

NAVAL POSTGRADUATE SCHOOL Monterey, California



THESIS

**THE SOURCES OF CONFLICT IN THE
EUPHRATES-TIGRIS BASIN AND ITS STRATEGIC
CONSEQUENCES IN THE MIDDLE EAST**

by

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MIDDLE EAST**

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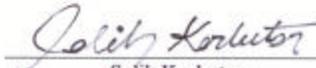
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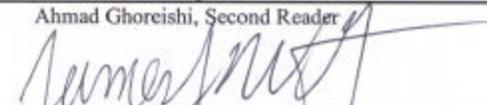

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ABSTRACT

The potential for conflict over water is enormous since freshwater resources are finite, unevenly distributed, and often shared by more than one country. However, given its importance for basic survival, industry, energy production and other fundamental components of society, water can also become a reason for cooperation as parties in water-scarce regions join together to manage this crucial shared resource.

The Euphrates-Tigris basin is one of those regions, where equitable and reasonable distribution of water is at the heart of the dispute among the riparian states of Turkey, Syria, and Iraq. In the basin, the disparities among riparian countries are wide and some are already faced with constraints in meeting domestic water demand owing to physical, socio-economic and political factors. This thesis argues that the predominant factor that contributes to the conflict in the Euphrates-Tigris basin is the domestic concerns of each state rather than an overall shortage of water resources. Furthermore, this thesis demonstrates that although the rhetoric about a water war among the riparian states of the Euphrates-Tigris rivers has been popular in the last decade, it seems unlikely that the water conflict will lead to an all-out war.

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I. INTRODUCTION

Our planet is known as the blue planet due to its extensive reserves of water. Three fourths of the earth's surface is covered by water. Unfortunately, 98% of this surface water is in the oceans. The remaining two percent comprises the fresh water supplies of the world. More shocking, 90% of this fresh water supply is either in the poles or remains under ground. Therefore, we humans actually have easy access to only .000006% of the water available on the earth. In other words, only 12,400 km³ of freshwater is available for human consumption and use, and the renewable supply is less than 1 percent.¹

What is worse than these statistics is that the distribution of fresh water resources around the world is strikingly uneven. The world has not yet faced a global water shortage, but owing to the uneven global distribution of fresh water resources many chronic regional and local water shortages seriously threaten human life. The Middle East is one of these regions severely lacking fresh water resources. Although the increasing water scarcity per capita is a global phenomenon, the scarcity is particularly severe in the Middle East. This increasing aridity is mainly due to the region's geography and environment. The other major factors that make the water issue so crucial are the rapid growth of the population and the increasing water consumption per capita in the region.

During the courses of history, water has played a central role in shaping the political relationships in the Middle East. The following highlights the reasons that the water issue is problematic among these states:

- *Geography and Climate:* The Middle East is one of the most arid regions in the world. Moreover the flow of these rivers is erratic and constantly fluctuating. These two factors exacerbate the problem of managing the water supply of these rivers, even if they are within the boundaries of a particular state.

¹ Kent Hughes Butts, "The Strategic Importance of Water," *Parameters*, (Spring 1997) p. 66

- *Transboundary Character:* Every major river in the region crosses one or more international borders and almost fifty percent of the population in the region depends on water flowing from other sovereign states.²

- *Population, Environment, and Economy:* Increasing population, the level of economic development, urbanization and the lack of environmentally sensitive technology adversely affect the quality and quantity of fresh water in the region.

- *Political Uncertainty:* The region is one of the most politically turbulent areas of the world. The two World Wars greatly affected the various societies in the region, and there is a severe lack of mutual trust among the states. Political disputes have made it difficult for the governments to cooperate over water.

- *Unreliable Information:* A lack of reliable and mutually accepted information about the overall inventory of water resources is another obstacle to resolving the water conflicts in the region.³

After examining the main characteristics of and the reasons for the existing water problem in the Middle East, assessing the importance of the water issue and its potential to threaten regional peace is useful. There are several points of views regarding the importance of water in the Middle East. One argument suggests the scarcity of water as the key factor in any future conflict in the Middle East. Environmentalists and ecologists, for example, draw much attention to water scarcity and population growth. The second argument accepts the idea of water as merely a contributing factor rather than the major source of any possible conflict. This viewpoint contends that the desire for water has not been and cannot be the initial cause of conflict among the states in the Middle East, and cooperation can solve it. A third viewpoint sees the scarcity and

² John Kolars, "Hydro-geographic Background to the Utilization of International Waters in the Middle East," *American Journal of International Law: Proceedings of the 80th Annual Meeting* (1986) pp. 249-50.

³ Several reasons exist for the uncertain databases about the inventory of water resources in the Middle East. First, the water resources have not been fully studied over a sufficiently long period for reliable results. Second, figures for the same watercourse may vary because different "runs" of the year have been used to establish an average. Third, data may be presented in different ways for a variety of political reasons by the riparian states. See Greg Shapland, *Rivers of Discord* (St. Martin Press: New York, 1997) p. 4.

potential conflicts as a technical problem. Engineers and economists support this argument⁴ and believe that the problem can be solved technologically.

Keeping all these thoughts in mind, one can assume that given foreseen population growth,⁵ changes in climatic conditions, and the imbalance between water supply and water demand, the water issue will continue to generate future tensions. As for the coming decades, water will rapidly and undoubtedly become as precious as oil.

Under these circumstances, the equitable and reasonable use of the Euphrates-Tigris rivers, which are the most important sources of fresh water after the Nile, lies at the heart of political disputes among the riparian states, namely Turkey, Syria, and Iraq. Since the respective water policies of each riparian state favors its own domestic concerns and national agendas, these policies deeply impact the present and future relations of these states. Therefore, a sound understanding of the reasons for disputes over the Euphrates-Tigris Rivers is necessary in order to reconcile the conflicts and to stabilize the region.

Given the significance of water in the region, Turkey, Syria, and Iraq want to use the Euphrates-Tigris rivers for their industrial and agricultural developments as well as for addressing their ethno-political concerns. But since the water resources of these twin rivers are important for the riparian states largely for the same reasons, the respective projects of each state for using the rivers have caused great tensions among them. For example, in 1975, Syria and Iraq came very close to a full-scale war when Syria blocked the water flood in the Euphrates River.⁶

⁴ Rossina Hassoun, "Water between Arabs and Israelis" in John Donahue & Barbara Johnston (ed.), *Water, Culture and Power* (Washington: Island Press, 1998) p. 314.

⁵ The population growth rate of the Middle East is among the highest in the world; by the turn of the century the population will reach 423 million, and it is expected to double 25 years thereafter. For detailed information see Itamar Ya'ar, "Water Disputes as Factors in the Middle East Conflicts" *Seaford House Papers, Selected Papers of the Royal College of Defense Studies*, 1994, p. 48.

⁶ Both Syria and Iraq deployed troops along their borders and a direct clash was prevented by the mediation of Saudi Arabia and the former Soviet Union. See Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 105.

The purpose of this thesis is to analyze the reasons for the conflict in the Euphrates-Tigris river basin. Rather than exploring the equitable use of the Euphrates and Tigris rivers only from a technical aspect, the thesis emphasizes the reasons that make the issue particularly thorny among the disputing parties. In this thesis, I argue that the predominant factor contributing to the conflict is not an overall shortage of water resources in the basin, but rather the domestic concerns of each country. The domestic concerns of each riparian state significantly shape the policies of settling the Euphrates-Tigris river conflicts. Specifically the main arguments addressed in this thesis are

- Turkey's policy shift in the 1980s from using the GAP project only for hydroelectrical purposes to using it as an integrated regional development program; the reasons for and the consequences of Turkey's policy change both domestically and internationally;
- The importance of the Euphrates River for Syria as its major source of fresh water and Syria's domestic concerns for maintaining the flow of the Euphrates River;
- Iraq's position as the southernmost riparian state in the Euphrates-Tigris river system, and its need for water for the survival of the state's regime;
- An assessment of the domestic concerns of each country that significantly shape its policies in the water conflict and the strategic consequences of these foreign policies in the Middle East.

It must be emphasized that although competition for water is a major challenge facing the Middle East, presently an armed conflict seems unlikely to erupt among the riparian states of the Euphrates-Tigris basin.⁷ However, since the water issue is involved in regional political affairs and is exacerbated by other disputes, solving the problem becomes difficult due to the respective policies of each riparian state. Certainly, the

⁷ Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project* (Washington: National Defense University, 1993) pp. 43-46

Euphrates-Tigris river basin can accommodate all hydroelectric, irrigation and regional developments that the riparian states require.⁸ What must be accomplished is the equitable and reasonable use of the river basin, which will satisfy the demands of all the riparian states. This in turn will settle the ongoing disagreements among the riparian states and will stabilize the region.

While defining the framework of the equitable and reasonable use of the rivers to maintain peace and stability, this thesis analyzes the relations between regional security and the environment of the Euphrates-Tigris basin. Since Turkey has an upper hand in shaping the politics of water due to its geographic location in the basin, the focus will be on the Southeastern Anatolia Project (GAP, the Turkish acronym) to clarify whether the project will bring prosperity and stability or whether it will begin new quarrels in the region.

This thesis is divided into six chapters. The first chapter will briefly explain the geography of the Euphrates-Tigris basin and its historical use in the region for agriculture and hydroelectric power. In the second chapter, technical issues of water usage and the Euphrates-Tigris rivers among Turkey, Syria and Iraq will be analyzed. The third chapter presents a description of Turkey's GAP project in terms of the geography, engineering, power capacity, and irrigation potential and the reasons for Turkey's need for water considering the geographical, agricultural, and demographic characteristics of the Euphrates-Tigris basin. The fourth chapter addresses the importance of water for Syria and details the Syrian arguments regarding the Syria's economic, political, ethnic and domestic concerns. The fifth chapter examines the same issues regarding Iraq. The sixth chapter analyzes international organizations and international laws that concern the use of international watercourses. The conclusion assesses the implications of the Euphrates-Tigris river dispute in the overall political agenda of the Middle East. This final chapter also evaluates the future prospects for cooperation in the region.

⁸ Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 105.

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II. THE HYDROGRAPHY OF THE EUPHRATES-TIGRIS RIVERS AND THE HISTORICAL PATTERNS OF WATER USE IN THE BASIN

A. HYDROGRAPHY OF THE EUPHRATES-TIGRIS BASIN

The Euphrates and Tigris rivers are the two longest rivers in southwest Asia. They drain an area of around 900, 000 km². Like the Nile, these twin rivers are “exotic rivers,” which derive their waters outside the region through which they flow.⁹ They both rise in the highlands of eastern Turkey at a distance of 30 km from each other. (See Map 1) These headwater districts, enriched by autumn and spring rains and sustained by winter snows, nourish the two rivers which run separately onto the wide and relatively drier plain of Mesopotamia.

The Euphrates is longer than the Tigris with a total length of 2,700 kilometers (1,674 miles), of which some 40 percent is in Turkey, 25 percent in Syria, and 35 percent in Iraq. The Euphrates covers an area of 444, 000 km², which includes surface tributaries and wadis. The Euphrates River brings hydropower and irrigation to parts of southeastern Turkey as well as water to the Mesopotamian lowlands of Iraq and much of northern and eastern Syria. Two main tributaries; the Karasu and the Murat in Turkey form the Euphrates. The combined stream then flows through southeastern Turkey and crosses into Syria. During its course of 675 km. through Syria, the Euphrates is met by two other tributaries: the Balikh and the Khabur, both of which also originate in Turkey.¹⁰ Before reaching the Persian Gulf, the Euphrates enters the alluvial lowlands of Mesopotamia near Hit in Iraq. The river then divides into some channels; some of these channels flow into Lake Hammar and the others join the Tigris River flowing down from the east. This mainstream to the head of the Gulf is known as Shatt al-Arab. The annual flow of the

⁹ John F. Kolars, William A. Mitchell, *The Euphrates River and the Southeast Anatolia Development Project*, (Illinois: Southern Illinois University Press, 1991) p. 4.

¹⁰ Daniel Hillel, *Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East* (New York: Oxford University Press, 1994) p. 92.

Euphrates is about 30 billion cubic meters per year at the point where it enters Syria from Turkey. After meeting two tributaries in Syria, this flow increases to 32 billion cubic meters per year at its entrance into Iraq. During its course of 1,000 kilometers through Iraq, the flow of the river increases no further.¹¹

Unlike the Euphrates, the Tigris River is divided only between Turkey and Iraq, apart from a span of approximately 40 kilometers where it forms the boundary first between Turkey and Syria and then between Syria and Iraq. The Tigris has a total length of 1,900 kilometers, of which about 20 percent lies in Turkey, 78 percent in Iraq, and only 2 percent lies along the pointed northeastern corner of Syria.¹² The Tigris rises in eastern Turkey near Lake Hazar and flows downstream where it forms the border between Turkey and Syria for 32 km before entering Iraq. On its journey through Iraq, the Tigris is joined by other tributaries. Of these tributaries the Greater Zap originates from Turkey, the other three, the Lesser Zap, the Adhaim, and the Diyala, flow westward from the Zagros Mountains of Iran. The Tigris River covers an overall area of 470, 000 km². Although shorter than the Euphrates in length, the Tigris has a greater volume. The average annual flow of the Tigris at Cizre, the point where the river leaves the Turkish territories, is around 19.7 billion cubic meters. With the tributaries that join the Tigris in Iraq, the flow of the river reaches approximately 42 billion cubic meters per year.¹³

One of the significant characteristics of the Euphrates-Tigris basin is the annual fluctuations in the volumes of both rivers. The discharges of these two rivers are subject to extreme changes both annually and seasonally. The main reason for these variations is that the flows of both rivers depend greatly on climatic conditions. The waters of the Euphrates are derived mainly from melting snow in the mountains of eastern Turkey. The river's highest flow comes in spring and early summer and the low flow appears from

¹¹ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 121.

¹² Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin's Press, 1997) p. 105.

¹³ Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 124.

July to October. As a result of these changes, a substantial difference occurs in the volume of water carried by the Euphrates through the year; in April and May the flow becomes eight times higher than that in August and October.¹⁴

As with the Euphrates, the volume of the Tigris River also varies annually and seasonally. The pattern of seasonal variation in the flow of the Tigris also resembles that of the Euphrates. Owing to the location of the Tigris River near the foot of the Zagros Mountains, the tributaries joining it carry both melting snows and rainfall in the warmer months. Consequently, peak flows come in April and the low flows in September and October. Contrary to the Euphrates, the volume of the Tigris also varies at any given point during its journey from eastern Anatolia to the Gulf. At Baghdad, the maximum-recorded flow is nearly 13,000 m³/s, whereas it is only 5,200 m³/s in the upper parts of Iraq.¹⁵ Furthermore, the fluctuations in the flow of the Tigris is much greater than the variations in the discharge of the Euphrates. For instance, the maximum flow in the Tigris can be almost eighty times higher than the minimum flow whereas in the Euphrates the recorded peak flow is nearly twenty-eight times higher than the lowest flow. Thus it can be assumed that the Euphrates has a more regular regime because of its greater length and fewer downstream tributaries. And when compared with the Euphrates, the Tigris River is less important for agriculture because of the violent nature of its main stream.¹⁶

The end result of these wild fluctuations in the rivers' flows is very unfavorable as far as agriculture is concerned in the basin. The seasonal rise of the flow in both rivers is too late for winter crops and too early for summer crops. This means that the construction of large storage facilities is of pivotal importance to ensure a steady availability of water for agricultural and other needs. Since both rivers are subject to major fluctuations, a

¹⁴ Joffe, George, "The Issue of Water in the Middle East and North Africa" in Thomas, Caroline and Howlett, Darryl (eds.), *Resource Politics: Fresh Water and Regional Relations* (Buckingham: Open University Press, 1993) p. 73.

¹⁵ John F. Kolars, William A. Mitchell, *The Euphrates River and the Southeast Anatolia Development Project*, (Illinois: Southern Illinois University Press, 1991) p. 7.

¹⁶ Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 127, See also Thomas Naff and Ryth C. Marson, eds. *Water in the Middle East: Conflict or Cooperation?* (Boulder, Colo.: Westview Press, 1984) p. 87.

considerable engineering capacity and an efficient water management system are required to control the rivers' flow effectively. Thus, on the one hand, the dam-building facilities of upstream states cause controversy in the basin, on the other hand, these projects are not only beneficial but also necessary for the downstream states as the projects regulate the discharge of the rivers in favor of the downstream states.¹⁷

Another common feature of the Euphrates and Tigris rivers is the high concentration of sedimentation in their waters, especially during seasonal floods. During the flood seasons, these rivers carry as much as three million tons of eroded soil from the highlands. Little of this sediment reaches the sea, while most of the material settles along the Mesopotamian Plain and provides the lowlands of Mesopotamia with rich deposits of alluvium. In addition to deteriorating agricultural production, one of the long-term repercussions of this high concentration of sediment in the waters of the Euphrates and Tigris rivers is its adverse effect on the storage capacity of the artificial reservoirs constructed by the riparian states.¹⁸

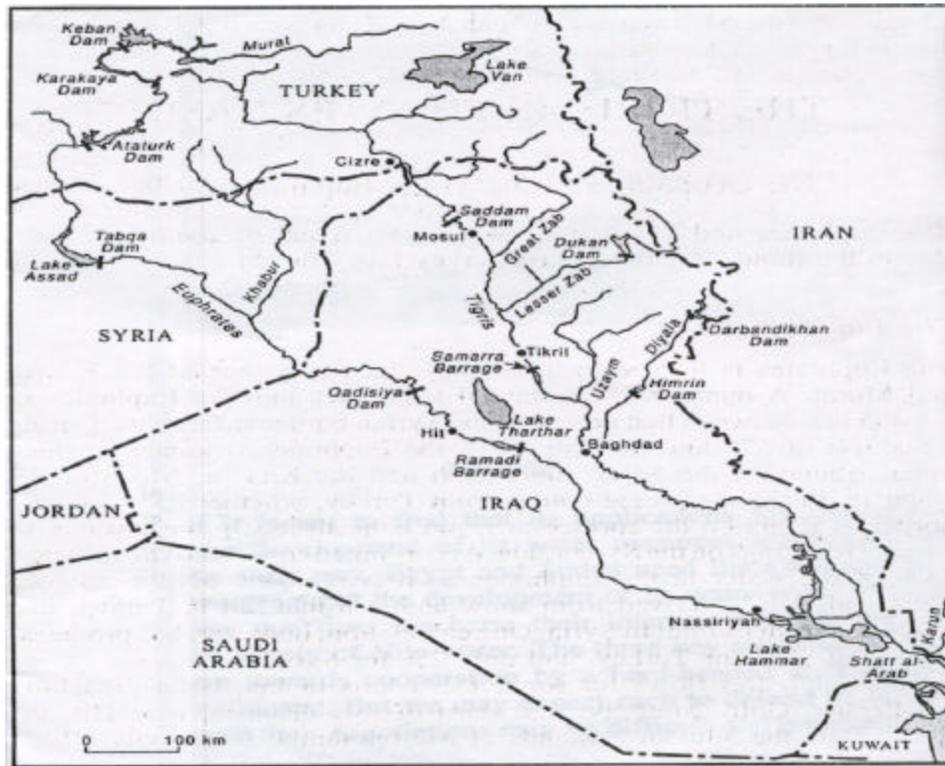
As in many international basins, environmental degradation and pollution are other great concerns in the Euphrates-Tigris basin. Dumping of untreated sewage in the two rivers and their tributaries has already led to serious health problems in Syria and Iraq. Although some sewage treatment plants have been built in Syria in recent years, the level of pollution remains a grave concern in the lower basins of Iraq.¹⁹

¹⁷ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 123.

¹⁸ Daniel Hillel, *Rivers of Eden: The Struggle for Peace in the Middle East* (New York: Oxford University Press, 1994) p. 93.

¹⁹ To deal with the problems of waterborne pollution, a multi-lateral agreement signed between Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE has existed in the basin since 1978. Although the agreement has provided the assessment of civil liabilities and compensation for damage from the pollution of the environment, this agreement has not been effectively implemented in the basin. See Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 128.

Figure 1. The Euphrates and Tigris Rivers²⁰



B. HISTORY OF WATER USE IN THE BASIN

1. Ancient Mesopotamia

The Euphrates and Tigris rivers have constituted a lifeline for human beings in the Middle East since the Sumerians established the first civilization around them in 3500 BC.²¹ Successive civilizations have had different engineering approaches for managing the water resources in the Euphrates-Tigris basin. These civilizations were primarily concerned with augmenting supplies and satisfying water demands rather than the demand management itself.

²⁰ Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin's Press, 1997) p. 100.

²¹ Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 91

As the first civilizations in Mesopotamia, the Sumerians, Babylonians, and Assyrians sustained an economy primarily based on agriculture. Since water is indispensable for agriculture, these societies established complex irrigation networks and organized institutions in order to use water resources efficiently. They developed large-scale infrastructures for flood control and built barrages to regulate the flow of the Euphrates and Tigris rivers. These civilizations also used the Euphrates and Tigris rivers for the purposes of navigation, transportation, and urban development.²² The importance of water for these early civilizations and their efforts for maintaining an efficient water management system in the Mesopotamia was reflected in the Code of Hammurabi, which is accepted as the first written laws that regulated the use of water in the Euphrates-Tigris basin.

The peoples who successively conquered Mesopotamia enriched the Mesopotamian culture as they introduced their traditional beliefs, practices, and customs. However, because of environmental conditions peculiar to Mesopotamia and the existence of an already complex civilization there, these newcomers eventually adopted the indigenous culture, enhanced the inherited technical achievements in irrigation and agriculture, and advanced the social and civil institutions proper to a hydraulic civilization.²³ As new ways of managing and controlling the natural forces of water were found, civilizations moved further away from the natural course of water resources. Nevertheless, the social, economic, and political structure of these agrarian civilizations and their development relied upon a well-developed and well-maintained hydro-agricultural system.

The Mongol invasion in the thirteenth century destroyed much of these irrigation systems along the Euphrates and Tigris rivers. In the following centuries, since the system was rendered useless by neglect and by the breakdown of central government administrations, Mesopotamia declined in terms of prosperity and political importance.

²² Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 121

²³ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 130.

However, during the Ottoman Empire, the hydraulic system was partially repaired and relative prosperity returned to the region. With the decline of the Ottomans, many irrigation installations again fell into ruin.²⁴

2. Modern Mesopotamia

Historically, the Euphrates-Tigris basin was mostly administered by a unitary authority under different empires and colonizers that had ruled Mesopotamia. From the sixteenth century to the end of World War I, the region was under the Ottoman rule. In the early twentieth century subsequent to the World War I, this long-lasting Ottoman rule came to an end and the geopolitical map of the entire Middle East dramatically changed. Following the Sévres Treaty in 1920, which was signed between the defeated Ottoman Empire and the Allied Powers of Britain and France, the Euphrates-Tigris basin was divided among three parties: Turkey, Syria, and Iraq. Turkey, the new independent Turkish State established in 1920 on the lands of Anatolia, became the upper riparian of the Euphrates and Tigris rivers. Syria and Iraq, which were under French and British mandates respectively from 1920 until their independence (Iraq in 1932 and Syria in 1946) emerged as the lower riparian states in the Euphrates-Tigris basin. As a consequence of this partition of the Middle East, the treaties concluded after World War I, for the first time in the history of Mesopotamia, hydropolitics became an international issue and the water disputes acquired a nationalistic character.

a. The First Phase (1900-60)

A basic effort in managing the water resources of the Euphrates and Tigris Rivers in the early twentieth century focused on engineering facilities, which were undertaken in downstream areas to control the flow of the rivers. The first of these facilities was the construction of the Hindiya Barrage on the Euphrates near Babylon in Iraq between the years 1911 and 1914. The Ottoman Empire built this barrage in

²⁴ Daniel Hillel, *Rivers of Eden: The Struggle for Peace in the Middle East* (New York: Oxford University Press, 1994) p. 96.

accordance with the suggestions of a British hydrological engineer named William Wilcox.²⁵

Between 1900-1960, no signs of a water conflict arose in the basin. Furthermore, some protocols and treaties among the three riparian states about basic rights in the use of the two rivers occurred. The first treaty was the Franco-British Convention of 1920. According to this agreement, the mandatory powers agreed to establish a committee to examine and to coordinate the use of the water of the Euphrates and Tigris rivers. The second agreement, which was about the use of the Koveik River²⁶ and the possible use of the Euphrates River, was signed between France and Turkey in October 1920. Two more agreements were signed between Turkey and France in May 1926 and in May 1930, both of which committed the two parties to coordinate their plans to use the Euphrates River.²⁷

In the early 1940s, the water issue was considered a technical and engineering problem, which required the collaboration between the upstream and the downstream countries. This was apparent in the cooperation between Turkey and Iraq. The two countries exchanged information on flood prevention for both the Euphrates and the Tigris rivers. Since the Euphrates and Tigris rivers have extreme seasonal and annual variance in their flows, both countries agreed to implement water storage measurements in upstream areas in order to manage the water in the basin optimally. In March of 1946, the Treaty of Friendship and Good Neighborly Relations was signed between Turkey and Iraq.

²⁵ Naff Thomas, *Water Issue in Iraq*, (Philadelphia: Associates For Middle East Research, 1991) p. 127.

²⁶ The Koveik River is a small river that rises in Turkey and crosses the Syrian border. Although it was a source of water for the city of Aleppo in northern Syria, its water is no longer sufficient for that purpose. See John F. Kolars, William A. Mitchell, *The Euphrates River and the Southeast Anatolia Development Project*, (Illionois: Southern Illinois University Press, 1991) p. 161.

²⁷ Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 124.

In compliance with this treaty, both sides agreed to share data relevant to the Euphrates and Tigris Rivers.²⁸

Within the framework of these treaties, Iraq was the first of the three countries that sought ways of developing the waters of the two rivers. While under the British mandate, the Department of Irrigation was already established in Iraq. Then a program for hydrological data collection and designing of irrigation projects was initiated. After the British mandate, in the 1950s, Iraq's efforts to use the waters of the Euphrates-Tigris basin continued efficiently by establishing the Board of Development, the Ministry of Development, and the Ministry of Agrarian Reform. With the help of foreign firms, a second barrage that purposed to divert the floodwaters of the Euphrates River was constructed near the city of Ramadi in Iraq.²⁹ All these reforms helped Iraq restore the already existent irrigation network in the lands of Mesopotamia, yet many of these national and regional programs were disrupted in 1958, when a leftist pan-Arab army coup established a republic in Iraq, orienting its foreign policy toward the Soviet Union.³⁰

Syria began to exploit the Euphrates River in the 1950s. With the introduction of motorized pumps after the Second World War, Syria's irrigated agriculture developed rapidly. The irrigated area increased from 295, 000 hectares of land in 1945 to 657, 000 hectares of land in 1960. Despite these developments, the amount of the water that Syria was extracting from the Euphrates was rather small. According to Syrian official sources, Syria was using only between 2.5 to 3 billion cubic meters of the Euphrates water in the 1950s.³¹ Parallel to further expansion of irrigated agriculture, this

²⁸ John F. Kollars, "Problems of the International River Management: The Case of the Euphrates" in Biswas Asit K. (ed.) *International Waters of the Middle East: From Euphrates to Nile* (New York: Oxford University Press, 1994) pp. 44-94.

²⁹ Naff Thomas and Matson Ruth (eds.) *Water in the Middle East: Conflict or Cooperation?* (Boulder, Colo.: Westview Press, 1984) p. 89.

³⁰ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 130.

³¹ Mikhail Wakil, "Sharing the Euphrates: Syria," *Research and Exploration*, (Special Issue, 1994) p. 64.

amount of water increased in the following decades with the construction of large-scale irrigation networks and massive land reclamation projects.

Water resource studies were initiated in Turkey in the early 1930s, and the need for electric energy emerged as the most urgent priority when the country embarked upon an ambitious economic and agricultural development program. To meet the energy needs of the young republic, the Electric Works Studies Agency (T.E.K., a Turkish acronym) was established in 1936. One of the essential objectives of this agency was to produce electric energy from national water resources that had not been exploited. After assessing the energy potential of the Euphrates and Tigris rivers, the agency initiated intensive studies and built observation stations to examine the aspects of both rivers. In the following years, topographical and hydrological surveys were conducted and hydrometric stations were established on the Euphrates River in 1936 and on the Tigris River in 1947. Then in 1954, the State Hydraulic Works Agency (D.S.I., a Turkish acronym) was established when new requirements emerged.³² Based on studies covering the basins in Turkey, the DSI divided Turkey into 26 basins and launched studies and planning activities. Reconnaissance studies were completed in 1958, and the initial plans were developed for three dams on the lower Euphrates and five dams on the Tigris. Though the governments periodically attempted to secure funds for the development projects in the Euphrates-Tigris basin, in the face of more pressing economic priorities the idea of developing these two rivers did not become politically viable until the 1960s.³³

b. The Second Phase (1960 -Present)

The management of the water resources was not a problem in the Euphrates-Tigris basin in the first half of the century; however, some disputes arose

³² Olcay Unver and Bruno Voron, "The Southeastern Anatolia Project-GAP" *Water International* 18 (1993), p. 158.

³³ Ali Carkoglu, Mine Eder, "Domestic Concerns and the Water Conflict over the Euphrates-Tigris River Basin," *Middle Eastern Studies*, (January 2001), p. 7.

among the three riparian states in the 1960s when each country began to implement its own development projects on the portions of the rivers in its own territory.

The reasons for the failure of comprehensive water management in the basin and the emergence of a conflict among the riparian states will be discussed in detail in the following chapter. At this point, only the initial efforts of the riparian states will be presented without discussing the political rationales behind them.

By the mid-1960s, the development of irrigated agriculture in Iraq far surpassed the development in Syria and Turkey. During this period, Iraq was irrigating over five times as much land as Syria and nearly ten times as much as Turkey.³⁴ To continue its efforts to use the water of these rivers efficiently, Iraq began constructing the “Third River”³⁵ between the Euphrates and Tigris in the 1960s. This was a 565 km long canal, which would run from near Baghdad to Basra connecting the two rivers. Although in the coming decades the Iraqi regime used this canal for political purposes, the initial purpose of the canal was to provide irrigation water for the land between the Euphrates and the Tigris Rivers.

In the late 1970s, as part of the effort to prevent flood damage, Iraq built another canal to divert excess water from the Tigris into the Lake Thartar. Since then Iraq has continually built other similar canals linking Lake Thartar to the Euphrates and again connecting the lake with the Tigris further downstream. Even though these canals were dug with the primary aim of flood control, they also allowed the Iraqis to transfer the water from one river to compensate for low flow in the other. In addition to using the rivers for irrigation purposes by means of these canals, Iraq also built barrages on the Euphrates and Tigris to produce hydropower. The Haditha Dam was a remarkable project built on the Euphrates. This dam was completed in 1985 with a substantial hydropower capacity of 660 megawatts.³⁶ In 1990, Iraq started construction of another hydropower

³⁴ E. Kienle, *Bath v. Bath: The Conflict between Syria and Iraq, 1968-89* (London, 1990) p. 93.

³⁵ The Third River was completed in 1991 and renamed the Saddam River. Sometimes it is also referred as the Leader’s River. See Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin’s Press, 1997) p. 108.

³⁶ Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin’s Press, 1997) p. 107

dam at Khan al-Baghdadi on the Euphrates, but the Iraqi invasion of Kuwait in August 1990 brought it to a halt.

Syria began exploiting the water of the Euphrates for irrigation and hydro-power in the early 1960s. Mainly with the help of the Soviet Union, the Tabqa Dam was built on the Euphrates in 1973. This major dam was purposed to meet Syria's water and energy needs. The filling of this dam in 1975 became a major source of conflict between Syria and Iraq as illustrated earlier. The Bath Dam, completed in 1986, was the second of the following Syrian projects on the Euphrates River. However, the hydropower capacity of the Bath Dam was not on the same scale as the Tabqa Dam. The Bath Dam had a limited capacity for electric generation and provided relatively little water for irrigation. The Tishreen Dam, the third Syrian dam on the Euphrates, is still under construction. It was mainly designed for hydropower with a capacity of 1.6 billion kilowatt-hours electricity per year. In spite of these ongoing projects on the Euphrates, the Syrian ability to use the Tigris River was limited because the river is not wholly within the Syrian territory. Since the border with Turkey runs down the middle of the river, Syria could not build reservoirs to store or divert the water without the cooperation of its neighbor on the other bank. No agreement on this subject has yet been signed and at present Syrian farmers take water from the Tigris only in small quantities.

Following the preparatory land development on the Euphrates River near Keban Strait, Turkey began constructing the Keban Dam on the Euphrates River in the mid-1960s and finished the project in 1974. This was the first major dam on the Euphrates in Turkey. With a hydropower generating capacity of 1,360 megawatts, the Keban Dam was designed to generate almost six billion kilowatt-hours of electricity per year. The second dam on the Euphrates was the Karakaya Dam, which was completed in 1988. This was the first dam built within the implementation of the Southeastern Anatolia Project (GAP, Turkish acronyms). Like the Keban Dam, the purpose of the Karakaya Dam was to produce hydropower with the generating capacity of 7.5 kilowatt-hours of electricity per year. The third dam on the Euphrates River was the Ataturk Dam, which was regarded as the linchpin of the GAP Project. Completed in 1990, the Ataturk Dam was a huge engineering feat by any standards. Unlike the Keban and Karakaya Dams, the

Ataturk Dam was designed to store water for large-scale irrigation as well as for the generation of hydropower. For that reason Syria and Iraq regarded this dam as a more threatening project than its predecessors on the Euphrates.

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III. THE EMERGENCE OF CONFLICT AND THE PROBLEM OF WATER USE IN THE EUPHRATES- TIGRIS BASIN

A. THE EMERGENCE OF THE CONFLICT

The conflicts about the use of the water resources in the Euphrates-Tigris basin began in the early 1960s with the large-scale Turkish and Syrian irrigation and hydropower projects on the Euphrates, and to a lesser extent on the Tigris River. These upperstream facilities caused great anxiety because Iraq was the southernmost riparian state and the major user of the rivers in the basin. Iraq perceived these massive projects as a menacing strategic challenge to its national security and accused both Turkey and Syria of raising their claims on the water in the basin at Iraq's expense.

To discuss the possibility dividing the water resources in the Euphrates-Tigris basin, the three parties came together for the first time in the mid- 1960s. For negotiating purposes, each country made maximum demands about its share of the water in the basin. Iraq wanted 14 billion cubic meters per year, Syria 13 bcm. and Turkey projected a demand of 18 bcm. per year. Since the total of these demands was roughly one-and-a-half times the average flow of the river,³⁷ no agreement was reached. After this first unsuccessful trilateral attempt to share the water of the rivers, Syria and Iraq held some bilateral meetings to allocate the waters of the Euphrates between them. In these talks, Iraq wanted a fixed amount of the river's flow, arguing that it was entitled to the amount of the water that it had always received. Since then, this "acquired rights" issue has become the major Iraqi argument in all the negotiations regarding the Euphrates and Tigris basin. In response to these Iraqi claims, Syria wanted a balanced allocation of the Euphrates water between the two countries basing its arguments on potential needs rather

³⁷ Gleick Peter H. "Reducing the Risks of Conflict over Fresh Water Resources in the Middle East," in Isaac J. and Shoval H. (eds.), *Water and Peace in the Middle East* (Amsterdam: Elsevier Press, 1994) p. 43.

than past use in the basin. The two countries came close to agreeing on the issue, but in the end no agreement was signed between them.

Iraqi protests against the Turkish and Syrian projects continued through the late 1960s. As a reflection of this opposition, Iraq objected to Turkey's application for financing from the World Bank for its Keban Dam. The World Bank accepted Turkey's request but insisted on a guarantee that Turkey would maintain a flow of at least 450 cubic meters per second through the dam.³⁸

Meanwhile, the relations between Iraq and Syria also became problematic. The main reason for this growing antagonism between Syria and Iraq was the rivalry between the Baathist regimes in Baghdad and Damascus. In the 1970s, the two regimes were competitors for influence in the Arab world. They were trying to represent the Arab front separately and trying to dominate each other in the region. The Syrian completion of the Tabqa Dam on the Euphrates in 1973 was the aggravating factor in this already existent hostility. With the completion of the Tabqa Dam, Syria slowed the flow of water of the Euphrates toward Iraq. According to Baghdad, this caused havoc in the Iraqi part of the basin and Iraq directed its protests against Syria rather than against Turkey. This change in the direction of the Iraqi opposition from Turkey to Syria was interpreted as Iraq's realization that the Turkish project would not result in any substantial loss of water for downstream riparians and would indeed benefit Iraq by bringing about a more regular flow. In contrast, the Syrian project of the Tabqa Dam on the Euphrates would supply large quantities of water for irrigation in Syria and hence would reduce the flow of the river in Iraq.³⁹

1. The First Crisis

The tension further increased between Iraq and Syria when Syria began to fill the reservoirs of the Tabqa Dam in 1975. In early 1975, Iraq complained that Syria had

³⁸ Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 143.

³⁹ Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project* (Washington: National Defense University, 1999) p. 11.

caused great economic damage to Iraq by reducing the flow of the Euphrates River from 15.3 billions cubic meters to 9.4 billions cubic meters. Iraq wanted Syria to give its “established rights of 16.1 billions cubic meters per year”⁴⁰ in the basin and claimed that Syria deliberately impounded more water in Lake Assad—the name of the reservoirs for the Tabqa Dam—than it could use to generate electricity and to irrigate farmlands. Syria did not accept these Iraqi accusations and argued that it had the right to use 13 billion cubic meters water per year from the Euphrates since its water resources were extremely limited when compared to Iraq. The disputes between the two countries turned into a crisis, and Iraq threatened to bomb the Tabqa Dam in Syria. With the escalation of the tension, the two Baathist regimes traded other accusations unrelated to the water issue, and Syria began to support the Iraqi Kurdish dissidents openly. Then the two countries sent troops to their borders in April 1975.⁴¹ Through the mediation of Saudi Arabia and the former Soviet Union, the crisis was solved before an armed conflict between the two states ensued. Following the efforts of Saudi Arabia and the Soviet Union to reconcile the differences between Syria and Iraq, Syria agreed to release additional water for Iraq on the Euphrates. It was not made public, but according to the agreement, Syria would keep 40% of the water and would allow 60% to pass through to Iraq.⁴²

2. The Joint Technical Committee and Trilateral Talks

In 1980, Turkey and Iraq established the Joint Technical Committee to continue the efforts to reach a solution that would satisfy the needs of the riparian states in the basin. Syria entered this group in 1983, and this tripartite committee began its work on the basis of exchanging information about the two rivers. However, with the initiation of Turkey’s GAP Project in the mid-1980s, the growing uneasiness on the part of both Syria and Iraq that the likely water demands of the GAP Project could threaten them economically and strategically hindered this committee’s goals. Turkey declared itself

⁴⁰ This figure about the Iraqi share from the Euphrates River is derived from a 1965 World Bank assessment of Iraqi water needs based on the existing agricultural and estimated land potential of Iraq

⁴¹ Morris Marry E., “Water and Conflict in the Middle East: Threats and Opportunities,” *Studies in Conflict and Terrorism*, 20:1 (January-March 1997) p. 10.

⁴² E. Kienle, *Bath v. Bath: The Conflict between Syria and Iraq, 1968-89* (London, 1990) p. 104.

ready to discuss its plans for establishing the principles of using the two cross-border rivers. But Syria and Iraq were not satisfied with this Turkish approach, and the two Arab states felt that their interests would be better served by an agreement that would give them a fixed volume of water. Under these circumstances, the Joint Technical Committee held sixteen technical and two ministerial meetings but the talks among the three riparian states have reached a deadlock. In fact, the parties even failed to produce an outline that might serve as a basic report about the use of the two rivers. However, bilateral talks continued among the riparian states and further initiatives were suggested by the respective countries to solve the problem of water use in the basin.

3. Water Issue and Syrian Support for the PKK

In the 1980s, the GAP project pitted the two Arab states against Turkey in its early stages, but the hostility between the two Arab regimes and Syrian support for Iran in the war against Iraq decreased the possibility of an alliance between Iraq and Syria against Turkey. This hostility also shaped Turkey's relations with its downstream neighbors on a bilateral basis. As a result of Iraq's pre-occupation with its war against Iran, Syria has played a more dominant role in the disputes with Turkey over the use of the Euphrates River. This Syrian role was further heightened in 1984 with the emergence of the PKK, a terrorist group that has used violence to create an independent Kurdish state in the southeastern parts of Turkey. Turkey initiated the GAP project not only to meet its increasing hydroelectrical demands, but also as an integrated regional development program to reduce the uneasiness of the citizens living in the region. Therefore, the PKK attacked the GAP facilities and GAP infrastructure when it was under construction. These geographical and political connections between the terrorist activities of the PKK and the GAP project became inescapably connected when Syria began to support the PKK attacks in southeastern Turkey. Since then, Syria has used its support for the PKK as a bargaining chip in its disputes with Turkey over the Euphrates River, hoping to induce Turkey to release additional waters toward Syria. At every opportunity, though Turkey unequivocally declared that it would not use its transboundary waters for political purposes, Syria has continued to support the PKK

activities, and the Syrian government has failed to restrain the PKK from operating within its territory.

Therefore, high-level meetings between Turkey and Syria have focused on Syria supporting the PKK and the volume of the water which Turkey would allow to flow down the Euphrates River into Syria. In 1987, the two countries signed the Protocol of Economic Cooperation, which included a Turkish guarantee for a minimum flow of 500 cubic meters per second in return for Syria's cooperation on "border security."⁴³ This amount was well within the range that Syria demanded in the early negotiations. On two occasions in 1993 and 1994, the Turkish authorities repeatedly confirmed its commitment in the most recent negotiations concerning the Euphrates River basin. Relations between the two countries improved somewhat after Syria extradited Abdullah Ocalan, the leader of the PKK, from Syria in 1998; however, the underlying tensions about the water issue have not completely disappeared.

4. The Ataturk Dam and the Second Crisis

In the late 1980s, Syrian and Iraqi fears continued about Turkey's use of the Euphrates waters assuming that this would disrupt both their current consumption patterns and future development plans. Because of this growing anxiety in Syria and Iraq about Turkey's GAP project, the dam building facilities within the implementation of the GAP project created great consternation among the downstream neighbors even before it adversely affected them. Within this atmosphere, the Ataturk Dam on the Euphrates River caused much controversy between Turkey and the two Arab states. The Ataturk Dam was the largest of the 22 dams proposed for the Southeastern Anatolia Project. Different from the previous dams—Keban and Karakaya—the Ataturk Dam would generate hydropower energy and would maintain fresh water for irrigating farmlands.

After the first crisis between Syria and Iraq in 1975, a second crisis occurred when Turkey finished the Ataturk Dam in 1990 a seven-year period after its initiation in 1983. This interrupted the flow of the Euphrates for a month, partly to fill the reservoir.

⁴³ This was a euphemism for Syrian support for the PKK

Despite an advanced warning from Turkey, and despite an increase in the water supply before and after the cutoff,⁴⁴ high tension ensued over the downstream riparians. Syria and Iraq both protested that Turkey now possessed a water weapon that could be used against them. Syria was already desperately short of water, and much of the water for its towns, industries, and farms comes from the Euphrates. Beyond this dependence, the country has been chronically vulnerable to drought. Furthermore, Syria's population growth rate, at 3.7 percent per year, is one of the highest in the world, constantly adding to the scale of Syria's demand for water. Turkey and Syria have exchanged angry threats over this situation. Moreover, despite a treaty that Syria signed in 1987 about not supporting the PKK activities in Turkey, Syria has increasingly continued giving sanctuary to the PKK guerilla separatists.

Interestingly, the Ataturk Dam crisis caused an unprecedented degree of Syrian-Iraqi unity over the Euphrates. These governments have long held each other in mutual contempt because of their respective regimes. As a result, they see the enemy of the other as their own close ally. Yet somehow, they have managed to take a common stand against Turkey. Thus a mutual enemy has allowed them to establish a common bond between the nations. On 16 April 1990, at the Secretariat of the Arab League which was then located in Tunis, the two states signed an agreement that allocated the waters of the Euphrates on a percentage basis. According to this agreement, whatever the volume of the river that crossed the Turkish-Syrian border was, Syria would keep 42% of the water for itself and would allow 58% percent of that quantity to cross its border to Iraq. At the same time, the two Arab states jointly approached Turkey to demand a trilateral agreement that would permanently divide the waters of the Euphrates River. The agreement of April 1990 appears to remain in force. Neither Syria or Iraq has violated the agreement, and Iraq has not complained that Syria is not honoring the agreement. But the united front against Turkey, very short-lived, finally collapsed when Syria opposed the Iraqi invasion of Kuwait in August 1990.

5. Birecik Dam Crisis and the Recent Situation

⁴⁴ It was a reduction rather than a total cessation of the flow at the Turkish-Syrian border

In 1995, a new crisis over water supplies developed between Turkey and Syria after the credit agreement for the new Birecik Dam on the Euphrates River was reached. The Birecik Dam would be located between the Ataturk Dam and the Syrian border and it would generate power and provide water for the irrigation of 70,000 hectares of farmlands in the southeastern region of Turkey. After the approval of credit for the dam project, Syria immediately lobbied against Turkey both in the Arab League and in the Western countries. At the same time, signs of revival of the Syrian-Iraqi unity on the Euphrates also reappeared.⁴⁵ Despite their deep political oppositions, officials from Syria and Iraq agreed on the assumption that Ankara's predominant control over the Euphrates and Tigris rivers posed a threat to their political and economic future. Based on this argument, along with other Arab countries, Syria and Iraq issued the Damascus Declaration, accusing Turkey of releasing contaminated water downstream to Syria. Turkey did not take these accusations seriously and reiterated its readiness to discuss all aspects of its projects on the Euphrates and the Tigris rivers.

In September 1998, another crisis occurred between Turkey and Syria as a result of the continuing Syrian sanctuary for the PKK. This time, Turkish leaders adopted a harsher tone toward Syria and warned Damascus to stop supporting the PKK. Turkey also demanded the extradition of Abdullah Ocalan from his villa in Damascus. Ten thousand Turkish troops advanced to the Syrian border and the Turkish air force was placed on red alert. Through the Egyptian president Hosni Mubarek's mediation efforts between Ankara and Damascus, the two countries reached an agreement. Unlike the previous talks, the water issue was not mentioned, and Syria promised once more to honor its commitments to end its support of the PKK.

B. THE PROBLEM OF WATER USE IN THE EUPHRATES-TIGRIS BASIN

The joint dependency of Turkey, Syria, and Iraq on the Euphrates and Tigris rivers has caused the above-mentioned conflicts. Hydropolitics has shaped their relations

⁴⁵ Syrian support for the Allied Forces in the Gulf War spoiled the previous unity between Syria and Iraq against Turkey over the water issue.

over the last three decades. As a result of the ongoing negotiations on either trilateral or bilateral basis, “management, apportionment, and development planning” on the Euphrates and Tigris rivers have emerged as the primary controversy among the three riparian states.

Several reasons make the management of fresh water resources so critical in the Euphrates-Tigris basin. First of all, the sensitivity of the water problem in this hydropolitical complex stems from the fact that none of these countries has enough water resources to meet its needs. Out of these three riparian states, Turkey is erroneously viewed as possessing vast water resources. But contrary to this prevailing belief, Turkey is not a water-rich country. Still, some provinces in parts of southeastern Turkey are suffering from a general shortage of water.⁴⁶ This false image of Turkey is created because Turkey is presently using only 25.9 billion cubic meters of its capacity of 110 billion cubic meters of fresh water. The remaining portion of 84.1 billion cubic meters is not what Turkey is not in need of, but this remaining portion is the part of fresh water resources which cannot yet be allocated to its needs. According to research conducted by the World Bank, countries regarded as rich in water resources have eight to ten thousand cubic meters of water per capita annually. As can be seen in Table 1, the per capita water quantities of Turkey, Syria, and Iraq are well below this amount.

What make this situation even worse are the high growth of the populations of the riparian states. In the face of increasing populations and as a corollary decreasing water consumptions per capita in the region, the access to water resources has become of vital importance for the riparian states. For instance, in 1990, Turkey had a population of 56.5 million, with an annual average growth rate of 2.2 percent. This figure is estimated to exceed 90 million by the year 2010.⁴⁷ Meanwhile, the populations of Syria and Iraq are also growing rapidly, implying increased water requirements. For the future, the downstream states of Syria and Iraq are even becoming more dependent on the waters of

⁴⁶ Michael Schulz, “Turkey, Syria, and Iraq: A Hydropolitical Security Complex” in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 93.

⁴⁷ Beschorner Natascha, “Water and Instability in the Middle East” *Adelphi Paper* 273, (London: Brassey’s for the International Institute for Strategic Studies, 1992) p. 29.

the two rivers as an alternative to insufficient rainfall in the region. With this estimated population growth, Syria and Iraq in particular will soon reach a critical level of water scarcity. This will further complicate the problems of water management in the basin.⁴⁸

Table 1. Water Quantities Per Capita in Some Water-Rich and Middle Eastern Countries (cubic meters per year per capita)⁴⁹

	YEARS	
	1993	2020
Water-Rich Countries (the U.S.,Canada,Brasil, Russia)	10, 000	8, 000
Iraq	2,110	950
Turkey	1,830	980
Syria	1,420	780
Israel	300	150
Jordan	250	90
Palestine	100	40

⁴⁸ Michael Schulz, “Turkey, Syria, and Iraq: A Hydropolitical Security Complex” in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 100.

⁴⁹ Republic of Turkey Ministry of Foreign Affairs, “Water: A Source of Conflict and Cooperation in the Middle East?” (www.mfa.gov.tr/grupa/ac/aci/default.htm)

The ambiguity about the projected water demands of each riparian state over the Euphrates and Tigris rivers presents another area of dispute. This ambiguity further aggravates the situation in terms of water management and development planning in the basin. Different from the Jordan River Basin, which is another area of water conflict in the Middle East, the water resources of the Euphrates and Tigris rivers are not scarce. Under the conditions of normal and anticipated use, the Euphrates and Tigris are estimated to meet the demands of the riparian states for the coming years.⁵⁰ What makes the issue a problematic one are the water demands of each country which have been put forward without a good evaluation of their contribution to the rivers and their present and future plans they will use to manage the waters of these two rivers. Since each country perceives the use of water resources in the basin as directly linked to their national securities and each recognizes the issue of access to water resources as one of the most important means of power in the region, each worries about the relative gains of the others and then attempts to prevent any possible increase in the share of the other riparians without considering the strategic consequences of these policies in the basin.

As shown in Table 2, while 88.7 percent of the total water potential of the Euphrates Basin originates in Turkey, Syria contributes only 11.3%. Iraq's contribution to the runoff is nil. While contribution of these two downstream countries to the water potential of the Euphrates River is at such a modest percentage, Syria and Iraq have been demanding 22% and 43% respectively out of this potential. Since the two Arab states have not yet made their projects, on which they base their claims over the Euphrates and Tigris rivers, available to the interested parties outside the Arab world, they have not provided enough evidence to support such high demands from the two rivers.⁵¹ Meanwhile, Turkey, as the upperstream state in the basin envisages using only 35% of the total flow, which is quite reasonable compared to its contribution of 88.7%. Turkey also continually reiterates its readiness to discuss all aspects of its projects on the Euphrates and the Tigris rivers.

⁵⁰ Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project* (Washington: National Defense University, 1999) p. 46.

⁵¹ Frederick M. Lorenz and Edward J. Erickson, p. 8.

Another important point in Table 2 is that the total amount of water planned to be used by the riparian countries exceeds the total flow capacity of the Euphrates River by 17.3 billion cubic meters. Obviously, it is impossible to meet such demands as far as the river's potential is concerned. When this matter was brought to the attention of the riparian states, each riparian country proposed different solutions for the water deficit it faced if the all projected water demands in the basin were implemented. Turkey has suggested that the quantity of water each state demanded for irrigation and other purposes should be determined by applying identical criteria to all three countries. This idea did not suit Syria and Iraq's interests. They argued that the amount of water lacking must be deducted proportionally from each country's demand and each country must be free to choose the criteria it will use to determine its own water needs.

Table 2. Water Potential of the Euphrates River and the Consumption Targets of the Riparian States in the Basin (in billion cubic meters per year)⁵²

Countries	Contribution	Consumption Targets
Turkey	31.58 (88,70%)	18.42 (35,00%)
Syria	4.00 (11,50%)	11.30 (22,00%)
Iraq	0.00 (0,00%)	23.00 (43,00%)
Total	35.58 (100,00%)	52.92 (100,00%)

Turkey presented another solution in order to alleviate the water shortage in the Euphrates basin. This Turkish solution was transferring an amount of water from the Tigris River to the Euphrates on the condition that this decrease would not destroy the

⁵² Hilal Elver, Baruch Boxer, and Jim Lee, "The Emerging Conflict in the Middle East? The Case of the Euphrates and Tigris River basin" (<http://gurukul.ucc.american.edu./maksoud/water98/present8.>)

water balance in the Tigris basin. Unfortunately, Iraq rejected this proposition, since it has been using the entire annual capacity of 48 billion cubic meters of this river. As in the case with the Euphrates Basin, the amount of water planned to be used by the three riparian countries of the Tigris River exceeds the river's total capacity by 5.8 billion cubic meters. As can be seen in Table 3, Turkey and Iraq share the total water potential of the basin. Their contributions are 51.9% and 48.% respectively. Again the consumption targets Syria and Iraq advanced are much higher than the potential amount of water that can originate in their lands. Turkey, on the other hand, plans to use a relatively small portion of the waters emanating from its own territory.

Table 3. Water Potential of the Tigris River and the Consumption Targets of the Riparian States in the Basin (in billion cubic meters per year)⁵³

Countries	Contribution	Consumption Targets
Turkey	25.24 (51,80%)	6.87 (13,00%)
Syria	0.00 (0,00%)	2.60 (4,00%)
Iraq	23.43 (48,10%)	45.00 (83,00%)
Total	48.67 (100,00%)	54.47 (100,00%)

⁵³ Hilal Elver, Baruch Boxer, and Jim Lee, "The Emerging Conflict in the Middle East? The Case of the Euphrates and Tigris River Basin" (<http://gurukul.ucc.american.edu./maksoud/water98/present8.>)

V. DOMESTIC CONCERNS OF TURKEY AND THE GAP PROJECT

The Euphrates and Tigris rivers present a complex web of relations for Turkey, Syria, and Iraq, nations that geographically are shared owners and users of the two rivers. Within this web of relations, (See Figure 1), the riparian states are strategically positioned between two main areas of concern, one of which is the domestic politics of each country, and the other is the international negotiations among them which in turn cause new paradoxes in the basin.⁵⁴ The respective domestic politics of the riparian countries form a vertical set of relations that basically dictate the security concerns for each state. Meanwhile, the international relations among the three countries represent the horizontal level of relations including other issues, such as the Palestinian-Israeli conflict and the Iraqi invasion of Kuwait, which have deeply impacted the region overall. These domestic and external political problems generate hostilities and intertwine the affairs of three riparian states complexly. The diplomatic tactics and strategies of each riparian state are being constrained by what other states will accept and what their own domestic constituencies will ratify. The riparian states are expected to bargain domestically and internationally.

Presently, the similar domestic concerns of each riparian state and the constant state behavior that shapes the international relations among the Middle Eastern countries make bargaining over the Euphrates and the Tigris rivers even more problematic. The strikingly similar domestic concerns of the disputing parties can be described as “the security concerns of each state concerning the ethno-religious groups.” These domestic political concerns of each riparian state can be highlighted as follows:

- Turkey’s efforts to increase the living standards in the southeast region of the country, which have been heavily inhabited by Turkish citizens of Kurdish ethnic origin;

⁵⁴ Robert Putnam, “Diplomacy and Domestic Politics: The Logic of Two Level Games” *International Organization* 42 (Summer 1988) p. 21.

- Concerns of the Syrian government, which have been powered by an Alawi minority, to subjugate the Sunni-Muslims in the country to sustain their loyalty to the regime;

- Saddam's domination of Shi'ite Arabs and Sunni Kurds to consolidate his regime and to increase the possibilities of his survival.

Beside these political issues, the three countries are also facing domestic economic concerns that make the use of the Euphrates and the Tigris rivers imperative. The economic interests which urge the riparian states to use the Euphrates and the Tigris rivers efficiently can be summarized as:

- Turkey is poised on the brink of becoming a major regional economic power and improving the southeastern Anatolia region by using the Euphrates and Tigris rivers. This potentially forms an important cornerstone for the continued development of Turkey's agricultural and industrial base and is also a critical consideration for the country's increasing energy demands.

- Syria has an agriculture-based economy, heavily dependent on the waters of the Euphrates River. The direct link among water, food, and economic expansion is of pivotal importance for the Ba'thist regime in the face of a growing population and the high rate of unemployment.

- Economically, Iraq has been a relatively deprived state over the last two decades because of its eight-year war with Iran and then its invasion of Kuwait, which resulted in the Gulf War. Furthermore, Iraq's economy depends on oil revenues, which the U.N. sanctions in the aftermath of the Gulf War have strained immensely. Agriculture has declined and the need for water has increased dramatically.

After these general overviews of the political and economic concerns of the riparian states regarding their need for the Euphrates and Tigris rivers, the following sections will analyze the domestic concerns of Turkey in detail and elaborate on the Turkish imperatives for harnessing the waters of the two rivers.

A. TURKEY'S WATER RESOURCES

Fresh water resources in Turkey are far from being abundant. As mentioned in the previous chapter, Turkey has only about a five or six percent of the water available in the water-rich regions and most of these resources are unevenly distributed and under-used.⁵⁵ There are a total of 26 major hydrologic basins in Turkey. Twenty two of these basins are river basins and the remaining four are enclosed basins that have no flow to the sea. As can be seen in Table 4, the first two river basins, the Euphrates and the Tigris, contain the largest volume of flow among the rivers of Turkey. These two rivers comprise nearly one-third of the nation's total surface flow: 17 percent from the Euphrates and 11.5 percent from the Tigris.

Turkey's average annual rainfall, which is an important factor in maintaining the flow of the fresh water resources, is 643 mm. About 186 billion cubic meters of this amount end up as surface runoff, 274 billion cubic meters are lost in transpiration and another 69 billion cubic meters of precipitated water feed the underground water aquifers. Another 28 billion cubic meters of the aquifers return to the surface via springs and join the rivers. In addition, 7 billion cubic meters of water comes from neighboring countries. Totally, Turkey's renewable surface water potential is 193 billion cubic meters. (See Table 5.) Naturally, harnessing the entire potential of 193 billion cubic meters is impossible because of technological, topographic, and geologic constraints. Of Turkey's surface-water runoff, an estimated 95 billion cubic meters per year cannot be used beneficially, but 98 billion cubic meters can be used; 95 billion cubic meters of this amount come from internally originated surface water while 3 billion cubic meters come from transboundary waters that originate in neighboring countries and then flow through Turkey. In addition, 12 billion cubic meters of renewable water comes from underground. With this amount, Turkey's total renewable water potential becomes 205 billion cubic meters a year, but only 110 billion cubic meters of this amount can be used economically.⁵⁶

⁵⁵ See Table 2 in Chapter III.

⁵⁶ Pasin Suat and Dogan Altinbilek. *Hydroelectric Energy Potential of Turkey and Current Situation*, (Ankara:State Hydraulic Works Agency 1998) p. 2.

One of the factors that makes the availability of fresh water resources a critical issue in Turkey is volatile weather conditions and the amount of precipitation. In Turkey, the weather changes greatly from region to region. Rain during all four seasons is only common in northern Turkey. In the Mediterranean region the weather is mild and rainy in the winter, but dry and very hot in the summer. In the mid-sections of central, eastern and southeastern Anatolia, which constitute a large portion of Turkey, the weather is usually drier than in other regions. The weather in these regions is very hot and dry in the summer, with relatively less precipitation in the winter. For instance, in Ankara, the capital of Turkey, located in central Anatolia, there is a significant water shortage, especially for agricultural activities, from April until the first week of October.⁵⁷

Table 4. Turkey's Annual Average Potential by Basin⁵⁸

BASIN	Average Annual Flow	Contribution to Total
Firat (Euphrates)	31.61	17.0
Dicle (Tigris)	21.33	11.5
Dogu Karadeniz	14.90	8.0
Dogu Akdeniz	11.07	6.0
Antalya	11.06	5.9
Bati Karadeniz	9.93	5.3
Bati Akdeniz	8.93	4.8
Marmara	8.33	4.5
Seyhan	8.01	4.3
Ceyhan	7.18	3.9
Kizilirmak	6.48	3.5
Sakarya	6.40	3.4
Coruh	6.30	3.4
Yesilirmak	5.80	3.1
Susurluk	5.43	2.9
Aras	4.63	2.5

⁵⁷ CW.Thorntwaite, J.R. Mather and D.B.Carter, *Three Water Balance Maps of Southwest Asia*, (New Jersey: Laboratory of Climatology, 1958)

⁵⁸ Turkish State Hydraulic Works Agency, *Turkey's Hydroelectric Energy Potential and Current Situation* (Ankara:1998)

Konya	4.52	2.4
Buyuk Menderes	3.03	1.6
Vangolu	2.39	1.3
Kuzey Ege	2.09	1.1
Gediz	1.95	1.1
Meric	1.33	0.7
Kucuk Menderes	1.19	0.6
Asi	1.17	0.6
Burdur Goller	0.5	0.3
Akarcay	0.49	0.3
TOTAL	186.05	100.00

As a result of these climatic changes, discrepancies and serious inequalities over the amount of precipitation develop. The average annual precipitation of Turkey is 643 mm, as pointed out, but due to the local seasonal changes, this amount decreases to almost 250 mm in some regions and climbs to 3000 mm in other parts of the country. For instance, while the provinces in the northern Anatolia average approximately 4,043.3 mm precipitation per year, the provinces in the Southeast Anatolia receive only 3.9 mm rain during the summer months of June, July, and August, which are the most important period for agricultural cultivation.⁵⁹ Thus, water shortages emerge as an important problem especially for agriculture in the middle and the southeast areas of Anatolia, and irrigation becomes an inevitable activity to sustain and to increase productivity in these regions.

With a population of 68 million and a usable water potential of 110 billion cubic meters per year, Turkey has an annual amount of water consumption per capita which nearly totals nearly 1,830 cubic meters.⁶⁰ This amount is far below the 10,000 cubic meters average in the water-rich regions and puts Turkey into the category of a water-

⁵⁹ State Hydraulic Works Agency, *Turkey's Hydroelectric Energy Potential and Current Situation* (Ankara:1998) p. 41.

⁶⁰ See Table 2. in Chapter III.

stressed⁶¹ country. Even though agriculture accounts for the bulk of water consumption in Turkey, nearly 32 cubic kilometers, one of the most serious long-term problems facing water planners in Turkey is how to supply enough water resources for the rapidly growing urban populations. As a result of the rapid population growth, industrialization and the rising living standards, fifty-nine percent of Turkey's population lives in cities. According to the 1990 census, the urban population increased 43% from 1985 to 1990. Obviously, the demand for water is growing rapidly in the metropolitan areas of Istanbul, Ankara, Izmir, and along the Aegean and Mediterranean coasts as a result of developing tourism. Since there are not enough fresh water resources near these regions, these cities must be supplied by the rivers farther afield. This requires costly projects which will bring additional burdens to the Turkish economy. ⁶²

In light of the assessments of Turkey's water resources and the high grow rates of population and urbanization, two inescapable consequences emerge: first, it appears unrealistic to classify Turkey as a water-rich country, and second, the Euphrates and the Tigris Rivers are Turkey's major water resources, which must be harnessed for the benefit of the region as well as for the entire country.

⁶¹ In the water related theoretical literature, hydrologists and experts have designated limits for water richness and water shortages, which were designated by. According to these experts, a country must have more than 10,000 billion cubic meters water per capita per year to be rich in water resources. Water supplies from 1,000 to 2,000 billion cubic meters water per person annually make a country water-stressed. When the figure drops below 1,000 cubic meters nations are considered water-scarce. See Serageldin, Ismail, *Toward Sustainable Management of Water Resources*, (The World Bank, 1995)

⁶² Beschorner Natascha, "Water and Instability in the Middle East" *Adelphi Paper 273*, (London: Brassey's for the International Institute for Strategic Studies, 1992) p. 30.

Table 5. Turkey's Water Potential⁶³

Source	Precipitation (mm/m ²)	Average Annual Precipitation (Billionm ³ /y)	Flow (Billionm ³ /y)	Economically Consumable Amount (Billion m ³ /y)
Domestic	643	501	186	95
Off country	-	-	7	3
Underground	-	-	-	12
Total	643	501	193	110

B. TURKEY'S DOMESTIC CONCERNS OVER THE WATER ISSUE

1. Domestic Political Concerns

The domestic political rationale behind the Turkish water policy and its determination about the GAP project has two dimensions that are intrinsically related. The first dimension is national security and the integration of the region to the rest of the country. The second dimension is the political potential that the region offers parties to use the traditional patronage linkages in implementing the project in order to mobilize electoral support for the parties in power. These two dimensions represent a varying degree of preoccupation with domestic political concerns as opposed to strategic international ones. The first dimension is geared toward ensuring a stable and dependable domestic constituency base in strategic international interaction, especially with the neighboring states. The second dimension focuses more directly on the internal political struggle among competing parties. ⁶⁴

The first idea about seeing the water issue as a national security concern derives from the fact that the southeast region has been one of the nation's least developed

⁶³ Pasin Suat and Dogan Altinbilek. *Hydroelectric Energy Potential of Turkey and Current Situation*, (Ankara:State Hydraulic Works Agency 1998) p. 12.

⁶⁴ Ali Carkoglu, Mine Eder, "Domestic Concerns and the Water Conflict over the Euphrates-Tigris River Basin," *Middle Eastern Studies*, (January 2001) p. 7.

regions. Economic and social differences between this region and the rest of Turkey have long existed. For instance, the per capita income in the southeast region accounts for 47 percent of the per capita income of Turkey as a whole.⁶⁵ Unsuccessful economic reforms in the region mostly due to the remoteness of the region from the commerce centers, its harsh landscape and its prevelant climate have caused this backwardness of the southeast provinces. The backwardness of the region became an emphatic topic of national security when the PKK emerged in the early 1980s. The PKK has tried to use the low living standards in the region to justify and to impose its separatist goals directed against the inhabitants and the government facilities in the area. Turkish policymakers became more concerned with security following the continuing Syrian support for the PKK activities in the Turkish provinces. After deliberate calculations, the Turkish government began to modify its policy over the use of the Euphrates and the Tigris rivers to respond to those separatist terrorist activities. The Turkish policy makers also enlarged the scope of the GAP project from a hydroelectric and irrigation project to a regional development program which will eventually eradicate the regional inequality and promote economic growth and social stability in the region. Once the development of the region was perceived as the key to eliminating economic disparities with other parts of the country, the GAP was considered as the solution to the region's threat to national security and integrity. The traditional policy stand of the Turkish state, reflected in strictly hierarchical policy initiatives, has slowly shifted. The shift was first to make the state more responsive to the region. Secondly, a new partnership between the state, the regional and national elites, and local constituencies is designed to develop the region's economic and social potential.

The second dimension of the political rationale behind the GAP project represents the old status quo relationships between the state and local constituencies. The electoral support can be easily mobilized due to the region's peculiar block mobilized voting behavior. During the 1980s and 1990s electoral support has shifted from one party to another in blocks in a quite fragmented manner. According to statistics, the number of villages where 95 percent of the registered voters cast ballots for one party or

⁶⁵ Republic of Turkey, Prime Ministry, *State Planning Organization*. (Ankara: 1990)

independent candidate is quite high in the GAP region.⁶⁶ As a result of this highly volatile political picture and effective mobilization of local constituencies, the political parties cannot afford to ignore the existing political divisions in the region. Given the low Gross National Product, population and human development index values, an investment in the Southeast is more easily translatable to votes when compared with the other regions. That is why all parties are keen to mobilize political support in the region, which explains the unquestioned commitment to the GAP.

2. Domestic Economic Concerns

Two major domestic economic concerns have shaped the Turkish water policy in the basin. The first of these pillars perceives the water resources as a source for irrigation. The second concern views the water resources as a means for cheaper and domestically produced energy.

Agricultural development has been a Turkish government priority since the establishment of the Turkish Republic in 1923. Despite the rapid industrialization in the 1980s, agriculture maintains its importance in the overall picture of the Turkish economy. Turkey is one of the relatively few countries in the world that is self-sufficient in food production and is a leading regional exporter of fruit and vegetables to the Middle East and Europe.⁶⁷ Agriculture accounts for less than 18.5 percent of the gross domestic product (GDP) and provides more than 50 percent of the nation's employment. Agricultural products comprise most of the raw materials for industry and 15 percent of the exports. The agricultural sector in Turkey became more modernized, and structural reforms of the agricultural sector have been implemented during the last two decades. Together with these developments, the importance of agricultural irrigation increased. The importance of irrigational water derives from the fact that Turkish agriculture, especially cereal production, is heavily dependent on seasonal rainfall. While there are about 8.5 million hectares of land under potential perennial irrigation, only about half of

⁶⁶ Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 150.

⁶⁷ Beschoner Natascha, "Water and Instability in the Middle East" *Adelphi Paper 273*, (London: Brassey's for the International Institute for Strategic Studies, 1992) p. 30.

this area, 4.5 million hectares, has been equipped with requisite irrigation infrastructure.⁶⁸ Since the expansion of irrigated lands helps improve production, creates rural employment and alleviates migration from rural to urban areas, successive governments maintained fresh water for the agricultural lands with the utmost care. Toward this end, the GAP Project was initiated in the 1970s, and the irrigational infrastructure was also renewed in other parts of the country.

Another economic motive in the Turkish water policy has been the attraction of hydroelectric energy owing to Turkey's increasing energy demands. Although Turkey is relatively well endowed with energy and mineral resources, the exploitation of these natural resources has occurred slowly. As a result of this slow process, Turkey has emerged as an energy poor country. In the 1960s, Turkey was importing 50 % of its annual energy requirements and 25 % of the electricity production was dependent on imported fuel. The demand for electricity began to exceed supply and by the late 1970s the power gap began to constrain industry. The combined demands of industrialization and urbanization nearly tripled energy consumption in the 1980s and Turkey had to import electricity from Bulgaria and the Soviet Union to meet its power needs.⁶⁹

The Turkish government has tried a number of strategies to meet these energy crises. The petroleum industry is one of the options to alleviate the energy needs of the country. In 1983, to accelerate the exploration process, Turkey eased regulations on the activities of foreign oil companies within the country and allowed them to export 35 percent of the production from fields they discovered in the Anatolia mainland and 45 percent from offshore fields.⁷⁰ Most of the country's oil fields, however, are contained in small pockets because of the country's fractured substrata. The exploration and extraction proved very difficult and until the mid 1990s no major finds had been reported.

The coal industry, as a second choice for covering the energy deficit, has followed a somewhat similar history. The idea of using coal and lignite as source of hydrocarbons

⁶⁸ CIA Fact Book, *Country Profile –Turkey*, 1998

⁶⁹ Beschoner Natascha, "Water and Instability in the Middle East" *Adelphi Paper 273*, (London: Brassey's for the International Institute for Strategic Studies, 1992) p. 32.

⁷⁰ *Turkey: A Country Study*, (Washington D.C.: U.S. Government Printing Office, 1995)

in thermal plants attracted the policy makers in the early 1970s. Initially, the production of hard coal grew rapidly from an average of about 7.9 million tons from 1970 to 1975 to more than 31 million tons in 1985.⁷¹ But later on, because of the great depth of the country's deposits, the coal production was hampered and Turkey began to import coal for use in power plants. In addition to the thermal power plants, the successive Turkish governments have also considered the possibility of using nuclear power to produce energy. As many as six nuclear generating plants have been planned, but because of the high costs and unfamiliar technology of nuclear power production, these efforts did not promise quick solutions to the nation's energy problems.

Following the failure to cure its chronic energy shortages, Turkey has found itself as a petroleum poor country experiencing rapid development and a growing need for energy. Given the country's geographical situation, which has endowed it with rainfall and mountain catchment areas and a good hydropower potential, Turkish policy makers focused on the hydroelectrical resources with the aim of developing them immediately. In this regard, the projects were initiated and dams, hydroelectric power plants, and other water related facilities were built to produce energy all around the country. The most important of these projects is the GAP project on the Euphrates and the Tigris Rivers and their tributaries. At full development, the total contribution of the GAP project to the overall energy potential of the country is estimated to be an annual 27 billion kilo-Watt hours of electricity with an installed capacity over 7,500 MW. This annual electricity generation corresponds to 22% of the country's economically viable hydropower potential of 118 billion kWh.

By June 15, 1998, the Ataturk and Karakaya dams, the most important elements of the GAP, had generated almost 135 billion kWh energy in total. So far the energy generated by these two dams equals a monetary value of eight billion US dollars. To put this amount in terms of alternative sources, it equals the importation of 33 million tons of fuel oil or 25.5 billion cubic meters of natural gas.⁷² This production of hydroelectric

⁷¹ Organization of Economic Co-operation and Development, *Economic Surveys: Turkey* (Paris: 1994)

⁷² Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 149.

energy and the economic returns in this area have spurred the Turkish government to implement hydropower projects under all circumstances.

C. THE GAP PROJECT AND ITS VISION

The GAP is a large-scale, multi-sectoral regional development project with major implications for the region. It is one of the largest river basin development projects in the world and the largest of its kind ever undertaken by Turkey. The idea for the project began around 1963 as part of the regular five-year national development planning, but the actual planning for the project began in 1970. In 1977, the government decided to unite both projects under the title of the "Southeast Anatolia Project." In 1986 The State Planning Organization was authorized to integrate the Southeast Anatolia Region with regional planning and to ensure coordination and steering of continuing activities.⁷³

The GAP project consists of 13 major irrigation and hydropower plans on both the Euphrates and Tigris rivers, seven in the lower Euphrates sub-basin and six in the Tigris sub-basin. The project was intended to be implemented in the southeast region of Turkey covering nine Turkish provinces. The project area is about 75, 358 square kilometers that includes 41 percent of the total watershed of the Tigris and Euphrates rivers within Turkey, and corresponds to about 9.7 percent of the country's total area. The area has approximately 6.2 million inhabitants, nearly ten percent of Turkey's population.⁷⁴ The project envisages the construction of 22 dams and 19 hydroelectric power plants on the Euphrates and Tigris rivers and their tributaries. A full development, over 1.7 million hectares (6,600 miles) of land will be irrigated and 27 billion kilowatt-hours of electricity will be generated annually with an installed capacity of over 7,500 mega-watts. The area to be irrigated accounts for 19% of the economically irrigable area in Turkey (8.5 million hectares), and the annual electricity generation accounts for 22% of the country's economically viable hydropower potential (118 billion kilowatt-hours).

⁷³ Republic of Turkey, *GAP Master Plan Study* (Ankara: Prime Ministry, April 1989)

⁷⁴ Republic of Turkey, GAP Regional Development Administration, *GAP Industrialization Strategy*, (Ankara: 1997)

When completed, twenty-two dams, nineteen hydropower plants, and many irrigation projects are expected to make the area one of the leading economic regions in Turkey.⁷⁵

From the beginning, the project was planned by the State Hydraulic Works primarily for irrigation and hydropower generation. But later, in the mid 1980s, with the increasing uneasiness of the population living in the region, the Turkish government transformed the GAP from a hydroelectric and irrigation project to a comprehensive regional development program, including plans for developing agriculture, industry, social infrastructure, transportation, education, and health. This new policy aims not only to use the water resources better, but to also address the fundamental socio-economic inequalities and poverty in the region. Thus, the modern vision of the GAP project transcends than just dams and irrigation ditches. Furthermore, this vision symbolizes hope for the future for both the indigenous population of the region and the country as a whole.

1. Objectives of the GAP Project

The GAP project has short-term as well as long-term objectives. Some of these objectives will not be achieved for another 50 years. When the objectives intended by the GAP project are analyzed, it becomes apparent that the project is rich with promises for the region and the population. The main objectives of the GAP project as a regional development idea are as follows:⁷⁶

- To develop all the land and water resources in the region in order to revive regional economies;
- To increase employment by accelerating land development and expanding agriculture;

⁷⁵ Olcay Unver and Bruno Voron, "The Southeastern Anatolia Project-GAP" *Water International* 18 (1993), p. 158.

⁷⁶ Republic of Turkey, GAP Regional Development Administration, *GAP Industrialization Strategy*, (Ankara: 1997)

- To alleviate the disparity between the Southeastern Anatolia Region and other regions by increasing production and welfare levels;
- To complete the infrastructure projects in major cities to improve the quality of life and to attract industry and investment;
- To organize the economic and physical infrastructure in rural areas by using the resources in the most useful ways and to direct urban growth in desired directions;
- To improve education and public health facilities and services;
- To improve highways from east to west, and airport development
- To contribute to the national objectives of sustained economic growth and export promotion by using the region's resources.

Beyond all of these mid-term and long-term objectives, it is noteworthy that the project may eventually improve the social and economic uneasiness of the Turkish citizens of the Kurdish ethnic origin living in the region. The persisting armed conflict with the Kurdish separatist terrorist organization PKK is commonly related to the socioeconomic backwardness of the region. Increased flow of government funding to the region and the overall economic development of southeastern Anatolia have increasingly become a part of the Turkish government's policy in order to integrate the region's alienated population. The Turkish government and the people of the southeastern Anatolia expect that the prosperity associated with the GAP project will undermine the separatist PKK activity.

With all these objectives to be achieved, the GAP project consumes 6.9 percent of the national budget with \$1.5 million being spent on the project daily.⁷⁷ Since the project is financed internally without assistance from international financial organizations or the World Bank, Turkey must raise much of the funding and naturally this causes difficulties

⁷⁷ John F. Kollars and William A. Mitchell, *The Euphrates River and the Southeast Anatolia Project*

in Turkey's financial planning. For example, the high rate of inflation that the country endures has been attributed to the GAP. Moreover, the delays that the GAP has suffered are mainly due to financial constraints. Although the limits on financial support delays the completion of the project, this self-sufficiency has led to a heightened sense of national pride, a focus on industrializing the nation, significant influence in the region, and a great degree of independence in fulfilling the project.

General disappointments with the GAP project are related with its agricultural and irrigation potential. Although 74.3 percent of the total investment in the energy sector within GAP had been completed by June 1999, only 12.2 percent of its agricultural component was completed. Furthermore, despite attempts for crops diversification, most of the increase in agricultural development has actually relied on cotton production. Secondly, despite the GAP's remarkable achievements in popular projects, such as the increase in the number of schools, hospitals, and the speed of electrification, the GAP project has significantly lagged behind in terms of improving the overall living standards. The overall economic structure in the region has remained largely unchanged and the per capita income is still about 53 percent the national average. The industrial employment accounts for only 5 percent of the total population, well below the national average of 16 percent. Only five of 15 organized industrial zones and 18 of the small industrial estates are active in the region.⁷⁸

D. TURKEY'S REGIONAL WATER POLICY AND ITS IMPLICATIONS

Turkey is not a water-rich country and is heavily dependent on the Euphrates and the Tigris rivers for the above-mentioned irrigational and hydroelectrical purposes. However, Turkey has demonstrated its eagerness to find ways of reaching a basis for cooperating with Syria and Iraq to use the Euphrates and Tigris Rivers fairly. Along this line, Turkey has conveyed the necessary data pertaining to its planned water strategy on

(Illinois: Illinois University Press, 1991) p. 260

⁷⁸ Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin's Press, 1997) p. 137

the Euphrates and Tigris to Syria and Iraq during Joint Technical Committee meetings which were held among the three countries. The main Turkish argument has been that the dependency of the downstream states on the Euphrates and Tigris rivers has not caused Turkey to use them irrationally or unreasonably or at the cost of neighboring countries. The Turkish government has repeatedly announced that Turkey has never had the intention of using its upstream position as political leverage against the Arab states as those countries feared or assumed. Quite to the contrary, these dam-building facilities within the GAP project were imperative for Turkey because of its domestic political and economic concerns.

After beginning these projects, Turkey has always sought convincing, sustainable formulas to satisfy not only the short-term objectives of the riparian states but also the demands of its neighbors in the long run. In this regard, Turkey proposed the “Peace Pipeline,” as it is popularly known, in the early 1987. As then visualized, one pipeline would carry surplus water from the two Turkish rivers, the Seyhan and the Ceyhan, through Syria and Jordan to such faraway places as Mecca and Medina in Saudi Arabia. And another pipeline would take water from the Tigris through Iraq and Kuwait to the Persian Gulf countries, including the United Arab Emirates. But the Arab states did not seriously consider this offer from Turkey because of the mutual distrust among the countries through which the pipeline was supposed to pass, and because of the estimated high costs of the project.⁷⁹

Most Arab states thought that this kind of dependence on Turkey about the water issue would increase Turkey’s influence in the region. Yet Turkey is still willing to export some of its water to neighboring countries to relieve their shortages. The main water resources that can be used for this purpose are in the southern basins of Turkey. The Southern basins of Turkey (East Mediterranean, Antalya, West Mediterranean, Seyhan and Ceyhan) contribute almost 25 percent of Turkey's total renewable water potential. Several dams are operating on these rivers and several others are under construction, but some of the water still flows wastefully to the Mediterranean Sea. This

⁷⁹ Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 143.

water, which flows freely to the sea, can partially alleviate the water shortages in the Middle East and Turkey. Several proposals to use the water are under consideration. One of the best known projects is the Manavgat Water Supply Project. This project and the others proposals have been devised to alleviate water shortages in some parts of Turkey and the Middle East.⁸⁰

More evidence of Turkish cooperation is Turkey's "Three-Staged Plan." This plan was an effort to reach an accord on water. Turkey has developed this three-stage plan for the optimum, equitable, and reasonable use of the waters of the Euphrates and the Tigris rivers. The history of the Three-Staged Plan goes back to 1960s. It was formulated by engineers in the State Hydraulic Works (DSI) of Turkey. Experts have revised and improved this plan to conform to the principles designed for the transboundary waterways by the International Law Commission of the United Nations. The plan was first submitted to the Tripartite Technical Committee following meetings of Turkey, Syria and Iraq in 1984. By offering this plan, Turkey has also extended its environmentally acceptable, sustainable approach to the basin-wide use of the Euphrates and the Tigris rivers. Turkey has reiterated its proposal during the following meetings of the Joint Technical Committee, at the tripartite meeting at the ministerial level on 26 June 1990, and the bilateral talks with Syria and Iraq in 1993. Unfortunately, as yet, Syria and Iraq have not responded to this plan positively.

Turkey's plan is essentially based on two principles: The first principle is related with the Turkish claim about the legal status of the Euphrates and the Tigris rivers. According to the Turkish argument, these two rivers are transboundary waters. This rejects the co-sovereignty claim by the downstream riparians. The transboundary character of these rivers has been recognized by the riparian states since the 1920s because no essential navigation concerns exist. Recognition of the transboundary character is contained in a series of bilateral and multilateral agreements: the 1921 Ankara Agreement, the 1923 Treaty of Lausanne, the 1939 Ankara Agreement, and the 1946 Ankara Agreement. Since 1980, the Agreed Minutes of the Joint Committee for

⁸⁰ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 156.

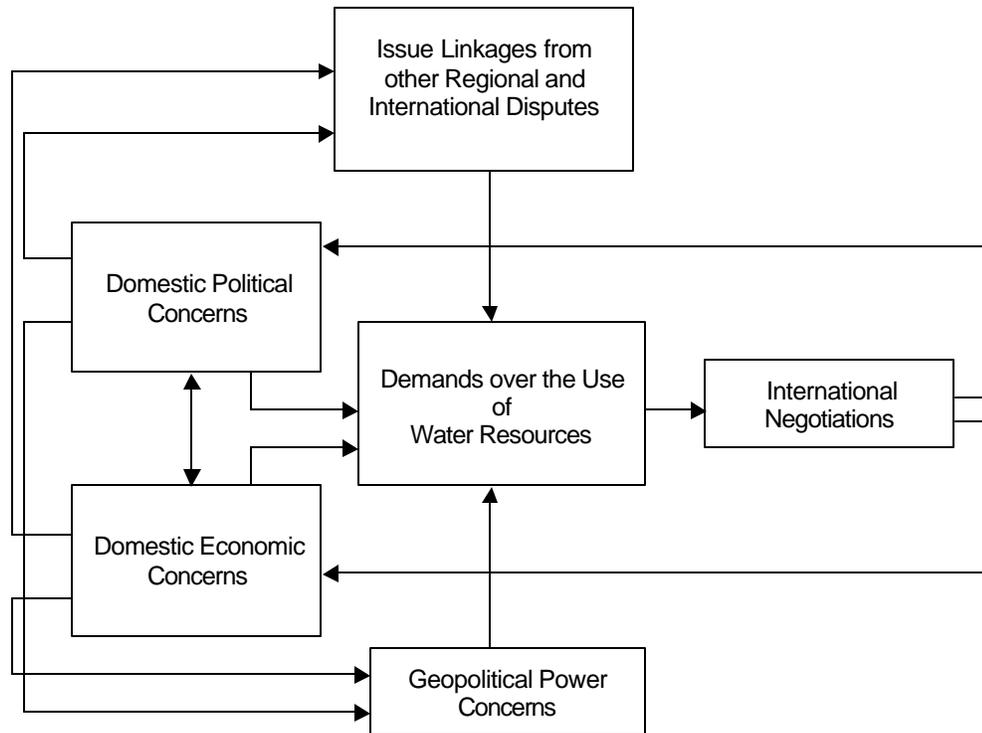
Economic and Technical Cooperation have accepted that the Tigris and Euphrates are “regional waters.” Therefore the three countries need to work together on preparing and an assessing a common inventory of water and land resources in the basin. The reason for this is that the methods of collecting and interpreting data vary considerably and a unified method must be applied when working on a transboundary watercourse.

In the second principle of the Turkish plan, the idea of viewing the Euphrates and Tigris rivers as a single transboundary river system is proposed. Over this issue, Turkey has based its argument on two facts. First, these two rivers join at Shatt al-Arab and empty into the Gulf as a single river. Second, in Iraq they are artificially joined through the Tharthar Canal, so some of the Iraqi land irrigated from the Euphrates can be irrigated by means of waters from the Tigris. Keeping these facts in mind, the Turkish government suggests that any treaty that will set the conditions for a satisfactory use of the fresh water resources in the basin should evaluate the water potentials of the two rivers together and should regulate the bases accordingly.

Following these principles, the Turkish plan consists of inventorying and evaluating land and water resources in three stages. In the first stage, inventory studies for water resources are planned. These studies will cover activities, such as exchanging all the available data pertaining to the levels and discharges at the selected gauging stations on the Euphrates and the Tigris rivers. The second stage includes the inventory studies for land resources. In this step the riparian states are supposed to share the information concerning soil classification methods and drainage criteria used and practiced in each country. The last stage suggests the evaluation of water and land resources, depending on the data that are obtained in the two previous stages. The aim of this is to discuss and to determine the irrigation type and system for the planned projects in order to minimize water losses and to investigate the possibilities of modernizing and rehabilitating the projects in operation.⁸¹

⁸¹ Republic of Turkey, Ministry of Foreign Affairs. *Water Issues between Turkey, Syria and Iraq*, (Ankara:1995) pp. 35-38.

Figure 2. The Dynamic Relations between the Domestic Concerns and International Relations over the Water Issue ⁸²



⁸² Ali Carkoglu, Mine Eder, "Domestic Concerns and the Water Conflict over the Euphrates-Tigris River Basin," *Middle Eastern Studies*, (January 2001) p. 10.

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V. SYRIA'S NEED FOR WATER

A. HYDROGRAPHY OF SYRIA

1. Climate and Water Resources

Water is a scarce resource in Syria as it is throughout the Middle East. More than half of the Syrian territories are desert with less than 250 mm of rainfall per year. The most important characteristic of the climate prevalent in Syria is the contrast of sea and desert conditions. As a consequence of this contrast, there are mainly three types of regions with different climates in Syria. The first one is the narrow coastal plain that stretches south from the Turkish border to Lebanon. Rainfall in this area is abundant with an annual precipitation that ranges between seventy-five and one hundred centimeters. The second region is the semiarid steppe zone that lies between the humid Mediterranean coast and the arid desert regions. This area, located in the eastern part of the mountains of Jabal an Nusayriyah in the north and Anti-Lebanon in the south in Lebanon, is like a transition zone between the humid Mediterranean climate and the dry desert climate. Since the high ridges of the Jabal an Nusayriyah catch most of the rains from the Mediterranean, these areas have relatively arid zones with dry winds and scanty rainfall. Along the same parallel, the Anti-Lebanon Mountains in the south bar the rains that come from the Mediterranean and the area including the capital city of Damascus becomes part of the semiarid climatic zone of the steppe with precipitation averages less than 20 centimeters a year. The third region, which covers nearly more than half of the Syrian territories, are the desert areas with low humidity and annual precipitation of less than ten centimeters.⁸³

Under these climatic conditions, the country's fresh water resources are of vital importance to the domestic consumption, irrigation and industrial purposes. There are 16 main rivers and tributaries in the country, six of which are main international rivers:

⁸³ Thomas Collelo (ed.), *Syria, A Country Study, Area Handbook Series*, (Washington, Library of Congress, 1998) p. 57.

- The Euphrates (al-Furat in Arabic) is the largest river in Syria. It comes from Turkey and flows to Iraq.
- The Afrin River in the northwestern part of the country. It comes from Turkey, crosses Syria and flows back to Turkey;
- The Orontes (al-Assi in Arabic) in the western part of the country. It comes from Lebanon and flows into Turkey;
- The Yarmouk in the southwestern part of the country. It receives small tributaries Syria and Jordan and forms the border between these two countries before flowing into the Jordan river;
- The al-Kabir River with sources in Syria and Lebanon. It forms the border between Syria and Lebanon before flowing to the sea.
- The Tigris, which forms the border between Syria and Turkey in the north-eastern part.

Among these rivers, Syria is mainly dependent on the Euphrates and to a smaller extent on the Tigris, Orontes, and Yarmouk rivers. The Euphrates' water accounts for as much as 86 per cent of the water available to the country. Syria's major irrigational potential lies in the Euphrates River valley and its two major tributaries, the Balikh and Khabur rivers in the northeastern portion of the country. This fertile region watered by the tributaries of the Euphrates River, is called as Jazirah. The area underwent irrigation improvements during the 1960s and 1970s, and it provides substantial cereal and cotton crops. The right bank tributaries of the Euphrates, however, are small seasonal streams with little contribution to the irrigation potential of the country.⁸⁴

Although figures for water resources are very difficult to obtain due to the lack of reliable data, the natural average surface runoff to Syria from international rivers is estimated at 28.73 km³/year. The water resources generated from rain falling within the country amount to 7 km³/year. Groundwater recharge is about 4.2 km³/year, of which 2

⁸⁴ Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 100.

km³/year discharges into rivers as spring water. Total groundwater inflow has been estimated at 1.35 km³/year, of which 1.2 km³ comes from Turkey and 0.15 km³ comes from Lebanon.⁸⁵

2. Dams and Lakes

There are 141 dams in Syria with a total storage capacity of 15.8 km³. The largest dam is located at Al-Tabqa on the Euphrates. It forms the Al-Assad Lake with a storage capacity of 11.2 km³. Medium-sized dams include the Al-Rastan (225 million m³), the Mouhardeh (50 million m³) and the Taldo (15.5 million m³) dams. There are some 20 dams classified as small, the largest of which is the Dara'a, with a storage capacity of 15 million m³. The majority of these dams are located near Homs and Hama. Apart from the Al-Assad Lake, there are five lakes in Syria, the largest of which is the lake Jabboul near Aleppo with a surface area of about 239 km². Lake Qattineh near Homs is the main perennial lake in Syria.⁸⁶

B. DOMESTIC CONCERNS OF SYRIA OVER WATER

1. Domestic Political Concerns

To get a clearer view of the domestic political concerns of Syria over the water issue, first, it is useful to understand how Syrian government perceives the fresh water resources in the country. And then, it is necessary to make the distinction if the government recognizes the fresh water resources as any of the natural resources or if the water issue has some links to other concerns on which the regime cannot.

Generally, the water resources are directly related to food security. This link, between the fresh water and the food security, is more vulnerable in the Middle East due to aridity of the region. Because of the scanty rainfalls, the fresh water resources are the only way by which the countries can supply their agricultural facilities. In the politically

⁸⁵ Miriam Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*, (Cambridge, Cambridge University Press, 1993) p. 56.

⁸⁶ Ian J. Seccombe, *Syria*, (California: Clio Press, 1987) p. 34.

turbulent atmosphere of the Middle East, the relations are based on power politics and feeling of distrust is prevalent among the states. Under these circumstances, Syria wants to be self-sufficient in all aspects in order to realize its hegemonic aims in the region. For example, none of the Arab states, including Syria wants to be dependent on Turkey for food supply and water flow. They don't want Turkey to have an advantage in water issue fearing that Turkey may use this advantageous position as a political weapon in the region.

In this struggle of self-sufficiency, the Syrian government views the fresh water resources as one of the most important strategic assets. By using the water resources efficiently, the regime hopes to be able to maintain the food security and consequently to dominate the politics in the region and lead the Arab World while establishing the Greater Syria.⁸⁷ Based on this argument, the Syrian regime has viewed the use of water resources in the country as directly linked to its national security concern and has aspired to maintain and to use these resources at the maximum level.

In light of these clarifications about the Syrian government's perceptions of the water issue, Syria's political concerns regarding the Euphrates and the Tigris rivers can be explained as two interrelated paths. The first path is the governmental structure of Syria in which the functions of the elite, the regime, and the state overlap to the point of being indistinguishable. In this ambiguous structure of government, any challenges to the elite dominance are perceived as a threat to national security or vice versa. As mentioned above, the Syrian regime recognizes the water issue as a national security concern. According to the Syrian government, any failure in getting the maximum benefit from the water issue would endanger the national security of Syria. And if the national security of the state of Syria is jeopardized, the very existence of the regime itself will also be in danger. So, in order to secure its own position in the country and to defend the national security of Syria, the Syrian government doesn't want to compromise and insists on a permanent solution to the water problem.

⁸⁷ Murhaf Jouejati, "Water Politics as High Politics: The Case of Turkey and Syria" in Henri J. Barkey (ed.), *Reluctant Neighbor: Turkey's Role in the Middle East* (Washington: United States Institute of Peace Press, 1996) p. 131.

The second dimension of the Syrian domestic political reasons for its water policy derives from the ethnic and sectarian concerns of Syria. Syria has ethnic and religious minorities. An estimated 85 percent of the population adheres to some form of Islam. About 13 to 15 percent of Muslims are Alawis. Less than 1 percent of Muslims are Shias and the remainders are Sunnis. About 10 percent of the population observes some form of Christianity, and about 3 percent is Druzes. There are also small numbers of Jews and Yazidis.⁸⁸ Meanwhile, the ethnic structure of the Syrian society is as colorful as the religious structure. The Arabs constitute nearly 90 percent of the population. The Kurds are the largest ethnic minority with an estimated 9 percentage. After the Kurds, the Armenians are the second largest minority but with a relatively smaller percentage. In addition to those, there are also small groups of Turkomans, Circassians, Assyrians, and Jews in Syria.⁸⁹

Within these ethnic and religious groups, the consciousness of a Syrian nationality is not well developed. Among both Arabs and minority groups, primary the individual loyalty is to the local ethnic or religious community rather than the government itself. This extreme and lack of general coherence has led the government to attempt different methods to form the basis of Syrian nationality. For example, the government has tried the Arabitization of the population by addressing the Syrians as “descendants of Umayyads,” “Arab citizens,” or “brother Arabs.” No official record has been kept that shows the ethnic groups. In official affairs, the Syrian government has used the religious identities of the groups rather than the ethnic identities.⁹⁰

This effort of forming a Syrian nationality, or at least keeping those different cultures together under the name of the state of Syria, has become a more difficult task because the Syrian regime itself is Alawi dominated. Since the Alawis are religiously in a minor position in Syria, this domination of Alewis of the Syrian government has not been welcomed especially by the Sunni Muslims, who constitute the religious majority in the country as mentioned above, and also by the other minorities since the 1970s. To neutralize the dissatisfaction of the other ethnic and religious groups and to keep their

⁸⁸ Thomas Collelo (ed.), p. 58.

⁸⁹ Thomas Collelo (ed.), p. 67.

⁹⁰ Thomas Collelo (ed.), p. 64.

loyalties to the regime, the Syrian government has struggled to satisfy the demands of those groups, in all aspects including social and economic life. In social life, the other groups are given high positions in the regime's power structure. For example, Prime Minister Abd ar Rauf al Kasim and Armed Forces Chief of Staff Hikmat Shibabi were only a few of the Sunni Muslims with important offices in the Syrian government in 1987.⁹¹

In economic life, the satisfaction of those groups has been directly related with the water resources of the country. Since the Syrian economy mostly depends on agriculture, any failure in maintaining the flow of the Euphrates and to a lesser extent the Tigris River may deteriorate of the living standards of those groups. Especially the Sunni Muslims, the Assyrians, the Circassians, and the Armenians living along the Euphrates River in the northeastern part of the country may be deprived of their agricultural livelihood on which they depend heavily. Because of these delicate positions of ethnic and religious groups and their economic reliance on the fresh water resources, the Syrian regime has always tried to get the maximum share from the Euphrates and the Tigris rivers, and it has insisted on a permanent solution and a guarantee of a continuous flow to sustain the economic well-being and thus the loyalties of those groups to the government.

2. Domestic Economic Concerns

The Syrian economic concerns along the Euphrates and Tigris rivers are more or less the same as Turkey's concerns. The first of those concerns is the Syrian need for water in agriculture. Since agriculture is still the main economic activity and a major source of income, foreign exchange and labor in Syria, the economic development of the country greatly depends on the waters of the Euphrates and the Tigris rivers. The irrigated area by the Euphrates produces over 50% of the total value of agricultural production on about 18.6% of the cultivated land. The al-Jazira region surrounding the Euphrates River was sparsely populated until the end of World War II. But with the Syrian government's dam building facilities beginning in the 1960s, the area is now home

⁹¹ Thomas Collelo (ed.), p. 206.

to about one-fifth of the Syrian population, which was attracted by the employment opportunities and wealth generated by the introduction of farming and the expansion of agriculture in the region.⁹² With a population growth rate of 3.4 per cent per annum,⁹³ which is one of the highest rates in the world, this potential of employment and accommodation provided by the Euphrates River is significantly important for Syria.

The second area of Syrian need for the Euphrates and the Tigris rivers is the hydroelectric potential of these rivers. As a first energy source, Syria has oil. With the discovery of oil in the Qarah Shuk region in Syria in 1956 by an American oil company,⁹⁴ the Syrian government began to use these oil reserves both economically and as a primary source of energy. Especially in the 1970s and 1980s, following the boom of oil prices in 1973, petroleum played a vital role in Syria's economy generating much needed foreign exchange and in meeting the country's increasing energy demands. With those oil revenues, the Syrian government built new dams, increased the generating capacity of the hydroelectric power plants and expanded the electricity production from 3.7 billion kilowatt-hours in 1980, to 7.3 billion kilowatt-hours in 1984 and 7.6 kilowatt-hours in 1985. During this period, Syria even exported electricity to Lebanon and Jordan.⁹⁵

Although the electric power industry was one of the fastest growing sectors of the economy in the early 1980s, this did not last long and by 1985, electricity consumption outstripped production, forcing power cutbacks of four hours a day throughout the country.⁹⁶ The expansion of electric power distribution in a remarkably short time precipitated those electricity crises. As a result of this rapid growth of electric supply,

⁹² Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington: United States Institute of Peace Press, 1999) p. 131.

⁹³ Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 99.

⁹⁴ Volker Perthes, *The Political Economy of Syria under Assad*, p. 22.

⁹⁵ Thomas Collelo (ed.), p. 153.

⁹⁶ Firro Kais, "The Syrian Economy under the Assad Regime" in Moshe Ma'oz and Avner Yaniv (eds.), *Syria under Assad*, (New York: St. Martin Press, 1986) pp. 36-68

sectoral mismanagements occurred and technical impediments together with the drought years, which caused the declining water levels in dams, resulted in the shortage of electricity all around the country.

In the face of those electric crises, the Ministry of Electricity implemented new projects to meet the growing demand for energy. It planned extensions of existing power stations to expand production. The Baniyas station, completed in 1981 for US\$ 140 million, anticipated a two-turbine, 165-megawatt extension in the late 1980s. The Suwaydiyah power station also expected to benefit from a 150-megawatt extension and four new turbines. At the Muhradah power station, located west of Hamah and completed in 1979, a major extension of totaling US\$ 195 million and financed largely by the Persian Gulf development agencies was planned. The US\$ 97 million Soviet-assisted Tishrin power plant and another station near Homs were the other projects of the Syrian government in the mid-1980s.⁹⁷ In addition to those extensions of power plant capacities, the government also considered constructing a nuclear power plant with Soviet assistance. In the mid-1983, Syria signed a protocol with the Soviet Union to conduct feasibility studies and select an appropriate location for the country's first reactor.⁹⁸ Although nuclear energy promised a solution to Syria's pressing electric shortage, the project had advanced little beyond the design stage by the mid-1980s. The reasons for this reluctance over developing the nuclear energy were formidable, especially in the wake of Israel's bombing of Iraq's nuclear reactor in 1981. As nuclear power became a more costly alternative energy source in the context of volatile Middle East politics, the Syrian regime again directed its efforts toward the hydroelectric power plants and their enhancement.

In this second round, the Syrian regime has again tried to increase the capacity of the power generating units of the dams. Since droughts are not uncommon in Syria, and these dams are purposed not only for generating electricity but also for supplying

⁹⁷ Syria, Office of Prime Minister, *Statistical Abstract*, No: 39 (Damascus: Central Bureau of Statistics, 1986) p. 21.

⁹⁸ Thomas Collelo (ed.), p. 123.

irrigation water, these efforts of increasing electricity production fell far short of satisfying the demands. For instance, the Energy Ministry's plans for the 1989-95 period projected a production increase to 2,970 megawatts to meet an anticipated demand ranging from 1,800 to 2,400 megawatts. But this theoretical excess production would barely meet the accumulated shortages of the mid-1980s. Electricity shortages, blackouts, and power cuts have remained a prominent feature of Syrian life during the 1990s. Since these sufferings in electricity have frustrated industrial development and have impeded economic growth in Syria, the Ba'th regime increasingly continued emphasizing the fresh water resources of the country especially on the Euphrates River, and insisted on maintaining high volumes in the Euphrates that would enable the dams and power plants to operate at maximum capacity. Thus, by putting the Euphrates River in the first priority in its political agenda, the Syrian government has planned to lessen the electric shortages and recover the economy and industry from a standstill.

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VI. IRAQI CONCERNS OVER THE EUPHRATES AND TIGRIS RIVERS

A. HYDROGRAPHY OF IRAQ

1. Climate and Water Resources

Topographically Iraq is shaped like a basin, consisting of the Great Mesopotamian alluvial plain of the Tigris and the Euphrates rivers. When compared with the other states in the region, Iraq has more fresh water resources than most of the Middle Eastern countries. Beginning with the ancient Sumerians, the civilizations living in these fertile lands developed complex irrigation systems by using the abundant water supply in the area. But, as a result of the neglect and bad management of the irrigation networks and the environmental degradation, this water potential of Iraq has deteriorated and the waters of the Euphrates and Tigris have gained much more importance than ever for the Iraqi government both economically and politically.

The prevalent climate in Iraq is mainly subtropical and semi-arid. Rainfall is very seasonal and roughly 90 percent of the annual rainfall occurs between November and April, most of it in the winter months from December through March. Except in the north and northeastern parts of the country, the mean annual rainfall ranges between ten and seventeen centimeters. Rainfall in the mountains is more abundant and may reach 100 centimeters a year in some places. However, cultivation in these areas is limited essentially to the mountain valleys, foothills, and steppes, which have thirty or more centimeters of rainfall annually. Minimum temperatures in the winter range from near freezing in the northern parts to 2 °C in the western desert and to 4 °C in the alluvial plains of southern Iraq. Summers are dry and extremely hot with a shade temperature of over 43°C during July and August, yet dropping at night to 26°C. The combination of rain shortage and extreme heat makes much of Iraq a desert. Because of these high temperatures and as corollary very high rates of evaporation, soil and plants rapidly lose

the little moisture obtained from the rain, and vegetation could not survive without extensive irrigation.⁹⁹

In Iraq, there are mainly three river basins. These are the Euphrates, the Tigris, and the Shatt Al-Arab. The Shatt Al-Arab is the river formed by the confluence downstream of the Euphrates and the Tigris rivers and flows into the Persian Gulf after a course of 190 km.¹⁰⁰ However, the distribution of these three river basins is not equal in the overall geography of Iraq. In general, the water potential of Iraq can be divided into four different regions. The first region is the desert in the western and southwestern parts of the country. In this area, there are small watercourses that are dry most of the year. The second zone is the rolling upland region between the upper Euphrates and Tigris rivers. Water in this area flows in deeply cut valleys, and irrigation is much more difficult than it is in the lower plain. Much of this zone may be classified as desert. The third region is the highlands in the north and in the northeast. The rainfall is adequate in this region for agriculture, but because of the high ranging mountains, the agriculture is possible only in a few valleys. The fourth zone is the central and southeastern alluvial plain through which the Euphrates and the Tigris flow. This whole area is a delta interlaced by the channels of the two rivers and by irrigation canals. The area is marshland above the point where the two rivers meet at Al-Qurnah. In this area it is also possible to see intermittent lakes, which are fed by the rivers in flood seasons.¹⁰¹

As mentioned in the previous chapters, both the Euphrates and the Tigris are international rivers originating in Turkey. The Tigris river basin in Iraq has a total area of 253,000 km², which corresponds to 54% of the total river basin area. The average annual flow of the Euphrates as it enters Iraq is estimated at 30 km³, with a fluctuating annual value ranging from 10 to 40 km³. Unlike the Tigris, the Euphrates receives no tributaries during its passage in Iraq. About 10 km³ per year are drained into the Hawr al Hammar

⁹⁹ Helen Chapin Metz, *Iraq: A Country Study*, (Washington, Library of Congress, 1990) p. 77.

¹⁰⁰ Daniel Hillel, *Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East* (New York: Oxford University Press, 1994) p. 99.

¹⁰¹ Helen Chapin Metz, *Iraq: A Country Study*, (Washington, Library of Congress, 1990) p. 71.

marshes in the south of the country. For the Tigris, the average annual runoff as it enters Iraq is estimated at 21.2 km³. All the Tigris tributaries are on its left bank. From upstream to downstream:¹⁰²

- The Greater Zab, which originates in Turkey and is partly regulated by the Bakhma Dam. It generates 13.18 km³ at its confluence with the Tigris; 62% of the 25.810 km² of river basin is in Iraq;

- The Lesser Zab originates in Iran and is equipped with the Dokan Dam with a storage capacity of 6.8 km³. The river basin of 21,475 km² (of which 74% is in Iraqi territory) generates about 7.17 km³, of which 5.07 km³ of annual safe yield after the Dokan construction;

- The Al-Adhaim (or Nahr Al Uzaym) river, which drains about 13,000 km² entirely in Iraq. It generates about 0.79 km³ at its confluence with the Tigris. It is an intermittent stream subject to flash floods;

- The Diyala River originates in Iran and drains about 31,896 km², of which 75% in Iraqi territory. It is equipped with the Darbandikhan Dam and generates about 5.74 km³ at its confluence with the Tigris;

- The Nahr at Tib, Dewarege (Doveyrich) and Shehabi rivers, draining together more than 8.000 km². They originate in Iran, and bring together in the Tigris about 1 km³ of highly saline waters;

- The Al-Karkha, whose course is mainly in Iran and, from a drainage area of 46,000 km², brings about 6.3 km³ yearly into Iraq, namely into the Hawr Al Hawiza during the flood season, and into the Tigris river during the dry season.

¹⁰² Badry M. M., Mehdi M. S. and Khawar J. M., "Water Resources in Iraq" in S.S. Johl. (ed.), *Irrigation and Agricultural Development*, (A Joint Publication of Food and Agriculture Organization of the UN(FAO) and the Foundation for Scientific Research of Iraq, 1989) p. 21.

In addition to those tributaries that feed the Tigris, the Karun River, originating in Iran flows with its mean annual flow of 24.7 km³ into the Shatt Al-Arab.¹⁰³ It brings a large amount of fresh water into the Shatt Al-Arab, just before it reaches the sea.

The Euphrates and the Tigris rivers are subject to large and possibly disastrous floods. The level of water in the Tigris can rise at the rate of over 30 cm/hour. In the southern part of the country, immense areas are regularly inundated, levees often collapse, and villages and roads must be built on high embankments. In order to increase water transport efficiency, minimize losses and water logging, and improve water quality, a number of new watercourses were constructed, especially in the southern part of the country. The Saddam River (or Third River) is one of those new watercourses. It functions as a main out-fall drain collecting drainage waters of more than 1.5 million hectares of agricultural land from north of Baghdad to the Gulf, between the Euphrates and the Tigris. The length of the watercourse, completed in December 1992, is 565 km, with a total discharge of 210 m³/s. Other watercourses were also constructed to reclaim new lands or to reduce water logging.¹⁰⁴

2. Dams and Lakes

In 1977, the on-river dams, all of which are located in the Tigris river basin, had a total capacity of 13.7 km³. There was an important program of dam construction in Iraq in the 1980s. The program consisted of the construction of the Saddam Dam on the Tigris with a storage capacity of 11.1 km³, the Kadisiyya (Qadisia) multipurpose dam on the Euphrates which would keep 8.2 km³ water, the Bakhma dam on the Greater Zab, with a 17.1 km³ reservoir capacity, the Badush dam on the Tigris river, 0.5 km³ storage capacity, and several other desert dams totaling about 0.5 km³. The total on-river storage capacities for the Tigris will thus amount to 42 km³, and 8.2 km³ for the Euphrates River. At present, the Al-Adom dam on the Tigris River, with a capacity of 3.8 km³, is under construction. In addition to those on river dams, two off-river storage lakes have been

¹⁰³ Daniel Hillel, *Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East* (New York: Oxford University Press, 1994) p. 100.

¹⁰⁴ The Food and the Agriculture Organization of the U.N. www.fao.org/ag/agl/aglw/aquastat/iraq1.html

established with the construction of the Tharthar Dam in the Tigris River. These are filled with the Wadi Tharthar waters and, since 1985 with Euphrates waters. Finally, the Habbaniya Dam which can be filled from upstream Euphrates waters and which drains into the Euphrates downstream, was constructed.¹⁰⁵

B. DOMESTIC CONCERNS OF IRAQ OVER WATER

1. Domestic Political Concerns

The domestic political concerns of Iraq over the water issue parallel Syria's concerns. These concerns are related directly to the national security of Iraq. This direct link between the water issue and the national security of Iraq derives from two reasons, which are mostly the same in the Syrian example.

The first one is the state structure of Iraq in which the regime and the state are inseparable from each other. The Saddam regime perceives itself as the state and defines its policies accordingly. Since "the water resources are of critical urgency to the Iraq's agriculture and economy,"¹⁰⁶ any failure in maintaining the flow in the Euphrates and the Tigris rivers threatens the regime's survivability, which is already in question. Although agriculture was overwhelmed by the expansion of the oil sector, it still continues to be the primary economic activity of the people in Iraq. In addition to these facts, agriculture is important for Iraq in terms of being self-sufficient and maintaining food security, which are the most important conditions for states, such as Iraq and Syria, in their efforts to lead the Arab World and dominate the politics in the Middle East. Under these circumstances, the Ba'ath regime in Iraq perceives the Euphrates and the Tigris rivers as highly strategic resources to be maintained and tries to secure the maximum benefit from those resources at the expense of even deteriorating relations with the upper stream states of Syria and Turkey.

¹⁰⁵ Helen Chapin Metz, *Iraq: A Country Study*, (Washington, Library of Congress, 1990) p. 154.

¹⁰⁶ Graham E. Fuller, *Iraq in the Next Decade: Will Iraq Survive Until 2002?* (Santa Monica: RAND Publications, 1993) p. 65.

The second reason that urges the regime to give the utmost importance to the water issue is the fact that Iraq is not a homogenous nation-state. Although it is difficult to obtain reliable data from the Saddam regime, in which all state statistics are treated as state secrets, the estimates indicate that 76 percent of the Iraqi people are Arab, 19 percent are Kurds, while Turkomans, Assyrians, Armenians, and other relatively small groups comprise the rest. Religiously, there are as many different groups as the ethnic ones in the Iraqi population. Nearly 95 percent of the population is Muslim and the rest are Christians, Yazidis, and a few Jews. In the Muslim population approximately 65 percent is Shi'as and 30 percent is Sunni Muslims.¹⁰⁷ This picture of ethnically and religiously diversified Iraqi society makes it rather difficult for the minority Saddam regime, which is Sunni Muslim, to gain support from other ethno-religious groups inside the country. Domestic security policy implies a strong security apparatus around the regime due to the lack of trust toward other ethno-religious groups. Since many of the Shi'as reside in the Euphrates and Tigris basin in southern Iraq and benefit from the irrigation schemes and the agricultural production,¹⁰⁸ any loss in the flow of the Euphrates and the Tigris rivers would degrade the living conditions of the Shi'as. Since the Sunni Muslim dominated Ba'ath regime has never been welcomed by the Shi'a, the degradation of living conditions in the Euphrates-Tigris basin in southern Iraq would be a good justification for the Shi'ite community to oppose the government in order to end the Sunni Muslim domination in the country.¹⁰⁹

The Tigris and Euphrates diversion scheme can be shown as an example of the Saddam regime's intentions of using the Euphrates and the Tigris rivers as tools to marginalize the ethno-religious groups in order to maintain the stability of the regime in the country. In this complex diversion scheme, the Marsh Arabs in southern Iraq certainly

¹⁰⁷ Helen Chapin Metz, *Iraq: A Country Study*, (Washington, Library of Congress, 1990) p. 71.

¹⁰⁸ Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 107.

¹⁰⁹ Although the Shi'ite Arabs in Iraq supported the Baghdad regime in its war against Iran, which is the only Shi'ite country in the Middle East, they pose the greatest threat to the Sunni Arab minority domination of the Iraqi state. They also represent the national element most likely to accedeto power in Iraq over the long run. See Graham E. Fuller, *Iraq in the Next Decade: Will Iraq Survive until 2002?* (Santa Monica: RAND Publications, 1993) p. 18.

do experience the effects of the Iraqi government's continuing effort to drain the marshland. The so-called River Project was conceived as a land improvement project in the 1950s. Iraq began to carry out the project in the 1970s in order to desalinate the Euphrates water. The 565-kilometer Saddam River, between the Tigris and the Euphrates, which starts near Baghdad and ends near to Basra in the south, is designed to reclaim polluted land by washing it with the surplus irrigation water. The regime of Saddam Hussein has, however, clearly shown that the intention behind the complex Tigris and Euphrates diversion scheme was not only to improve the agricultural sector. Large areas of agricultural land in the Amara region have been flooded deliberately. At the same time the marshes in the south are being drained. The flood weapon is thereby double-edged; the deliberate flooding of the agricultural lands deprived the Marsh Arabs of their basic economic activity and the drying marshes make the Marsh Arabs an easy target for Saddam Hussein's forces. Iraqi opposition groups portray this action of the Saddam regime as a new tactic in its effort to subdue the south and the reaction from the Marsh Arabs has been to declare a "hydro-jihad" against the Baghdad regime.¹¹⁰

2. Domestic Economic Concerns

The domestic economic concerns of Iraq over the use of the Euphrates and the Tigris rivers can be examined in two folds. The first area which puts the two rivers into the top priority list of the Iraqi government is the irrigation potential of the rivers for developing agriculture and the domestic use of these fresh water resources by the rapidly increasing urban population. The second Iraqi concern is the hydroelectric energy that can be produced in the power plants built on those rivers.

Agriculture is still the main economic activity in Iraq providing employment and sustenance for a significant portion of its population. Iraq, has the second-largest agricultural potential in North Africa and the Middle East, after Sudan. However, by the

¹¹⁰ Bulloch J. and A. Darwish, *Water Wars: Coming Conflicts in the Middle East*, (London: Victor Gollancz, 1993) pp. 136-140

mid-1980s, Iraq was importing 80 percent of its food requirements; in 1987 food imports accounted for 26.7 percent of Iraq's total imports. Iraq's growing dependence on food imports has been further accentuated by the damage to its irrigation system in the recent wars. After its war with Iran and the Gulf War, only one major project, the Derbandi Kahm Dam was relatively undamaged. The Dokan and the Haditha Dams were 75 percent destroyed, and the Ramade Barrage, Saddam, and Samara Dams were totally inoperable.¹¹¹ Although Iraq has managed to repair some of these facilities, restoration of the full water supply capacity is likely to take many years. Another factor that increased the importance of the Euphrates and the Tigris rivers for the Iraqi government is the United Nations' trade embargo since August 1990. A side effect of this embargo may be to impel Baghdad to seek total food security within its territory in the future. Given the fact that about 80 percent of all water currently withdrawn in Iraq already goes to agriculture and related activities, this situation places more demand on the Iraqi water resources even assuming that Iraq continues to receive the amount of water it currently does from the Euphrates and the Tigris rivers.

In addition to the need for agricultural use, the Euphrates and the Tigris rivers are of vital importance to the Iraqi regime for domestic use. Mainly because of the availability of water, most of Iraq's urban centers and a large portion of its population were located along and near the Euphrates and Tigris rivers. This trend has continued in the modern times and is not likely to change significantly in the foreseeable future. A high rate of urbanization, propelled by natural growth of the urban population and internal migration, implies a rising demand for water for households and for industrial and service sector needs. In the face of those increasing water needs, Iraq is in dire need of good-quality drinking water as well as water for maintaining sewage and waste disposal systems for its urban population. All the urban centers in Iraq are currently supplied mainly from the Euphrates and the Tigris rivers. The largest cities of Iraq located in the basin, such as Baghdad and Mosul, and the populations in several other cities located along the Euphrates are growing at rates far higher than the rural areas. This

¹¹¹ J. A. Allan, "Overall Perspectives on Countries and Regions" in Peter Rogers and Peter Lydon, (eds.) *Water in the Arab World: Perspectives and Prognoses*, (Santa Monica: Harvard University Press, 1994) p. 68.

is fast multiplying the demand for fresh water in the urban areas. In Mosul alone, the per capita water consumption is expected to rise from 230 litres per day in 1974 to 330 litres per day by the year 2002.¹¹²

The issue of deteriorating water quality is another serious problem that Iraq has been facing for the last decade. A consequence of irrigation over thousands of years, salinity has become a major problem and currently affects 65 percent of all irrigated lands in Iraq.¹¹³ Without an adequate supply of running fresh water the soils cannot be washed of the accumulated saline deposits. These problems will be further compounded if the flow of the Euphrates and the Tigris rivers declines.

The second economic concern that increases the importance of the Euphrates and the Tigris rivers for the Iraqi government is the increasing electric needs of the country. Iraqi electric consumption increased by a factor of fourteen between 1968 and 1988, and it was expected to double every four to five years in the late 1990s.¹¹⁴ Ongoing rural electrification, which included about 7,000 villages throughout the country, contributed to this increased demand.¹¹⁵ The destruction of power generating facilities first in the war with Iran and second in the Gulf War further aggravated the need for electricity in Iraq. Different from Turkey and Syria, Iraq is richly endowed with petrochemical resources. The total national petroleum reserves are estimated at about six percent of the world total. From 1972, Iraq was capable of producing up to 500, 000 barrels of oil per day. However, Iraq suffered a severe blow during the eight-year war with Iran when oil shipments through the Persian Gulf were halted and again during the Gulf War when much of the country's oil refining and export capacity was destroyed.¹¹⁶ The continuing UN embargo on the export of petroleum products has also deprived Iraq of the much-

¹¹² Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin's Press, 1997) p. 102.

¹¹³ The Food and the Agriculture Organization of the U.N. www.fao.org/ag/agl/aglw/aquastat/iraq1.html

¹¹⁴ World Bank, *World Development Report 1998-1999* (New York: Oxford University Press, 1999) p. 190.

¹¹⁵ Helen Chapin Metz, *Iraq: A Country Study*, (Washington, Library of Congress, 1990) p. 167.

¹¹⁶ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p. 138.

needed financial resources for reconstructing its damaged power generating facilities. In addition to the before mentioned dam-building facilities, the Saddam regime tried different alternatives, one of which was nuclear power plants, to meet the increasing energy demands. But Iraq's plans to develop a nuclear generating capacity were set back¹¹⁷ by Israel's June 1981 bombing of the Osiraq reactor, then under construction.¹¹⁸

¹¹⁷ This Iraqi nuclear capability has been an issue of great concern for the West because of its potential threat to the world peace. Whether Iraq has acquired the nuclear capability to use it for its belligerent aims is still a contentious issue and beyond the scope of this thesis.

¹¹⁸ Helen Chapin Metz, *Iraq: A Country Study*, (Washington, Library of Congress, 1990) p. 168.

VII. LEGAL ASPECTS

A. INTERNATIONAL LAW AND TRANSBOUNDARY RIVERS

1. Sources Of International Law and Legal Principles

International rivers pose a particular problem in the context of international law. A river system, unlike isolated natural resources like minerals or petroleum, is a part of complex hydrological unit. The water environment in an upstream country has a direct effect on the nature of the river downstream, and vice versa. Occurrences, both natural and man-made which affect the water resources in one part of the watershed have the potential to change the quantity, quality, or use of the water in another part of the watershed. These ecological and developmental threats to the world's rivers have transferred the issue of managing and developing transboundary water resources from the perspective of natural resource problems to international concern. To get a clearer view about the possibilities of using the international law as an instrument in developing and managing the transboundary water resources, first the sources of international law will be defined and then the magnitude of the problems will be handled within the light of the international water law treaties.

Contemporary international law is based on the distinction between internal matters, which are the concern of the individual state, and matters of international importance over which no single state has exclusive jurisdiction. The relations between states and international organizations as well as certain relations between individuals and states are generally regulated by the international law. There are basically four fundamental sources of international law. These are: ¹¹⁹

- International treaties and conventions

¹¹⁹ Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project* (Washington: National Defense University, 1999) p. 29

- International custom or “customary international law”
- General principles of law recognized by civilized nations
- Judicial decisions and teachings of highly qualified writers of various nations

It is a commonplace that international treaties are legally binding on the states which are parties to the treaties. On the other hand, customary international law develops over time and the practice of nations eventually becomes binding on all, whether or not the respective nations are party to a formal agreement. The treaties and conventions are regarded as the primary evidence of international law. When a dispute occurs, the precedence is generally given to the treaties and conventions when they are in conflict with a provision of customary law.¹²⁰

Centuries of water conflict have demonstrated that the use and management of single rivers or lakes does not realistically reflect regional water problems. Therefore a broader concept has been developed through the 20th century. By these developments, international water law has defined inland water basins by geographic watersheds and has taken into account surface as well as underground water flows. The standard literature of international water management applies five principles of equal importance regarding the judgement of demands on a basin. These are¹²¹

- The principle of absolute sovereignty (the Harmon Doctrine)
- Absolute territorial integrity
- The principle of prior appropriation

¹²⁰ David J. Laserwitz, “The Flow of International Water Law: The International Law Commission’s Law of Non-Navigational Uses of International Watercourses,” *Indiana Journal of Global Studies*, Fall 1993 p. 22.

¹²¹ Hamner, J. and A. Wolf. "Patterns in International Water Resource Treaties: The Transboundary Freshwater Dispute Database." *Colorado Journal of International Environmental Law and Policy*. 1998 p. 18.

- The “sic utere” doctrine (restricted territorial sovereignty and restricted territorial integrity)
- The concept of community of interests (sovereignty restricted by consideration for the interests or integrity of other states)

The states support one of these principles depending mainly on their position with relation to the water sources. The first principle of “absolute sovereignty” is advantageous to the upstream state because it regards water bodies as an integral part of a state’s national territory. This principle is also referred as the Harmon Doctrine, which was applied to a dispute between the United States and Mexico in 1895 over the polluting of the Rio Grande by the United States. Under this doctrine, an upstream state can freely deplete or use a river’s flow within its boundaries. Thus, upstream states maintain the right to use unlimited quantities of the water resources that originate in their territories. Based on this argument, claims by a dissenting downstream state are rejected as interference in its domestic affairs. This legal doctrine, however, has become disfavored as a narrow view for reconciling differences among opposing states where a shared natural resources is at issue.¹²²

Meanwhile, the downstream states prefer the second principle of absolute integrity that allows them to accuse and perhaps even censure, the upstream state for illegally taking measures that are disadvantageous to its territory. Here, the downstream riparian claims the right to unaltered flows, potentially limiting any upstream development. Clearly, when these two principles of international law come into conflict, they do not permit a reconciliation of interests. Like the Harmon Doctrine, this theory has also received little support among the international legal community. It is viewed that the

¹²² Kiss Alexandre and Shelton Dinah, *International Environmental Law*, (New York: Preager, 1991) p. 120.

theory is inequitably placing a burden on upper riparians without exacting a similar duty on lower riparians.¹²³

The third principle is “prior appropriation,” which favors neither the upstream nor the downstream state, but rather the state that puts the water to use first, thereby protecting those uses which existed prior in time. Each state along a watercourse may thus be able to establish prior rights to use a certain amount of water depending on the date upon which that water use began. In doing so, however, the principle may be inequitable where one state lags behind another in the economic or technical ability to develop its river use. Further, in rewarding those who first put water to use, the doctrine does not take into account either thorough planning or environmental uses of the river. Consequently, although the doctrine is the legal basis for the allocation of water resources in the western United States, it has received little international support.¹²⁴

In addition to these three legal theories, which have been developed in direct response to international watercourse allocation, there is also the “sic utere theory” that has its roots in the traditional customary law. According to this customary law principle, one state may engage in some activity to the extent that it does not bring harm to another state. The river use that causes substantial harm to another riparian is accepted as unlawful where the harm outweighs the equitable reasons in favor of that use. The sic utere doctrine is reflected in international water law theory through the principles of “restricted territorial sovereignty” and “restricted territorial integrity.” These two principles mean that every state is free to use its territorial water provided that it in no way prejudices the rights and uses of other riparian states. The “sic utere doctrine” is widely accepted as a basis for international law. This doctrine also maintains the basis for

¹²³ Thoermond J. O. and Erickson S., *A Survey of the International Law of Rivers*, (Boston: Graham & Trotman, 1988) p. 141.

¹²⁴ Hamner, J. and A. Wolf. "Patterns in International Water Resource Treaties: The Transboundary Freshwater Dispute Database." *Colorado Journal of International Environmental Law and Policy*. 1998.p. 24

the most current attempt at codification of law about the non-navigational use of international watercourses.¹²⁵

The fifth principle in the international law regarding the judgment of demands on a basin is the concept of “community of interests.” According to this concept, within a water basin each state has a right of action against any other basin state, so that no state may affect the resource without the cooperation and permission of its neighbors. While current attempts at codification are directed toward facilitating this goal, it is not yet a politically acceptable or favored position.

After explaining the general sources of the international law and the legal theories about the management of the transboundary watercourses, now it will be useful to clarify the categories of international waterways according to their functions. Mainly international watercourses (IWC) have three functions. The first usage area of IWC is as boundaries between states. This can be achieved by following a shore of an IWC, by cutting across its waters, or by using the waterway as a reference for drawing a boundary. The second function of IWC is for navigation purposes between states. The third one is for non-navigational uses such as irrigation and production of hydroelectric energy.¹²⁶ The problems that will be handled in this section are related to the IWC, which fall into the third category.

2. Helsinki Rules and the U.N. Convention on Transboundary Rivers

As mentioned before, international water law that deals with the non-navigational transboundary watercourses has been developed recently. The first remarkable action in this arena was the Helsinki Rules of 1966. In Helsinki, International Law Association (ILA) provided a guideline for the equitable and reasonable uses of international watercourses (IWC). As a fundamental principle for state practices, it demands that all repercussions resulting from interventions in a ‘hydrographic unity’ regarding the use of

¹²⁵ Caponera, Dante A., “Legal Aspects of Transboundary River basins in the Middle East” *Natural Resources Journal*, 33, 1993 pp. 62-66.

¹²⁶ World Bank Technical Paper No: 414, *International Watercourses: Enhancing Cooperation and Managing Conflict* (Washington: The World Bank, 1998) p. 3

basins be recorded, assessed and evaluated. In this regard the Helsinki Rules is an essential document that sets the course for international water law. It was founded on the principles of integrity and restricted sovereignty and provides further basis for the equitable apportionment and use doctrine. The most important standards set by the Helsinki Rules are¹²⁷

- The obligation to carry out reasonable compensation measures if the interests of states have been violated;
- The consideration of all relevant technical, economic and financial factors while planning and carrying out a project;
- The requirement to inform all riparians of a pending project;
- The observation of an appropriate waiting period before the construction of a project is started;
- The collection and open exchange of data;
- The arbitration of objections by means of consultative committees and arbitration commissions;
- The rejection of all absolute use restrictions or requirements

In the Helsinki Rules, the concept of “International Drainage Basin” was accepted and with Article IV, each basin state is given the right to use the “International Drainage Basin” reasonably, equitably, and beneficially. The importance of Article IV was that, for the first time the idea of using the international waters beneficially rather than water per se was decided in the international law. In the Article V, the factors that define the equitable and reasonable uses of the transboundary rivers were presented.

In 1970, the UN handled the issue of IWC when the problems emerged with the term of “International Drainage Basin.” Some states such as China, Brazil, Belgium, and France objected to the idea of international drainage basin claiming that this would be an

¹²⁷ Thoermond J. O. and Erickson S., p. 80.

interference to the sovereignty of the states. In order to settle the conflicts, the UN assigned its legal advisory body, the International Law Commission (ILC) to prepare a codification for the uses of non-navigational transboundary watercourses. After a period of 27 years, ILC prepared 32 draft articles for non-navigational uses of the IWC. In 1997, these draft articles were accepted by UN as “The Convention on Law of the Non-Navigational Uses of International Watercourses.”¹²⁸ This convention was more or less a redeclaration of the Helsinki Rules of 1966. Article IV of the Helsinki Rules that has stipulated the “equitable and reasonable use” of the watercourse was repeated in the UN Convention with Article V. The new point in UN’s Convention that was not mentioned in the Helsinki Rules was the Article VII, which asserted the obligation not to cause significant harm to downstream riparian while using the river basin.

B. ARGUMENTS OF TURKEY, SYRIA, IRAQ AND THE INTERNATIONAL WATER LAW

Iraq bases its arguments on the principle of prior appropriation. Iraqi authorities claim that Iraq has acquired rights relating to its ancestral irrigations on the Euphrates and Tigris rivers. According to Iraq, two dimensions of acquired rights exist. One outlines the fact that for thousands of years these rivers have given life to the inhabitants of Mesopotamia and thus constitute an acquired right for this people. Therefore no upstream riparian country is entitled to take away the rights of these inhabitants. The second dimension of acquired rights stems from the existing irrigations and water installations. Iraq has 1.9 million hectares of agricultural land in the Euphrates basin. Iraq maintains that it has established irrigation installations, including the ancestral irrigation systems left from the Sumerians times, to irrigate these lands.¹²⁹

¹²⁸ Trollalden, Jon Martin "International Environmental Conflict Resolution: The Role of the United Nations," (Oslo: University of Oslo, 1998) p. 78.

¹²⁹ Amir Sabbur, “Report on Recent Syria-Iraq Talks on Water-Sharing,” *Damascus al-Thawrah*, (October 1997) p. 12. Translation by the Foreign Broadcast Information Service. FBIS Daily Report—Near East/South Asia

Along the same line with Iraqi claims, Syrian authorities also lay their arguments on the principle of prior appropriation asserting that Syria has possessed acquired rights dating from antique periods over the rivers that pass thorough Syrian territory. The second Syrian argument over its rights on the Euphrates and Tigris rivers has its roots in the principle of absolute territorial integrity. Based on this principle, Syria claims that the Euphrates and Tigris rivers are international watercourses which can be classified as shared resources. According to Syrian claims, the waters of those rivers must be shared among the riparian states according to the quota to be determined.

In response to those arguments of the lower riparian states, Turkey sticks to Article V of the UN Convention claiming that it is using the waters of the Euphrates and Tigris rivers equitably and reasonably. Although the Harmon Doctrine of absolute sovereignty supports the Turkey's position as an upper stream state, Turkey does not accept the idea of depleting the waters of the two rivers regardless of any affect on the other riparian states and favors negotiating the issue with Syria and Iraq.¹³⁰

In resolving the conflicts about the uses of the disputed waters, including the Euphrates-Tigris case, the UN Convention has not proven so successful. There are several reasons for this failure. First, these rules are not applicable to every specific case. Since the water problems are intermingled with regional politics in each case, it becomes difficult to apply these rules to the politically charged disputes of water basins. Second there is no legal enforcement mechanism that will provide the UN with the ability of controlling the behaviors of the riparian states in terms of appropriateness to the international law. As a general rule, international courts do not have compulsory jurisdiction to deal with international legal disputes. Sometimes even at the presence of an international law that regulates certain topics between states, states can behave in conflict with the international norms because of their own social, political, economic or security concerns. As a result of this lack of enforcement mechanism, these rules have not been so effective in practice in solving the disputes as they are on paper.

¹³⁰ Republic of Turkey Ministry of Foreign Affairs, *Water: A Source of Conflict and Cooperation in the Middle East*, (Ankara: July 1999) p. 12.

The other fact that contributes to the failure of the UN Convention in resolving the disputes is the ambiguity between articles. The articles decided by the ILC provide both upper stream and down stream states with enough legal rights to defend their own arguments. For example in the case of Euphrates-Tigris Basin, Article V and Article VII of the UN Convention of 1997 enable both sides to defend their rights depending on the legal facts. Article V mentions about the “equitable and reasonable” use of the river, while Article VII suggests “not to cause significant harm” to other riparian while using the rivers. Since the criteria for using the rivers equitably and reasonably without giving significant harm to other riparians were not explained clearly in the UN Convention, Turkey while implementing GAP project bases its arguments on Article V claiming that it is using the waters of the two rivers equitably and reasonably. However, Syria and Iraq base their arguments on Article VII claiming that Turkey is significantly harming the downstream states while using the two rivers.

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VIII. CONCLUSION

A. THE RELATIONS AMONG TURKEY, SYRIA, AND IRAQ

“The relations between three riparian states of the Euphrates-Tigris basin can be described only as complex.”¹³¹ The issues that shape this complex web of relations can be stated as follows:

- The economic, political, and ethnic concerns of each state on the domestic level
- Strategic concerns and power policies of the respective states on the international level
- Consequences of significant events that changed the picture of political relations in the region, such as the Iran-Iraq War and the Gulf War
- Economic difficulties in the region and the increasing need for natural resources such as oil and water

When the issues that comprise the relations between the riparian states of the Euphrates-Tigris basin are examined, it becomes apparent that these issues are inter-related and any change in one of them can affect the others in significant degrees. The water issue and water needs of each riparian state as only one component of this set of relations can serve both as a catalyst or an obstacle in maintaining the stability in the region.

The relations between Turkey and Syria are dominated by the differences in their worldviews and divergent state interests with respect to specific issues.¹³² These divergent worldviews had their roots during the Cold War. Since Turkey became a NATO member in 1952, Syria has always considered Turkey as part of the western power in the region. Turkey’s close relations with the United States and its increasing

¹³¹ Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project* (Washington: National Defense University, 1999) p. 9

¹³² Muhammad Muslih, “Syria and Turkey: Uneasy Relations” in Henri J. Barkey (ed.), *Reluctant Neighbor: Turkey’s Role in the Middle East* (Washington: United States Institute of Peace, 1996) p.

cooperation with Israel emerged as a thorny issue between Turkey and Syria. With the implementation of GAP project, the relations between Turkey and Syria were further strained. As leverage to Turkey's water policy, Syria began supporting the PKK, which has been active in the southeastern part of Turkey since 1984. This Syrian support for the PKK terrorist organization and the ongoing dam projects on the Euphrates River especially caused some tensions between the two states.

The relations between Turkey and Iraq can be divided into two main periods: before the Gulf War and after the Gulf War. Before the Gulf War, despite their very different regimes and foreign policy orientations, the relations between the two countries were cooperative and pragmatic on most issues. There was a natural economic link based on the delivery of oil and the potential for commerce. In the aftermath of the Gulf War, because of Turkey's support for the Gulf War coalition, these economic relations decayed and Turkey was deprived of the Iraqi oil. On the Kurdish issue both countries are sharing the same opinion: to contain Kurdish separatism and to keep both Turkey and Iraq intact. In the water issue, the most southeastern riparian in the Euphrates-Tigris basin, Iraq has a vulnerable position. Although water problems, based on Turkey's progressive construction of the GAP project, have caused some tensions between the two countries, they have never been serious enough to disrupt the relations between two countries. Iraq has always directed its accusations and claims about the water issue to Syria rather than Turkey.¹³³

The relations between Syria and Iraq have been based on the regional ambitions and political rivalries between the two Ba'ath regimes in Damascus and Baghdad.¹³⁴ The ideals of the Ba'ath regimes were expected to move in the same direction, but the ethno-religious groups dominated the relations between two Ba'ath regimes. The Alawi-dominated Ba'ath Party in Syria and the Sunni-dominated Ba'ath Party in Iraq have always pursued conflicting policies in the region. We saw these conflicting views both in the Iraq-Iran War and the Gulf War. In both of these wars, Syria did not support Iraq

¹³³ Phebe Marr, "Turkey and Iraq" in Henri J. Barkey (ed.), *Reluctant Neighbor: Turkey's Role in the Middle East* (Washington: United States Institute of Peace, 1996) p. 45

¹³⁴ Michael Schulz, "Turkey, Syria, and Iraq: A Hydropolitical Security Complex" in Leif Ohlsson (ed.), *Hydropolitics* (London: Zed Books, 1995) p. 110

because Syria followed its own political and strategic objectives. Both political systems and leaders have strived to present a Middle East agenda. Syrian claims are based on the argument that Syria has always been the heartland of Arab nationalism and must lead an Arab unity in the region. On the other hand, the Iraqi regime has tried to consolidate its position in the Arab World by affecting the politics. These diverging interests between Syria and Iraq can be seen on the water issue. Syria accuses Turkey of not thinking of the downstream states while implementing its projects in the Euphrates basin, and then Syria significantly harms Iraq by diverting the waters of the Euphrates for Syrian projects. For example, as mentioned in Chapter III, in 1975 when Syria filled the Tabqa dam, Iraq became desperately deprived of the waters of the Euphrates River and this brought Iraq and Syria to the brink of war¹³⁵. Only through the efforts of Saudi Arabia and the former Soviet Union the war was prevented.

After looking at the relations among the three riparian states of the Euphrates-Tigris basin, one sees that its significant concerns of these three states are apparently quite similar. Because of these similarities in the overall objectives of the three states, any cooperation among them on any subject, especially the water issue becomes difficult. The general factors that prevent any cooperation between these states can be summarized as follows:

- Relations are dominated by power politics
- States aspire to regional hegemony
- A common feeling of distrust is prevalent among them
- Each seeks to be self-sufficient

For these reasons, each riparian state prefers less than optimal solutions in order to secure its own national interests. This thesis demonstrates that since water is important to all three states, generally for the same reasons, they pursue their own national agenda about using the Euphrates-Tigris basin. They believe domestic political stability and economic advancement is more profitable than a basin-wide cooperation that will satisfy

¹³⁵ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000) p.138

the demands of each riparian. It is this self-serving cost-benefit mindset that dictates the political behaviors of the riparian states of the Euphrates-Tigris basin.

B. SECURITY IMPLICATIONS OF THE EUPHRATES-TIGRIS WATER CONFLICT IN THE MIDDLE EAST

Increasing pressures on the water and energy resources of the Euphrates-Tigris basin have caused conflicts among the riparian states in the basin. These conflicts have been and will continue to be inextricably intertwined with the issues of identity, national sovereignty and security; interstate rivalry and ideological competition; demands for autonomy and independence; economic well-being, and political power. Water issues already impinge very directly on the quest for environmental, economic, and food security in all the riparian states. Even if the riparian states do not engage in war over the water, the ruling regimes will continue to contest claims over the transboundary water resources to justify their antagonism and political strategies.

After this analyses cooperation between the riparian states of the Euphrates-Tigris basin is obviously indispensable in order to resolve the region's conflicts and maintain stability. To achieve this task, unfortunately, the international law and institutions do not maintain a clear framework that will satisfy the needs of all riparian states. Therefore, it becomes the responsibility of the concerned countries to develop a solution to their problems. In seeking a solution to the problems of the Euphrates-Tigris rivers, sometimes the relations among the states become strained. However, despite these problems, war seems improbable. Although rhetoric about "water wars" in the Middle East has increased in the last decade, war is unlikely for several valid reasons. First, water issue alone cannot be reason enough for waging a war amid this complex web of relations. Second, Turkey's military capability presents a good deterrence for both Syria and Iraq.¹³⁶ Third, Turkey's NATO membership and its good relations with the United States, and the Arab's lack of support for Syria and Iraq on this issue compel Syria and

¹³⁶ Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project* (Washington: National Defense University, 1999) p.49

Iraq to maintain the status quo and to find a solution to the problem of sharing the Euphrates and the Tigris rivers.

The most important conclusion must be that the states in the Euphrates-Tigris basin can best solve their water problems by cooperating on developing the water systems in an equitable and peaceful manner. Joint dependency on shared river systems decreases the possibilities of implementing national development strategies. Thus, management institutions on a regional level are required in order to safeguard both development and security in the basin. The three riparian states of Turkey, Syria, and Iraq could arrange tripartite meetings for development planning, which could become a model for cooperation between regional institutions on development issues as well as security issues.

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BIBLIOGRAPHY

- Ali Carkoglu, Mine Eder, *Domestic Concerns and the Water Conflict over the Euphrates-Tigris River* (London, Middle Eastern Studies, 2001)
- A. R. Turton, "Water Scarcity and Social Adaptive Capacity: Towards an Understanding of the Social Dynamics of Water Demand Management in Developing Countries" *SOAS Water Issues Group, MEWREW Occasional Paper No: 9* (March 1999)
- Bilge Criss, "Turkish Foreign Policy Toward the Middle East", *Middle East Review of International Affairs*, Issue No: 1, (January 1997)
- Butts, K.H., "The Strategic Importance of Water", *US Army War College Quarterly* 27:1(Spring 1997)
- Daniel Hillel, *Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East* (New York: Oxford University Press, 1994)
- Eberhard Kienle, *Ba'th v. Ba'th: The Conflict Between Syria and Iraq, 1968-1989* (New York: St. Martin's Press, 1990)
- Frederick M. Lorenz and Edward J. Erickson, *The Euphrates Triangle: Security Implications of the Southeastern Anatolia Project*
- Greg Shapland, *Rivers of Discord: International Water Disputes in the Middle East* (New York: St. Martin's Press, 1997)
- Guner Serdar, "Signalling in the Turkish-Syrian Water Conflict" *Conflict Management and Peace Science*, 16:2, (Fall 1998)
- Helga Haftendorn, *Water and International Conflict*, (Washington, D.C., International Studies Association, 1999)
- Henri J. Barkey, ed., *Reluctant Neighbor: Turkey's Role in the Middle East* (Washington, D.C.: United States Institute of Peace Press, 1996)
- Hilal Elver, Baruch Boxer, Jim Lee, "The Emerging Water Conflict in the Middle East? The Case of the Euphrates and the Tigris River Basin"
<http://gurukul.ucc.american.edu/maksoud/water98/present8.htm>
- Hussein A. Amery and Aaron T. Wolf, eds., *Water in the Middle East: A Geography of Peace* (Austin: University of Texas Press, 2000)
- Jack V. Kalpakian, *History, Identity and Water Disputes: The Case of the Tigris Euphrates*, (Washington, D.C.: International Studies Association, 1999)

- Joyce Shira Starr, *Covenant over Middle Eastern Waters: Key to World Survival* (New York: H. Holt, 1995)
- Kolars John and H. Mitchell, *The Euphrates River* (Carbondale: University of Illinois Press, 1990)
- Laurence Boisson de Chazournes, Sharif El-Musa, Joseph Sills, *The UN Convention on International Watercourse*
<http://gurukul.ucc.american.edu/maksoud/water98/present7.htm>
- L. Douglas James, ed., *Man and Water: The Social Sciences in Management of Water Resources* (Kentucky: University of Kentucky, 1974)
- Miriam R. Lowi, *Water and Power* (Cambridge University Press, 1995)
- Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Co-operation?* (New York: St. Martin's Press, 2000)
- Ofra Bengio, *Minorities and the State in the Arab world: Nation Building in Multiethnic Societies: The Case of Iraq*
www.columbia.edu/sec/dlc/ciao/book/bengio/bengio08html
- Paul Williams, "Water Usually Flows Downhill: The Role of Power, Norms, and Domestic Politics in Resolving Transboundary Water-Sharing Conflicts" *Institute on Global Conflict and Cooperation* (March 1998)
- Peter Rogers and Peter Lydon, eds., *Water in the Arab World: Perspectives and Prognoses* (Harvard University Press, 1994)
- Pearce Fred, *The Dammed Rivers, Dams and the Coming world Water Crisis*, (London: 1992)
- Raymond Aloysius Hinnebusch, *Political Organization in Syria: A Case of Mobilization Politics* (Ann Arbor, Mich.: University of Microfilms international, 1985)
- Raymond A. Hinesbuch, *Peasant and Bureaucracy in Ba'thist Syria: The Political Economy of Rural Development* (Boulder: Westview Press, 1989)
- Salman M.A. Salman, Laurence Boisson de Chazournes, eds., *International Watercourses: Enhancing Cooperation and Managing Conflict: Proceedings of a World Bank Seminar* (Washington, D.C.: World Bank, 1998)

Schultz, M., "Turkey, Syria and Iraq: A Hydropolitical Security Complex" *Peace and Development Research Institute*, (Gothenburg University, 1992)

Thomas Naff and Ruth C. Matson, eds., *Water in the Middle East: Conflict or Cooperation* (Boulder: Westview Press, 1984)

Volker Perthes, *The Political Economy of Syria under Assad*, (New York: St. Martin's Press, 1995)

Warner Jeroen, "Tightropes Across the River: Managing Conflict in the Middle East River Basins" *Middle East Research Associates*, (Amsterdam, 1993)

World Bank, *Water Resources Management* (Washington, D.C. : World Bank, 1993)

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