers after a ten-year transition period, according to the treaty. As noted in Chapter 3, the hydrological unity and integrated canal system of undivided Punjab in India was severed when the demarcation lines of the state of Pakistan were drawn. India agreed not only to supply water to Pakistan from the eastern rivers until the Pakistani canals were built, but also contributed 174 million dollars to the project.

Similarly, Israel agreed, during the 1994 negotiations, to give 50 MCM to Jordan from other sources with the proviso that Jordan would help finance such an arrangement. This was not a feature of the 1954 Unified Plan and demonstrates that the exercise of agenda power by the more powerful state can benefit the weaker party.

In the same way, Turkey had always maintained that its sovereignty over Hatay/Alexandretta is non-negotiable. Historically, Syria had been unwilling to deal with the allocation of Orontes river flow since it would imply de facto recognition of Turkish sovereignty over Hatay/Alexandretta. Nevertheless, as a part of the December 2004 Free Trade Agreement, Turkey pledged to increase the water flow to Syria and to engage in joint development of the Orontes River that flows through Hatay/Alexandretta. Although Syria is upstream on the Orontes, it did not have the financial and technical capability to develop its potential unilaterally. It appears Syrian President Bashar Assad has relinquished claims to Hatay once and for all. More importantly, from a theoretical perspective, Turkey's pledge to expend its resources to develop a river on which Syria is

upstream casts doubt on the validity of the Realist conception that cooperation is difficult to achieve because states fear the relative gains of other states should cooperation occur.

On the other hand, a Realist retort could be that the concessions alluded to in all of the cases above did not alter the distribution of capabilities in a significant way and hence did not provoke a fear of relative gains. Moreover, the fact that the regime was limited and sub-optimal in Pareto terms buttresses the Realist argument that the fear of relative gains diminishes the likelihood of comprehensive cooperative solutions.

In all of the case studies it was evident that the approach of a critical environmental threshold either aggravated an extant E-D crisis or triggered the perception that an E-D crisis would therefore be imminent. Although these realities and perceptions could escalate the conflict to a military-security crisis, they could also catalyze negotiations. The fact that the negotiations could take some time to bear fruit despite the ongoing environmental degradation and negative socio-economic effects highlights the importance of adaptive state capacity, conflict setting, and far-sighted political vision. Countries with low adaptive capacity tend to rely on international aid to formulate and implement a response to the environmental problem. Moreover, such countries do not have the luxury of unilaterally engaging in the resource reconstruction phase of development without undergoing the advanced processes of industrialization. The policymakers' latitude to maneuver is further constrained during the escalation phase of a protracted conflict. Understandably, such a context predisposes leaders to adopt a myopic view of environmental policy. It is easier for such policymakers to believe that a business-as-usual attitude towards resource use will work since 'it could very well rain heavily tomorrow.'

Nevertheless, the socio-economic and political necessity of having a stable supply of water induces limited cooperation between adversaries provided the relationship between the independent and contextual variables[382] specified in my theory obtains. In keeping with the theoretical implications of the modified hegemonic stability theory employed in this study, it is helpful if the upstream state allocates water to more efficient uses at the Level II game board to enable compromise at the Level I game. Although IMT was proffered as a means to achieve this end in states suffering from a particular crisis of governance and economy, it is not clear whether it is necessary for the emergence of a limited regime in all cases. Many more cases would have to be examined before even tentative correlations could be reported. It is evident, however, that some form of economic and political pressure is necessary for policymakers to reconfigure domestic water allocations.

Arguably, even highly-developed economies and political systems may be afflicted with leadership that suffers from myopic zeal. Such leaders are unable to formulate sound environmental policies because they are concerned with immediate, pressing problems. Since environmental effects may take time to manifest in a cataclysmic fashion, political expediency dictates that such issues are put on the policy back- burner. On the other hand, the conservation ethic that informed the policies of President Theodore Roosevelt during the Boundary Waters Treaty negotiations reveals that myopia is not inevitable. Moreover, it appears that developed states enjoying the benefits of a robust diversified economy, a high degree of nation-state unity, and peaceful

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[382] As noted, the independent variables concern the water scarcity mode, riparian power profile, position, sustainable development of water resources, and critical environmental threshold while the contextual variables concern the phase within the protracted conflict, the presence of an economic-developmental crisis, negotiation structure, and negotiation strategies at both Level I and II game boards.

inter-state relations with neighbours can negotiate comprehensive transboundary water treaties that seek to improve the eco-system itself. Repeated cooperative interaction in these cases makes the regime and its institutions stable and robust, for states do not have an incentive for unilateral defection.

It should be noted that this possible link between the degree of nation-state unity and its influence on the two-level negotiation dynamic can be inductively inferred from the case studies. As an avenue of future research, the concept of nation-state unity needs to be operationalized and specific hypotheses need to be constructed to explore such a link, if indeed there is one. Nation-state unity may be a dynamic variable that captures some qualitative aspect of state capacity. Nation-state unity exists when political and national boundaries are coterminous. The various 'nations' in society give their allegiance to and submit to the overarching political and legal authority of the state. Conversely, nation-state disjunction occurs when political and national boundaries are not coterminous. In this case, the 'nations' in society give their allegiance to their sub-group and reject the political and legal authority of the state and may threaten the territorial integrity of the state and/or cause state failure. Water development policy could be used by such a state to either appease or suppress such sub-national discontent. This disjunction may also provide an opportunity for other riparians to alter the water allocation preference set of the state suffering from the phenomenon. Ultimately, the power dynamic between states could be affected by the degree of unity or disjunction and condition the negotiation dynamic in some way. Once again, some rigorous measure must be constructed to capture the degree of nation-state unity in order to lend validity to such explanations.

Having analyzed four cases in depth, it would be fruitful to augment the findings with data from the omitted regions, Africa and Europe. To this end, consider the following outlines of riparian disputes over the Nile and Danube river basins. These cases appear to conform to the patterns suggested by this study: states suffering from water scarcity and exponential population growth, within an unpromising economic context and unstable, even violent, political setting, will find it difficult to conclude a basin-wide treaty over transboundary water. On the other hand, unprecedented cooperation that results in joint gains for all riparians is possible when the states involved are not burdened with population explosions, but are confronted with a critical environmental threshold and have sufficient stocks of environmental, economic and political capital to tackle such issues. In both scenarios, the hegemon can initiate cooperative efforts with generous funding from donors. These cases also provide a rich source of data for those interested in exploring the relationship between nation-state unity and its influence on the two-level negotiating dynamic. Many of the riparians in the Nile and Danube river basins have experienced ethnic strife due to nation-state disjunction.

THE NILE RIVER BASIN:

Ten riparians share the Nile River, which flows into the Mediterranean Sea.[383] The eastern source of the river (the Blue Nile tributary) rises in Ethiopia while the western source (the White Nile tributary) rises in Tanzania's Lake Victoria. Egypt, the most powerful riparian state, is downstream and was given full control of water flow by the U.K colonial authorities in the 1929 treaty between Britain and Egypt. Sudan is upstream of Egypt and downstream of the remaining 8 riparians, yet most of the Nile and its main tributaries (the Blue and White Nile) lie within Sudanese territory. This implies Sudan benefits more than its middle riparian position would suggest. Egypt was treated as the representative of the other riparians by Britain's colonial authorities. Once colonial rule ended, Uganda and Kenya wanted to nullify the 1929 treaty, for it did not address their water interests given their upstream positions.

In 1958 a territorial dispute triggered a non-PC crisis between Egypt and Sudan when Egypt deployed troops into the two territories north of the 22nd parallel that had been administered by Sudan since 1902.[384] The assumption of power by a pro-Egyptian general in Sudan changed the tenor of Egypt-Sudan relations shortly thereafter. In 1959 the Nile Treaty between Egypt and Sudan was signed and specified water allotments to both states on a yearly basis with the former receiving the bulk of the allocation. Egypt also agreed to pay 43 million dollars to Sudan as compensation for dam-induced flooding

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[383] **Of these 10 riparians, 5 are among the poorest in the world, and seven have engaged in or emerged from civil or transboundary conflict. The upstream riparians have not benefited from their favorable geographical position due to the absence of economic and political development. Egypt is clearly the hegemon in this basin context.**

[384] Brecher and Wilkenfeld, op.cit., pp. 432-433

and population displacement.[385] The incentive for this treaty was provided by international donors. Funding for Egypt's Aswan High Dam was dependent on riparian dispute resolution with Sudan. Arguably, Sudan's objections to the dam may have contributed to Egypt's decision to deploy troops in the disputed territories. Currently, the 1959 treaty may be undermined if the rebels in southern Sudan secede from the country. As long as the pro-Egyptian government in Khartoum retains control of Sudan, water cooperation will persist.

A water quality treaty was signed among Kenya, Tanzania, and Uganda in 1994. Apart from these treaties, no basin-wide treaty has been signed. Nevertheless, Egypt, with the aid of donor countries and international organizations, has taken a lead in the Nile Basin Initiative that is responsible for 8 joint water development projects throughout the basin at a cost of 140 million dollars.[386] Egypt's reliance on the river for all of its developmental needs explains its desire to encourage cooperative solutions. The fact remains, however, that crushing poverty[387] and severe political instability in many Nile basin states makes basin-wide cooperation unrealistic in the short term. Moreover, heavily-subsidized entrenched agricultural interests in Egypt and Sudan are opposed to a redistribution of this basin's transboundary water.

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[385] Arun P. Elhance, Hydropolitics in the 3rd World (Washington, D.C: USIP Press, 1999) p.77. According to Elhance, the dam has increased salinity and pollution downstream and discouraged water conservation among Egypt's farmers.

[386] Ashok Swain, "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth" SAIS Review , 22, 2 (Summer-Fall 2002), p. 307.

[387] Several states in the basin are in a pre-industrial phase of development relying on subsistence agriculture.

THE DANUBE RIVER BASIN:

Rising on the slopes of Germany's Black Forest, the Danube River travels a distance of 2900 km before discharging into the Black Sea. 17 riparians[388] share the basin; and their historical relations have been shaped by both world wars, the Cold War rivalry, the demise of the Soviet Union, and the dissolution of Yugoslavia. The alliance of riparians within hostile blocs had complicated the hydropolitics of the region. Nevertheless, numerous bilateral treaties within the Eastern bloc, brokered by the Soviet Union, were signed by riparians regarding flood control, irrigation, or hydroelectric power production.[389] Environmental preservation was not addressed in these agreements.

A dispute arose over the 1977 treaty concluded between upstream Czechoslovakia and downstream Hungary in May 1989 regarding the joint development of the Gabcikovo-Nagymaros Dam on the Danube because of the indifference to sustainable development. The transition to democracy in Hungary was accompanied by an increase in environmental consciousness among its citizens. Concerns about the adverse environmental impact of the dam project forced the Hungarian government to repudiate its 1977 treaty with the former state of Czechoslovakia (now Slovakia) and halt work on the project. Slovakia retaliated by diverting Danube water onto its territory unilaterally through a secondary dam. Although two sources suggest that Hungary threatened war if Slovakia insisted on opening the Gabcikova-Nagymaros Dam and deployed troops to the

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[388] The main channel of the Danube flows through Germany, Austria, Slovakia, Croatia, Hungary, Serbia and Montenegro, Bulgaria, and Romania.

[389] Despite the Cold War rivalry, Austria and Hungary concluded a water allocation treaty on April 9, 1956. According to the treaty, each state has the right to use 1/2 of the natural (not enhanced by artificial means) flow of the boundary river, "without prejudice to acquired rights." In additon, the upstream state may not decrease transboundary water flow by more than 1/3. Finally, no development is permitted without joint approval. As quoted in Aaron Wolf, http://www.transboundarywaters.orst.edu/publications/allocations/annex1.html

area to signal its intent to do so, the preponderance of available evidence suggests the opposite.[390] According to John Fitzmaurice, ethnic, legal and economic factors had contributed to the tensions between the states.[391] In other words, the water dispute aggravated an extant E-D crisis for Hungary. Due to the mixed evidence surrounding the claim that provocative troop deployments occurred, I cannot state that the E-D crisis escalated to a military-security crisis. Following unsuccessful mediation by the EU, the case was ultimately adjudicated by the International Court of Justice in 1993. The court ruled that both states must honor the treaty and honor the environment. Since then both states engaged in comprehensive negotiations to develop a sustainable project and have drawn up agreements to attain that end.

From 1985 to 1994 negotiations among all riparians resulted in an integrated basin-wide framework for the protection of water quality. Critical environmental thresholds were reached in at least 30 main tributaries of the river prior to the onset of the 1985 talks.[392] Decades of human, agricultural, and industrial pollution had caused serious degradation of the river and its ecosystem. The 1985 Bucharest Declaration enshrined the principle of joint management to preserve the basin's ecosystem and set the stage for the comprehensive regime signed on June 29, 1994 called the Convention on Cooperation for the Protection and Sustainable Use of the Danube. This regime is hailed

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[390] For a reference on Hungarian troop movements see Bertram Spector, "Transboundary Environmental Disputes," {Http://www. wwics.si.edu/subsites/ccpdc/pubs/zart/ch9.htm} See also Peter Gleick, The World's Water Biennial Report on Freshwater Resources 1998-1999, (Washington, D.C: Island Press, 1998) pp. 105-135 Chronologies A & B. For the opposite view see Nicholas Denton, "Hungarians furious over work on Dam," Financial Times, October 26, 1992, p. 3.

[391] John Fitzmaurice, Damming the Danube (Boulder: Westview, 1996). See also Ronnie D. Lipschutz, "Damming Troubled Waters: Conflict over the Danube (1950-2000)", Intermarium, 1,2, (Oct. 24, 1997) for a thorough explanation about the roots of conflict between ethnic Hungarian Magyars in Slovakia and the discriminatory treatment they received there and how this factor influenced the water issue.

[392] Aaron Wolf, {Http://www.transboundarywaters.orst.edu/projects/casestudies/danube.html}

as a model of cooperation. It should be noted that a bilateral treaty governing water quantity was signed between the upper riparians of the Federal Republic of Germany and Austria within the European Economic Community framework in December 1987.

In virtually all of the agreements including those concluded in the Socialist Era, linkage to non-water issues was not used during negotiations. The comprehensive joint management regime of 1994 was made possible by generous donor funding from the EU and World Bank. In this case multilateral negotiations did not hamper the emergence of a basin-wide regime as it did in the other cases in this study.

In short, if "the likelihood and intensity of water disputes rises as the rate of change within the basin exceeds the institutional capacity to absorb that change,"[393] then the roots of conflict can be found in a stressed ecosystem situated in a challenging economic-developmental and political context. My study indicates that it is this context that shapes the negotiation dynamic, which ultimately determines regime emergence and regime robustness. Sustained thinking about the economic, political, and environmental terrain over which water flows reveals that opportunities for cooperation are brilliantly disguised as insoluble problems. Yet, as Sir Francis Bacon wrote, "He that does not apply new remedies must expect new evils, for time is the greatest innovator; and if time of course alters things to the worse, and wisdom and counsel, shall not alter them to the better, what shall be the end?"[394]

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[393] Aaron Wolf, {Http://www.inbo-news.org/wwf/Delft2002Summarypdf}p.3.
[394] Francis Bacon, "Of Innovations," The Essays or Counsels Civil and Moral,Volume III, Part XXIV, (1561-1626) , Harvard Classics (ed.) (Danbury: Grolier Enterprises Corp., 1909) p.61.

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