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Lebanese American University

The Graduate School
Department of International Affairs

**The Turkish-Syrian Water Dispute:
Potential for Conflict or Cooperation?**

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November 17, 1998

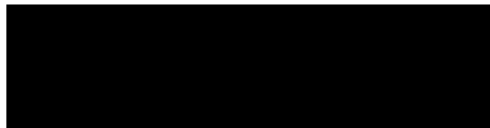
Submitted in partial fulfillment of the requirements for the degree of
Master of Arts

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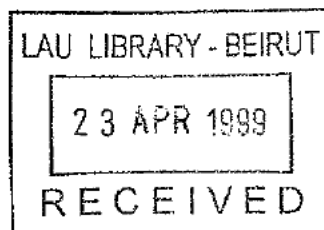
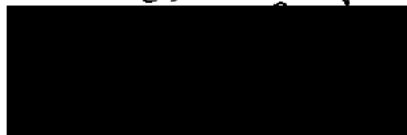
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Introduction

Water is vital for life. Without it food production would be impossible and life unsustainable. Shortages of water or the lack of clean water is held responsible for about 90 percent of epidemics in third world countries.¹ Water's vital role in Agriculture and its large-scale utilization in industry and energy production make it a crucial constituent of economic and social development of societies. Experts unanimously agree that water shortages will be a constraint on development in many parts of the world, but especially in the Arab region where economic and social development depends to a large degree on the availability of water. Studies published by the World Bank establish a definite connection between water consumption (use) rates index, and economic, social and human development index. These studies show that as development rates increase, water consumption also increases.²

¹ Najib Isa, Al Abaad al Tanmaouiah Limassalat al Miyah fee al Shark al Awsat (Development Dimensions for the Water Problem in the Middle East), in *Mushkilat al Miyah fee al Shark al Awsat (The Water Problem in the Middle East: Development and Strategic Dimensions and the Potential for Conflict and Cooperation)* ed. Najib Isa (Beirut-Lebanon: Center for Strategic Studies and Research, 1994) 13.

² Isa 14.

Shortages of water have always been possible causes of conflicts. This is especially so in the Middle East region where the majority of water resources are shared by two or more states.

Water, as a vital natural resource is intrinsically a security issue. "The idea of security and the causes for conflict have been historically, and conceptually interlaced. In situations of constant tension and hostility, such as exists, for example, in the Euphrates basin, a resource issue like water scarcity is a constant underlying security factor that could act as a trigger for conflict."³ It should be emphasized however, that water could also be a force for peace inducing the various parties to cooperate for their common benefit. But history and current events show that it is more likely to be a disruptive influence, a cause for conflict.

Conflicts over water usually involve states sharing the same watercourse. It is deemed essential here to stress that a conflict does not necessarily involve a military confrontation. Disagreements, disputes, and friction between states qualify as conflicts too. In fact, a conflict can remain

³ Thomas Naff, "Conflict and Water Use in the Middle East," *Water in the Arab World: Perspectives and Prognoses*, ed. Peter Rogers, and Peter Lydon (Harvard University Press, 1994) 258.

inactive for a long period of time until activated by other forces like scarcity or perceived frustration of need or desire.⁴

Competition over water has increased in the latter half of this century. This has been brought about by rising demographic trends and concurrent economic development creating water scarcities in many regions of the world, but especially in the mostly arid Arab region. In fact, average per-capita supply of water in the Arab region has fallen rapidly during the last few decades. Many of the Arab countries have a per-capita water supply below the water poverty line of one thousand cubic meters per capita per annum.⁵ At present, more than half of these countries face serious water shortages. This situation created flashpoints where the potential for conflict is high.

Resolution of water conflicts is very difficult to achieve, since water is vital and pervasive, has so many essential uses and does not respect national boundaries in the course of its flow. Moreover, there is complication from the sheer number of factors always present in water problems: atmospheric, hydrological, chemical, technological, managerial, political, socioeconomic,

⁴ Naff 260.

⁵ Peter Rogers and Peter Lydon ed. Foreword to *Water in the Arab World: Perspectives and Prognoses* (Harvard University Press, 1994).

legal, and strategic to name a few of the more obvious ones. All of these factors have to be taken into account in the quest for solutions.⁶

The Syrian-Turkish conflict - the object of this study- over the sharing of the Euphrates River is a typical example of the difficulty to resolve water conflicts.

The Syrian-Turkish dispute over the waters of the Euphrates River is a riparian dispute among two sovereign states over the distribution of the water resources of an international river that traverses their territories. The Euphrates River rises in Turkey and flow south consecutively through Syria and Iraq.

The origins of the dispute can be traced back to the early 1960's. The water demands in the Euphrates basin soared sharply as a result of rapid population growth and large-scale utilization of water for irrigation and energy production purposes resulting in increased competition over this limited natural resource.

The dispute between the two countries took a new turn in the 1980's when Turkey embarked on a huge irrigation and energy production scheme generally known by its Turkish acronym GAP. Syria became deeply concerned by GAP developments on the Euphrates. When complete, GAP

⁶ Naff 261.

will deprive Syria of water desperately needed to sustain its economic and social development plans.

All past efforts to resolve the dispute and enter into a basin-wide water sharing agreement failed drastically. In a security protocol signed in 1987 between the two countries, Turkey undertook to maintain a minimum flow of 500 cubic meters a second at the Syrian-Turkish border. This undertaking was considered as a temporary agreement until a final agreement on the sharing of the Euphrates is reached between the three riparians.

Despite the fact that Syria and Turkey are co-riparians to three rivers, the Euphrates, the Tigris, and the Orontes, our study was restricted to the Euphrates due to the following reasons:

- Syria is heavily dependent on the Euphrates water. In fact, the natural flow of the river on the Syrian-Turkish border constitutes about 75 percent of Syria's renewable water resources.
- Only the Euphrates is concerned in the first stages of the GAP. The Tigris is involved in the later stages.
- The Tigris waters are of less importance to Syria. The river flows on the Syrian-Turkish border and the Syrian-Iraqi border for only 44 km. Moreover, the use of its water in Syrian projects is limited

due to topographic conditions making its exploitation rather uneconomical.

- The Tigris has not been to date a subject of dispute between Syria and Turkey and no attempt has been made to share its water among riparians. Furthermore, Syria and Iraq, contrary to Turkey, consider the Euphrates and the Tigris as two separate basins.
- The Orontes River (Asi), which flows from Lebanon through Syria, and then to the sea through the Alexandretta region in Turkey, does not constitute a significant water supply for Syria or for Turkey. Furthermore, any discussion concerning the Orontes would necessarily involve the political dispute between Syria and Turkey over the Alexandretta region (Syrian territory ceded to Turkey in 1939).

The focus of this study is on the Syrian-Turkish dispute over the Euphrates water. Iraq, the third co-riparian to the Euphrates River is not the concern of this study, and was only mentioned where it was useful to clarify certain aspects of the subject discussed.

Methodology

We begin our study by describing the environment in the Euphrates basin. We identify those aspects of the physical, human, and political environments that make the Euphrates water significant to the riparian states.

Next we examine the dispute since its inception till the present time. We review past efforts at resolving the dispute and we note how the factors of resource need and relative power affect state behavior and outcome of water disputes.

Finally, we examine political relations between the two states, and how they acted as an obstacle to the resolution of the water dispute. Here we note how conflict in "high politics" impeded cooperation in "low politics"

In the course of our study we seek to explore answers to some critical questions. What influences the behavior of states in international river basins? What determines the potential for conflict or cooperation in water disputes? Why do states fail to cooperate and when would they opt for cooperation?

In response to this set of questions, I argue that while a military confrontation between Syria and Turkey over water is unlikely in the foreseeable future, prospects for real cooperation aimed at realizing a basin-wide formal water-sharing agreement seem also remote within the context of

the present political situation in the region. Turkey, the geographically, militarily, and economically predominant power in the basin has nothing to gain from cooperation and therefore is reluctant to cooperate. Political disputes between Syrian and Turkey continue to serve as an added deterrant to cooperation. A cooperative solution to the water dispute would depend to a considerable extent on the improvement of political relations between Syria and Turkey. This could evolve within the context of the Middle East Peace Process and the ensuing regional cooperation which would necessarily follow.

This study will be divided into 5 chapters:

Chapter 1 will provide the background for the study by introducing the causes of water scarcity in the Arab region.

Chapter 2 will focus on those aspects that bring to the fore the significance of the Euphrates river and have had considerable conflict potential.

Chapter 3 introduces a historical analysis of the dispute since its inception till the present time. The chapter outlines past efforts at managing the water dispute and analyses the outcome of these efforts in terms of the variables that guide state behavior. A section is added on international law as pertains to water disputes.

Chapter 4 will focus on the political dimension of the water conflict between Syria and Turkey. It demonstrates the impact on the water conflict of other political issues, which have plagued the relations between the two countries such as the territorial issue of the Alexandretta region, the Kurdish problem, and various differences in political orientations.

Chapter 5 will examine future outlook of the dispute. The questions posed in the introduction will be addressed and analyzed. Finally, the main argument of the study is refined drawing upon the variables which govern state behavior introduced by Naff and Lowi.

1. Water Scarcity in the Arab Region

Introduction

Water scarcity is becoming a problem in many parts of the world. But it is nowhere more acute than in the Arab region, where semi-arid, arid, and desert climate zones dominate most of the land. Aridity coupled with high rates of population growth, lowers per-capita availability of water. Thus, while per-capita availability of water is constantly decreasing, demand is sharply increasing as irrigation continues to be the heaviest consumer of water in the Arab region.

Aridity

Aridity, defined as a permanent shortage of water caused by a dry climate, is one of the main causes for water shortage.⁷ Low rainfall, and high evaporation rates, limit the quantity of water available to the region. The population of the Arab world amounts to an approximate 4 percent of global

⁷ Robin Clarke, *Water: the International Crisis* (Cambridge, Massachusetts: the MIT Press, 1993) 2.

population, but nature endowed the region with a mere 1 percent of its renewable water resources.⁸

Average annual rainfall is considered to be extremely low, and the demand for water by crops by far exceeds its natural supply by rainfall in most areas of the region. Less than 300 millimeters of rain -the amount required to sustain rainfed farming- falls on most Arab lands. Land receiving more than 350 mm of rainfall annually and with suitable soils for crop production is less than 20 percent of total land in the region.⁹ Thus, only a small part of the region receives sufficient rain to sustain rainfed agriculture.

Burgeoning Populations

Burgeoning populations add pressure on finite water resources. The world's population is growing at an alarming rate, and it is expected to increase from the present 6 billion to about 10 billion by the middle of the next century.¹⁰ Moreover, population growth in many Middle Eastern

⁸ Abdul-Karim Sadik and Shawki Barghouti, "The Water Problems of the Arab World: Management of Scarce Resources," *Water in the Arab World: Perspectives and Prognoses*, ed. Peter Rogers, and Peter Lydon (Harvard University Press, 1994) 2.

⁹ Sadik and Barghouti 6.

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) 34.

countries continues to be among the highest in the world.¹¹ The table below lists population estimates and rates of population growth for some Middle East countries.

Table 1.1 Population estimates and rates of population growth for some Middle East countries.

Country	1990 (millions)	2000 (millions)	2025 (millions)	Annual percentage rate of increase in 1990
West bank	0.90	1.12	2.37	3.40 %
Gaza strip	0.62	0.76	1.23	1.98 %
Israel	4.66	6.34	8.15	1.67 %
Jordan	3.10	4.00	8.50	3.41 %
Lebanon	2.74	3.31	4.48	2.00 %
Syria	12.36	17.55	35.25	3.58* %
Saudi Arabia	14.87	20.67	40.43	3.28 %
Turkey	55.99	68.17	92.88	2.05 %
Iraq	18.08	24.78	46.26	3.21 %
Iran	58.27	77.93	144.63	2.71 %

Sources: United Nations, World Population Prospects: the 1992 revision, annex tables (New York, 1993); and J.D Priscoli and R. Burmbaugh, Water in the Sand (Washington D.C.US army corps of engineers, 1991)(Gleick. Water, War and Peace in the Middle East p.15)

* According to Bakkour and Kolars Syria's population is growing at a rate of 3.8% annually.

¹¹ Maher Abu-Taleb, "Regional Cooperation in Water Resource Mangement," *Building Peace in the Middle East: Challenges for States and Civil Society*, ed. Elise Boulding (London: Lynne Rienner Publishers) 253.

With few exceptions, population growth in the Middle East exceeds 3 per cent annually, therefore, doubling the population every twenty-five years.¹²

Lower per-Capita Availability of Water

As population grows against a background of finite freshwater resources, per-capita availability of water decreases. According to a World Bank report: "annual average per-capita renewable supplies in the Arab region will have fallen by about 80 percent, from 3,430 cubic meters per capita in 1960, to 667 cubic meters in 2025."¹³

Many of the Arab countries have a per-capita water supply below the water poverty line of one thousand cubic meters per capita per annum. While most hydrologists believe that having less than 500 cubic meters available per person per year significantly limits the options available to a society, many countries in the region already fall into this category, and more are expected in the future as populations grow.¹⁴

¹² Abu-Taleb 253.

¹³ Sadik and Barghouti 2.

¹⁴ Peter H. Gleick, "Water, War, and Peace in the Middle East," *Environment* 36 April (1994): 15.

Increased Demand

Demand on water will keep on increasing as populations grow and people strive for higher standards of living. Average per-capita consumption of water in the Arab world -140 liters daily-, has always been much lower than global average. Per-capita consumption rates are likely to double and triple over the next 20 years.¹⁵ Abu-Taleb notes that: “Middle Eastern countries that strive for a higher standard of living must provide for increased per-capita consumption of water. Economic factors affect municipal water demand. For example, when income is low, people may use water for limited basic needs such as drinking, and washing. As income increases demand for water may increase to accommodate amenity uses such as parks and household appliances. This could mean substantial increases over current water demand.”¹⁶

Industrial growth projections estimated at 3 per cent annually are about to consume more water.¹⁷ However, irrigation remains by far the heaviest consumer of water in the Arab World. In twelve Arab countries it

¹⁵ Sadik and Barghouti 1.

¹⁶ Abu-Taleb 253.

¹⁷ Sadik and Barghouti 4.

consumes eighty percent or more of total water usage. Surely, without it food production over most of the arid and semi-arid areas would be impossible. The table below compares the percentage of water used by each of the domestic, industrial and agricultural sectors in the Arab World.

Table 1.2 Percentage of water used by domestic, industrial, and agricultural sectors in the Arab world.

Country	Water usage(%)		
	Domestic	Industry	Agriculture
Algeria	22	4	74
Egypt	7	5	88
Bahrain	60	36	4
Mauritania	12	4	84
Iraq	3	5	92
Sudan	1	0	99
Jordan	29	6	65
Kuwait	64	32	4
Lebanon	11	4	85
Libya	15	10	75
Djibouti	28	21	51
Morocco	6	3	91
Oman	3	3	94
Qatar	36	26	38
Saudi Arabia	45	8	47
Syria	7	10	83
Tunisia	13	7	80
UAE	11	9	80
Yemen	4	2	94
Somalia	3	0	97

Sources: World Resources Institute 1992. (Peter Rogers and Peter Lydon, eds. Water in the Arab World: Perspectives and prognoses. P, 3)

In most Arab countries the large allocation of water to agriculture has been driven by a strategic aspiration to attain food self-sufficiency. The Arab region imports more than 50 percent of its food requirements now, and according to recent studies by the Arab Organization for Agricultural

Development (AOAD), this gap is likely to substantially increase in the next two decades.¹⁸

Thus, extremely high population growth rates require expansion and intensification of agriculture and greater reliance on irrigation in order to feed the growing numbers of people. Moreover, Arab countries have traditionally supported the production of low value, high water consumption food items that were considered essential to attain the goal of food self-sufficiency at the expense of high value, low water consumption items.¹⁹

Table 1.3 Percentage of food self-sufficiency of main food items in the Arab world.

	1970	1980\1985	1986\1990
Wheat	60.5%	43.2%	48.5%
Other cereals	80.1	49.5	50.2
Sugar	34.1	29.4	33.8
Oil seeds	58.5	37.7	34.3
Meat	59.5	71.8	78.9

Annual report: agricultural statistics. Arab Organization for Agricultural Development (AOAD), vol.2 section 11, 1992.

(Peter Rogers and Peter Lydon, eds. Water in the Arab World: Perspectives and Prognoses p, 9)

The low return on rainfed farming resulted in increased dependence on irrigated agriculture. Irrigation increases productivity, firstly, by making possible the cultivation of land receiving too little rain to sustain rainfed

¹⁸ Sadik and Barghouti 8.

¹⁹ Sadik and Barghouti 9.

farming. Secondly, by the higher potential yields of irrigated crops as compared to rainfed ones. Thirdly, by allowing multiple crops to be taken in the same year. Clarke further explains that:

"Irrigation can provide security to the farmer who was previously dependent on unreliable seasonal rains, encouraging him to use higher yielding varieties and more costly inputs such as fertilizers and pesticides on which he might not dare risk spending money if his water supply was unreliable".²⁰ The table below demonstrates the difference in yields for irrigated lands as compared to rainfed ones.

Table 1.4 Difference in yields for irrigated lands as compared to rainfed ones.

Crop	Irrigated land	Rainfed lands	
		Prime > 300 mm	Marginal < 300mm
Wheat	4.42tonnes/ha	2.15	0.65
Barley	2.85	1.65	0.93
Corn	4.20	1.90	0.72
Legumes	3.80	2.70	0.40
Growing season	all year	180 days	110days
Cropping intensity	200%+	90%	60%

Source: Shawki Bargouti and John Hayward (1992), land and water resources in the Middle East and North Africa: issues and challenges, EDI/ ICARDA, 1992. (Peter Rogers, and Peter Lydon. Eds. Water in the Arab World. Perspectives and prognoses P, 7)

²⁰ Clarke 28.

Deteriorating Water Quality

Water quantity is not the only concern in the Arab World. The quality of water is deteriorating in many rivers, lakes, and aquifers as they are being constantly polluted with toxic chemicals, fertilizers, pesticides, and the dumping of municipal and industrial wastewater into them. Excessive irrigation is also a main cause for lower water quality as it has been associated with environmental problems such as the depletion of underground aquifers. Over exploitation of groundwater happening in some areas at an exceedingly rapid rate is resulting in seawater intrusion and leaking of pollutants.²¹

We can sum up by saying that several factors account for water scarcity in the Arab region. Low rainfall coupled with high evaporation rates limit the quantity of water available to the region. Pressure is added by extremely high rates of population growth. These factors combine to lower the average per-capita availability of water in the region. Thus, while average per-capita availability is decreasing, the demand is increasing as people strive for higher standards of living and as irrigation- driven by the

²¹ Clarke 56.

strategic aspiration to attain food self sufficiency- continues to be the heaviest consumer of water in the Arab world.

Lack of abundant water resources is compounded by the fact that more than 35 per cent of renewable water resources in the Arab world are provided by river flows from outside the region. The Nile rising in Ethiopia provides fifty-six billion cubic meters (bcm). The Euphrates provides Twenty-eight (bcm), while the Tigris and its tributaries provide thirty-eight (bcm), both rivers originating from eastern Turkey.²²

As a matter of fact, the Arab region is about to see declining amounts of water in some of its major river basins. The Tigris-Euphrates basin is suffering from declining amounts of water as a result of Turkey's ambitious irrigation and energy production plans. Turkey's grandiose schemes on the Euphrates and the Tigris rivers are aggravating an already difficult situation for two Arab countries, Syria and Iraq. The following chapter will address these issues in detail.

²² Sadik and Barghouti 3.

2. The Water Situation in the Euphrates-Tigris Basin: An Overview

Introduction

The combination in an arid climate, of extremely high population growth rates, and large dependence on irrigation, have created a situation in the Euphrates-Tigris basin (in particular on the Euphrates river which is more developed than the Tigris) where the water needs of all envisaged projects, by far exceeds the water potential of the river. Water, regarded as the key stone of future economic and social development, and linked closely to national security concerns made all three riparians to regard it as essential to their continued survival.

The water of the Euphrates is of the utmost importance for Syria because it will remain the basis of its agricultural, and economic development as well as it will provide for its growing food needs and energy production. While there are no other resources in Syria to make up for such needs, Turkey driven by political, economic, and social factors has been implementing a huge irrigation and energy production scheme known as the Southeast Anatolia Project (GAP) on the Euphrates and the Tigris Rivers.

GAP will decrease the amount of water flowing into Syria and Iraq. Moreover, the project will give Turkey the ability to control how much water would flow into these countries. Before going any further, let us get acquainted with the main hydrological components of the Euphrates-Tigris basin.

The Main Hydrological Components of the Euphrates-Tigris Basin.

The two main components of the Tigris-Euphrates basin or system of water are the Tigris and the Euphrates rivers and their tributaries.

The Tigris-Euphrates system is the largest in the region. Both rivers rise in the high mountains of eastern Turkey, flow south consecutively through Syria and Iraq, and then unite to form the well-known Shatt-al-Arab waterway, which discharges its waters in the Persian Gulf.

The Euphrates rises from the Armenian plateau in Eastern Anatolia, and is 2880 km long.²³ Its two main branches, the Western Euphrates or the *Furat-Su*, and the Eastern Euphrates or the *Murat-Su*, unite near the *Keban Dam* in Turkey to form the Euphrates' main channel. After flowing for 1000 km through Turkish territory, the river eventually crosses the Syrian border

²³ Munib Al-Rifai, "Alakat Souriya al-Ma'ea ma' Turkia wa al Urdun" (Syria's Water Relations with Turkey and Jordan) Paper prepared by the Syrian Ministry of Foreign Relations: Department of Research. April, 1997. P. 2.

at the city of Jerablus.²⁴ Average annual natural flow of the Euphrates is estimated at 20 billion cubic meters per year near the *Keban Dam* in Turkey, growing to 26 bcm/yr further south near the *Ataturk Dam* (Turkey), reaching about 31.4 bcm/yr at Jerablus (Syria) near the Syrian-Turkish border.²⁵ The increase in the Euphrates flow as it moves south is a result of added tributaries.

In Syria the river flows for another 680 km²⁶, and is joined by the Euphrates' two main tributaries, the *Balikh* 230 km south of the Turkish-Syrian border, and the *Khabour* further south.²⁷ These two tributaries add a modest amount to the river's flow. Finally, the Euphrates proceeds south to cross the Iraqi border at the city of *Abu Kamal*. Soon after entering Iraq the river enters the giant delta of the Tigris-Euphrates system a flat area of more than 100,000 km covered with very fertile soil.²⁸ In Iraq, the river's journey

²⁴ Al-Rifai 2.

²⁵ Al-Rifai 3.

²⁶ Al-Rifai 2.

²⁷ Nurit Kliot, *Water Resources and Conflict in the Middle East* (London and New York: Routledge, 1994) 102.

²⁸ Kliot 102.

is estimated at 1200 km, and in the end the river discharges its waters in the Persian Gulf.²⁹

The Euphrates drainage basin covers an area of 444 000 square km. 28 per cent of which is situated in Turkey; 17 per cent in Syria; and 47 per cent in Iraq.³⁰ Eighty-eight per cent of the river Euphrates' water potential comes from the part of the basin situated in Turkey, the remaining twelve per cent coming from the Syrian basin.³¹

The Tigris sources are also located in the high mountains of eastern Turkey near Van Lake. Total length of the river is 1718 km.³²

The Tigris River crosses Syrian territory for a very short distance-44 km-; The Tigris basin covers an area of about 258 000 square km.³³

The average natural flow of the Tigris at the Turkish-Syrian border is 18.5 bcm/yr. It is joined in Iraq by several tributaries, which add significantly to its flow to reach about 50 bcm/yr.³⁴ The Tigris, as mentioned

²⁹ Al-Rifai 2.

³⁰ Al-Rifai 2.

³¹ J.A Allan, and Chibli Mallat, *Water in the Middle East: Legal, Political and Commercial Implications*, ed. (London and New York: Tauris Academic Studies, 1995) 191

³² Al-Rifai 4.

³³ Al-Rifai 4.

³⁴ Al-Rifai 4.

before, finally joins the Euphrates to form the Shatt-al-Arab waterway north of Basrah in Iraq.

The combined flow of the Tigris-Euphrates and their tributaries is estimated at about 80-84.4 bcm/yr of which about 30-33 bcm are generated in the Euphrates, while about 47-50 bcm are generated in the Tigris.³⁵ Eighty-eight per cent of the river Euphrates' water potential and about fifty-two per cent of that of the Tigris are generated in Turkey.³⁶

The significance of the Euphrates waters for Syria

Climatic, population and development factors converge to make the waters of the Euphrates River of extreme significance for Syria.

Arid and semi-arid climate dominate most of the Euphrates basin. The amount of precipitation decreases as we move south throughout the basin. An average annual precipitation of 500 to 1,000 millimeters in the upper basin (Turkey) drops to less than 200 millimeters in eastern Syria where the river crosses the Syrian-Iraqi border.

³⁵ Kliot 111.

³⁶ Allan and Mallat 191.

Syria relies heavily on the Euphrates waters. The extremely high evaporation rates in the region make Syria in desperate need of water for irrigation. The country is made up mostly of desert and semi-desert regions. More than 50 per cent of Syria's land get less than 250 millimeters of rainfall per year, and less than 10 per cent of the country receives enough precipitation for rainfed agriculture.

Iraq's need for Euphrates and Tigris waters is also great. Much of the country gets less than 125 millimeters of rainfall per year, making desert almost two thirds of Iraq's total land area. Agricultural production in central and southern Iraq is highly dependent on the Tigris and Euphrates Rivers for irrigation water.³⁷

On the other hand, Turkey has only 5 percent of its territory classified as semi-arid.³⁸ Its average annual precipitation of about 670 millimeters is adequate for rainfed agriculture. Moreover, Turkey has many rich perennial rivers, therefore, out of the three riparians, it is the best off in terms of water supply.³⁹

³⁷ Miriam R. Lowi, *Water and Power: the Politics of a Scarce Resource in the Jordan River Basin* (Cambridge University Press, 1993) 56.

³⁸ Kliot 108.

³⁹ Lowi 56.

Furthermore, extremely high rates of population growth within both Syria and Iraq have increased the demand on water dramatically. Both countries have rates of population growth exceeding 3 percent annually. Iraq's population of more than 18 million in 1990 is growing at a rate of 3.3 per cent annually. Syria's population estimated at 14 million in 1995 was growing at an alarming rate of nearly 3.8 per cent annually. Despite a slight decrease of this rate in recent years, it is still considered to be one of the highest in the world. Lastly, Turkey's population estimated at 50 million in 1989 is growing at a rate of about 2.5 percent.⁴⁰

The table below compares between the geographic, climatic, hydrologic, and population factors of each of the three riparian countries in relation to the Euphrates River in 1990.

⁴⁰ Majid Dawood, "*Ahamiyat Nahr al Furat fee Turkiya, Souriya, wa al Irak*" (The Importance of the River Euphrates in Turkey, Syria and Iraq) Paper presented at the Education Week Conference, Damascus, 3-8 Nov, 1990. P. 1.

Table 2.1 Comparison of geographic, climatic, hydrologic, and population factors between the three riparians on the Euphrates basin.

Comparison		Turkey	Syria	Iraq
Geography	Euphrates length(km)	1000 (38.4%)	680 (23.6%)	1200 (41.6%)
	Area of basin(1000 km)	122 (27.25%)	73 (16.44%)	205 (46.17%)
	The percentage of the basin area in comparison to the country's area	16%	39%	39%
Climate	Average annual rainfall (mm/yr)	650	250	100
	Average annual rainfall (bcm/yr)	510	46.6	53
Hydrology	Average surface water (billions cbm/yr)	196 (including the Euphrates and the Tigris)	4.69 excluding the Euphrates and the Tigris)	80 (including the Euphrates and the Tigris)
	Average underground water (billions cbm/yr)	18	5.075	—
	Average natural flow of the Euphrates (cbm/sec) before the construction of any dam	995 (beircik)	888 (Jerablus)	979 (Hit)
	Euphrates average flow (bcm/yr)	31.4 (Beircik)	28 (Jerablus)	30.9 (Hit)
Population (1989)	Population(millions)	50	12.5	18
	Percentage of people in the Euphrates basin to the country's population	10%	14%	28%
	Percentage of population growth	2.5%	3.8%	3,3%

Source: (Majid Dawood. The Waters of the Euphrates between Turkey, Syria and Iraq. p, 2)

A closer look at the table above, shows that Syria's total surface and underground water resources -excluding the Euphrates and the Tigris- amount to less than 10 bcm/yr. Meanwhile, surface and underground water

resources in Turkey, including the Euphrates and the Tigris, reach about 214 bcm/yr.

Syria's grave concern over GAP development stems out from the fact that the natural flow of the Euphrates at the Syrian-Turkish border is expected to decrease to less than 18 bcm/yr upon the completion of GAP. This decrease, Syria argues, will have a detrimental effect on its development projects.

Water demands in Syria have been increasing steadily as a result of two factors: high rates of population growth and irrigation. The rate of demand increases as populations grow and strive for higher standards of living. Likewise, rapid expansion of irrigated areas has been and is still considered a keystone of future economic development plans of the country.⁴¹

Since independence in 1945, Syria made plans to increase irrigated areas. Different projects were formulated, in the Euphrates basin (The Euphrates basin project) in 1947, and in the Orontes basin (the al-Ghab project) in 1951. Syrian economic growth during the past 40 years is attributed mainly to gains in agricultural output through increased irrigation,

⁴¹ Mikhail Wakil, "Analysis of Future Water Needs for Different Sectors in Syria," *Water International* Vol, 18 No, 1 (1993): 18.

and expansion in irrigated areas is officially considered as the basis of any economic development. At present, land reclamation and dam projects are being implemented in all the Syrian hydrological basins.

Increased dependence on irrigation was a result of the growing food deficit Syria was experiencing up to the 1990's. Low agricultural yields, coupled with rapid population growth in Syria have resulted in a growing gap between food production and consumption.⁴²

As a matter of fact, only eleven percent of total cultivable lands in Syria are under irrigation. The remaining eighty-nine per cent are cultivated under rainfed conditions. Moreover, Seventy-five per cent of these rainfed areas are receiving an average of only 250 to 350 mm of yearly precipitation, thus resulting in relatively low crop yields.

Thus up to the early 1990's, Syria was experiencing an increasing food deficit. Syria was not self-sufficient neither in cereals nor in other food grains, and its food imports were steadily increasing. For example, in 1970, Syria imported twenty-eight per cent of its wheat supplies; in 1985 forty-one per cent of wheat supplies were imported. In 1989, the country imported 1,128,000 tons of wheat and wheat flour. This represented 9.1 per cent of the

⁴² Wakil 18.

total value of the commodities imported by the country. Total imports of grains for the same year totaled about 1.7 million tons.⁴³

A “Christian Science Monitor” editorial reported that Syria provides 6 percent of its annual budget for importing food items. The same study reported that food imports amounted to 14 percent of Syria’s total imports for the year 1989.⁴⁴

To overcome the increasing food deficit and to ensure solid economic growth, the Syrian government gave top priority for the development of irrigation projects aiming at bridging this gap. Therefore, enormous amounts of money were invested in Syria to increase its area of irrigated agriculture.⁴⁵

The situation improved markedly during the 1990’s. Better agricultural methods were adopted, and with increased areas of irrigated agriculture Syria was able to become self-sufficient with regard to grains, and could export grains to other countries during years of good crop yield.

Such an expansion in irrigated agriculture created an increase in water demand, as did the growing needs of hydroelectric power.

⁴³ Wakil 18.

⁴⁴ Wakil 18.

⁴⁵ Wakil 18.

A closer look at the water budgets of the three riparians will further demonstrate the importance of the waters of the Euphrates for Syria.

Estimated Water Budgets of the Three Riparians

Turkey: Turkey is the source of both the Euphrates and the Tigris rivers. Turkey has abundant water resources both in absolute terms and relative to its neighbors, and has large areas suitable for rainfed agriculture. The Turkish State Hydraulic Organization (*Devlet Su Isleri*) estimates Turkey's annual runoff at about 185 bcm annually (other sources estimate slightly higher numbers), out of which only about 95 bcm should be available for consumption. The Tigris-Euphrates system constitutes about 50 per cent of this total. Renewable underground water is estimated at 9.5 bcm making total water resources available for Turkey to be estimated at 104 bcm. Turkey was utilizing about 14 bcm in 1982, 26 bcm in 1990 and is currently estimated to utilize 55 bcm.⁴⁶

⁴⁶ Kliot 133.

It is estimated that after the year 2000, about 43 billion cubic meters will remain, as an available surplus after all needs (Irrigation, industrial, and domestic) have been deducted.⁴⁷

Table 2.2 Estimated water budget fo Turkey (Mm3/yr)

Available water reserves	
Euphrates	33,480
Tigris	21,810
Other surface waters	129,640
Subtotal	184,930
Unavailable for consumption	90,000
Available for consumption	94,930
Available subsurface water	9,500
Total water reserves available	104,430
Total used(1982)	14,100
Projected total use(ca.2000+)	61,770
Available surplus(ca.2000+)	42,660

Source: government of Turkey, General Directorate of State Hydraulic Works, 1983. (Kolars. *Water Resources of the Middle East*.p.117)

Iraq: Prior to GAP, Iraq's estimated surface water resources amounted to 80 bcm. Apart from the Euphrates and the Tigris (and its tributaries), Iraq has no alternative source of water. Therefore, the country depends entirely on the waters of these two rivers that provide it with 98 per cent of its annual water budget.

Syria: Total surface waters of Syria amount to 34-35 bcm, out of which the Euphrates provided 28-31 bcm before the implementation of

⁴⁷ John Kolars, "Water Resources of the Middle East," *Canadian Journal of Development Studies*, Special issue (1992): 117.

GAP. The Euphrates provides an approximate 80-90 per cent of Syria's surface water supply making it extremely important for Syria's water supply budget.

The Tigris River forms a short international border in the northeast. Syrian development of the Tigris is very limited due mainly to topographic reasons making its exploitation quite costly. Therefore, its waters are used mainly locally for irrigation and constitute a minor addition to Syria's water resources.

Syria has few other water resources. Surface water resources other than the Tigris and the Euphrates amount to about 5 bcm of water. First is the Orontes River (Asi) which provides a flow of about 1.1 bcm. The river originates in Lebanon, flows through Syrian territory and finally discharges its waters into the Mediterranean Sea in the Alexandretta region (*Hatay*) in Turkey. Three-quarters of the basin is situated in Syria. Orontes River water is used mainly for irrigation in Syria's Ghab valley. It is also largely utilized for Syria's industrial sector. Turkish use of Orontes River water is limited. This is due mainly to extensive Syrian development on the river and contamination of river water by sewage and industrial waste.⁴⁸

⁴⁸ Peter H. Gleick, "Water, War and Peace in the Middle East," *Environment*. 36 April (1994): 15

The Yarmouk River -a major tributary of the Jordan- forms part of the Syrian-Jordanian border, and provides an annual flow of about 4.5 million cubic meters. In addition, two small streams -the Barada and the Awaj- serve the valley of Damascus, and several smaller streams flow seaward in the coastal plain.

Apart from its surface water resources, Syria has several underground aquifers, providing about 5 bcm. Water is drawn from these aquifers by means of thousands of wells, located in areas around Damascus, Aleppo, and along the Syrian portion of the Orontes River basin. Many of the wells are being overexploited and are showing signs of increasing salinization.

The table below is an inventory of surface and underground water resources of the various basins in Syria as well as population figures regarding each basin.

Table 2.3 Inventory of surface and underground water resources of the various basins in Syria, and population regarding each basin.

Basin	Area (km ²)	Average annual rainfall		Pop. of basin (million)	Average water resources (M.m ³)					Com ments
		(mm)	(M.m ³)		Sur. Water	Underground water			total	
						wells	Sprin g	Unde rgrou nd total		
Orontes	21624	316	6833	2.497	1110	473	1134	1607	2717	-
Sahel	5049	1307	6599	1.320	1557	290	488	778	2335	-
Barada	8630	266	2297	3.712	578	272	*	272	850	-
Yarmouk	6724	287	1930	0.772	182	16	249	265	447	-
Desert	70786	138	9768	0.244	172	176	6	182	354	-
Aleppo	11155	304	3391	2.167	303	279	67	346	649	-
Tigris and Khabour	21129	402	8493	0.843	788	483	1117	1600	2388	**
Euphrates	40083	182	7295	0.945	-	25	-	25	25	***
Total	185180	250	46606	12.500	4690	2014	3061	5075	9765	****

* Included in surface runoff

** Without calculating the country's share of Tigris waters.

*** Without calculating the country's share of Euphrates waters.

**** Without calculating the country's share of the Euphrates and Tigris.

(Majid, Dawood. The Waters of the Euphrates between Turkey, Syria and Iraq p.10)

The table above shows that without calculating Syria's share of the Euphrates and the Tigris total Syrian renewable surface and underground water resources amount to a mere 9.765 bcm.

We may conclude that Turkey is a country that is in possession of abundant water resources compared to Syria. As such Turkey is not likely to suffer from any shortage of water either now or in the foreseeable future. In fact, Turkey has on many occasions put forth the idea of transporting some of its water to water short countries of the Middle East, either through pipes (the peace pipelines project) or through plastic balloons on ships.

On the other hand, water demands for different sectors in Syria have been increasing steadily. It is estimated that by the year 2010 the country will face a serious deficit in its water balance. This situation will curtail future development plans, and lead to decreased standards of living.⁴⁹ Iraq's situation with respect to the waters of the Euphrates is equally serious.

It is to be emphasized that against the increasing demands for water in Syria, availability of water from the Euphrates-Tigris basin is steadily decreasing as a result of Turkey's ambitious irrigation and energy production plans. The following section will describe the evolution of GAP, the reasons behind its implementation as well as its future effects on Syria and Iraq.

⁴⁹ Wakil 18

GAP: The Southeast Anatolia Project

In the early 1980's Turkey embarked on a huge development project- the Southeast Anatolia Project-, usually known by its Turkish acronym GAP (*Guneudogu Anadolu Projesi*).

GAP was introduced in the 1960's, as a small-scale irrigation scheme that involved the construction of a few small dams. A couple of decades later, GAP was transformed into a multi-purpose irrigation, and energy production project. By exploiting the waters of the Euphrates and Tigris Rivers, through the construction of twenty-two dams, and nineteen hydroelectric plants, Turkey is trying to effect profound changes on a political, economic and, social level in the Southeast Anatolia region, which comprises 9.5 Percent of Turkey's total area, and is made up of Turkey's poorest provinces: *Adiyaman; Diyarbakir; Gaziantep; Mardin; Siirt and Sanliurfa*.⁵⁰ These provinces are inhabited by more than 5 million people of whom about 50 per cent are Kurds; 40 per cent ethnic Turks; and 10 per cent are Arabs.⁵¹

⁵⁰ Kliot 125.

⁵¹ Hillel 104.

As a matter of fact, economic and social development since the establishment of the Turkish republic, has divided Turkey into two unequal parts: a prosperous west with low population growth rates, high standards of living, flourishing industries, and numerous trade centers. Compared to a backward east, made up of the regions east of the capital Ankara, manifesting high population growth rates, extremely low standards of living, as well as low educational levels. This area is mainly inhabited by Kurds.

Turkish officials believe that economic and social backwardness in southeast Anatolia is largely responsible for the Kurdish separatist movement (the aspirations of the Kurdish people to separate from Turkey and form a nation of their own).⁵²

The arrival of Turgut Ozal into power in the 1980's as head of the State Planning Organization, and his vision of a strong and more powerful Turkey, turned a small irrigation plan into a vast project. In its domestic dimension, Turkey expects that GAP would transform the economic nature of this backward area known as Southeast Anatolia into an area of prosperity, which would attract industry as well as develop agriculture, and

⁵² Mohammad Nour-el-Din, *Turkia Fee al Zaman al Mutahawel*. (Turkey in a Changing Time) (London-Beirut: Riad El-Rayyes Books Ltd, 1997) 151

in which the new wealth and modern infrastructure would induce the people to support the government and make it impossible for dissidents to operate.⁵³

It is estimated that by increasing the irrigation capacity and energy production, GAP would double the agricultural production of Turkey by early next century.⁵⁴ Irrigation will introduce intensive and profitable farming in a region where 70 per cent of the working population are engaged in low productivity agriculture.⁵⁵

The expected increase in agricultural production will trigger industrial growth in the region, particularly in agro-industry. GAP will also create vast employment opportunities for the local people in agriculture, industry, and transport. More than 1 million jobs will be created resulting in reducing the problem of unemployment in Turkey and eventually helping to bring prosperity to the backward east. This would limit rural emigration into urban centers, as well as it will limit the inflow of people from the poor east to the

⁵³ John Bulloch and Adel Darwish, *Water Wars: Coming Conflicts in the Middle East* (London: Victor Gollancz, 1993) 61

⁵⁴ Allan and Mallat 201-2

⁵⁵ Kliot 125.

more prosperous western areas of Turkey. Income levels are expected to rise,⁵⁶ per-capita income is expected to double in the southeast region.⁵⁷

Upon the completion of GAP the production of hydroelectricity will dramatically increase. Turkey aims to expand hydropower as a cheap source of energy. While Turkey's demand for energy is constantly increasing as a result of population growth and large-scale industrialization, Turkey is very poor in energy sources such as coal or oil. "From 1975 to 1982 the total energy used in Turkey increased by 30 per cent, while production from all Turkish sources increased by only 24 per cent, resulting in Turkey needing to import oil, coal, and electricity from external sources. The need for energy is still increasing and energy consumption grew between 1987 and 1988 by 10.5 per cent. The hydropower to be generated from GAP will increase Turkey's electricity supply by 80 per cent. Although hydropower constituted 9.7 per cent of the total energy consumed in Turkey in 1982, by 1990 hydropower comprised 40 percent of the electric power supply."⁵⁸

Turkish officials predict that the expected improvement in the economy of the region will bring more Turks to settle into this region, thus

⁵⁶ Kliot 126.

⁵⁷ Bulloch and Darwish 65.

⁵⁸ Kliot 135.

diluting Kurdish preponderance there. Moreover, the improvement in the standards of living will help in integrating these impoverished inhabitants into modern Turkey's economy and society, which will eventually weaken the Kurdish separatist movement.⁵⁹ According to one source, the object of the Turkish government is to "deny the guerillas of the PKK the environment in which they can operate."⁶⁰

Moreover, through GAP Turkey aspires to become the major power in the Middle East. Irrigation will enable the region to export agricultural products to other parts of the country as well as to other countries. Arab countries of the Middle East, which have a permanent food shortage, are certain to be a main target.

Syria and Iraq feel that GAP will enable Turkey to use water as a means of pressure against both countries. Turkish possession of this valuable weapon generates fear among Syrians and Iraqis and reinforces their belief that a tripartite water sharing agreement is needed.

When GAP is concluded, some 1.6 million hectares of land will be irrigated in Turkey.⁶¹ GAP is made up of 13 projects; seven are to be

⁵⁹ Hillel 104.

⁶⁰ Allan and Mallat 203.

⁶¹ Klot 125.

constructed on the Euphrates, six on the Tigris. The following paragraphs will provide a brief overview of the main components of GAP.

The Keban Dam Project (1965-1974): The dam has a storage capacity of about 30 billion cubic meters, however, Turkey does not officially include the Keban as part of the GAP project.

Karakaya Dam Project (1967-1988): built downstream of the Keban Dam and with storage capacity of about 9 billion cubic meters.

The Ataturk Dam Project: it is the largest and the most important part of the GAP and one of the largest dams in the world. Located near Bozova-180 km south of the *Karakaya Dam*-. Work on the dam began in 1981 and was completed in 1992. The lake behind the dam has a storage capacity of about 48 billion cubic meters. The *Ataturk Dam* will produce 2,400 MW or one-third of all the electrical energy envisaged for the whole GAP project. Out of the lake of the *Ataturk Dam*, water will be discharged through the *Sanliurfa* tunnels system, made up of two tunnels, each with a diameter of 7.62 m and a length of 26.4 m. The water will be discharged at a rate of 328 m³/s. The *Sanliurfa* system is going to be the largest irrigation system in the world.⁶²

⁶² Kliot 129.

The Euphrates Project: the project includes the *Birecik* and the *Karkamis* Dams. The *Birecik dam* is the fourth major dam on the Euphrates while the *Karkamis* is the fifth.

Other projects include *the Surut-Baziki Project, the Adiyaman Kahta Project, the Adiyaman-Goksu-Araban Project, and the Gaziantep Project.*

GAP on the Tigris comprise the following six projects:

The Dicle Kralkizi Project, the Batman Project, the Batman Silvan Project, the Garzan Project, the Ilisu Dam, and the Cizre Project.

Total storage capacity of dams constructed on the Euphrates in Turkey amount to 90 bcm (i.e. 3 times the natural flow of the river). These will ultimately irrigate an area of 1 446 000 ha, and produce 20 billion kilowatt hours of energy annually.⁶³

Syria on the other hand constructed the following dams on the Euphrates: *The al-Tabaqa Dam* with a storage capacity of 14,16 bcm; *the Al-Baath Dam* with a storage capacity of 90 million cubic meters; and finally, *the Tishreen Dam* currently under construction for energy production purposes and with a storage capacity of 1,88 bcm.

⁶³ Al-Rifai 3.

Iraq's dams on the Euphrates include: *Al-Qadisiya Dam, al-Baghdadi Dam* and *al-Habbaniya Dam* with total storage capacity of 11,600 bcm.⁶⁴

Thus, all three countries have been heavily investing in huge irrigation projects. Let's take a look at the three countries current and projected irrigation schemes.

Table 2.4 The three countries current and projected irrigation schemes.

Comparison	Turkey	Syria	Iraq	Total
Current projects(hectares)	300 000	240 000	1 200 000	1 694 000
Future projects (including current projects)(hectares)	1 446 300	736 275	1 952 400	4 134 975
Total future water needs(irrigation and evaporation) (M.m3/y)	17 400	13 263	25 100	55 763
Return flow(M.m3/y)	1 700	2 463	5 100	9 263
Net consumption(irrigation+ evaporation) (M.m3/y)	15 700	10 800	20 000	46 500
The percentage of net consumption to natural river flow	50%	34%	46%	148%
Total net area that can be irrigated with Euphrates water in the three riparian countries.	2.522 million ha			

Source: (Majid Dawood. The water of the Euphrates River in between Syria, Turkey and Iraq. P, 4)

The table above shows current irrigation projects and future planned irrigation projects in the Euphrates basin in all three countries. By looking closely we take notice that the problem lies in the fact that total future net

⁶⁴ Al-Rifai 3.

water consumption amounting to an average of 46.5 bcm/yr exceeds by one and a half times the natural flow of the river amounting to 31.4 bcm/yr on average.⁶⁵

According to Majid Dawood the total area that can be irrigated from the Euphrates' water in the three countries amounts to 2.5 million ha on average and not 4.13 million ha as is planned by the three countries.⁶⁶

According to Kolars, and as shown by the following two tables, the reduction in water quantity of the Euphrates and Tigris rivers that will eventually result when the GAP project is completed is very serious.

⁶⁵ Dawood 4.

⁶⁶ Dawood 4.

Table 2.5 Sources and uses of the Euphrates River (Mm³/yr)

Natural flow	Observed at Hit, Iraq.	29,800
	Removed in Turkey(pre-GAP)	820
	Removed in Syria(pre-Tabqa)	2,100
	Natural flow at Hit	32,720
Pre-Keban dam(pre-1974)	Flow in Turkey	30,670
	Removed in Turkey	-820
	Entering Syria	29,850
	Added in Syria	+ 2,050
	Removed in Syria	-2,100
	Entering Iraq	29,800
	Added in Iraq	—
	Iraqi irrigation	-17,000
	Iraqi return flow(est.)	+ 4,000
To Shatt al-Arab	16,800	
Full use scenario (ca. 2040)	Flow in Turkey	30,670
	Removed in Turkey	-21,600
	Entering Syria	9,070
	Removed in Syria	-11,995
	Return flow & tributaries (Turkey/Syria)	+9,484
	Entering Iraq	6,559
	(removed in Iraq)	-17,000
	return flow in Iraq	+4,000
Defecit to the Shatt al-Arab	-6,441	

Source: (John Kolars. Water Resources of the Middle East p.107)

Table 2.6 Sources and Uses of the Tigris River (Mm³/yr)

	Pre-project	2000+	Natural flow
Flow from Turkey	18,500	18,500	18,500
Removed in Turkey	0	-6,700	
Entering Iraq	18,500	11,800	
Inflows to Mosul	2,000	2,000	2,000
Greater Zab	13,100	13,100	13,100
Lesser Zab	7,200	7,200	7,200
Other	2,200	2,200	2,200
Subtotal	43,000	36,300	43,000
Reservoir evaporation	0	-4,000	
Irrigation (to Fatha)	-4,200	-4,200	
Return flow	+1,100	+1,100	
Adhaim river	+800	800	800
Irrigation (to Baghdad)	-14,000	-14,000	
Return flow	+3,600	+3,600	
Domestic use	-1,200	-1,900	
Diyala river	+5,400	+5,400	5,400
Irrigation	-5,100	-5,100	
Return flow	+1,300	+1,600	
Subtotal	30,700	19,200	49,200
Reservoir evaporation	0	900	
Irrigation to Tokut	-8,600	8,600	
Return flow	+2,200	(2,200 to outfall drain)	
Total to Shatt al-Arab	24,300	9,700	49,200

Source: (Kolars. water resources of the Middle East p.108)

GAP will result in a gradual reduction of water over the next decades.

Syrian officials estimate that upon the completion of GAP the reduction in water flowing into Syria will be 40 percent while reduction in water flowing

into Iraq will reach 80 percent.⁶⁷ Turkey has promised to release more than 15 billion cubic meters of Euphrates waters to Syria as stipulated in the protocol signed by Turkey and Syria in 1987. However, Jean Fried president of the European Institute of water, argues that “the promise will be difficult to keep”⁶⁸

GAP will have an impact on both the quantity and quality of water flowing downstream to Syria and Iraq. GAP has already resulted in environmental degradation in both Syria and Iraq. Return flow resulting from Turkish irrigation will lower the quality of water flowing from Turkey into both countries for it will be loaded with harmful salts, fertilizers and pesticides. The growing salinity of the Euphrates has already ruined some Syrian and Iraqi Agricultural lands.

Both Syria and Iraq are deeply concerned by GAP development in Turkey. The full execution of GAP will deprive both countries of the water they so desperately need to carry out their current and future irrigation projects. Water shortages will be a constraint on development as economic and social development in the Arab World depends to a large degree on the

⁶⁷ Nour-el-Din 153.

⁶⁸ Allan and Mallat 215.

availability of water. Moreover, Turkey's use of this valuable commodity will enable Turkey to use this water to achieve political ends.

The next chapter will reconstruct the history of the dispute from its inception till the present time. We will explain why all past efforts at negotiation failed to produce any tangible results.

3. Past Efforts at Managing the Water Dispute

The dispute over the Waters of the Euphrates between on the one side Turkey, and on the other side Syria and Iraq, goes back to the sixties and the refusal by Ankara to conclude a tripartite agreement for the sharing of the Euphrates.⁶⁹

Prior to this century, large-scale use of the waters of the Euphrates was confined to the Mesopotamian plain where land is flat and therefore more conducive to settled agriculture. Early during this century, Syria and Turkey showed little interest in the river. As such there was no need for agreements to regulate the sharing and the common use of this river.

During the Mandate Period, several agreements were concluded in relation to the Euphrates basin, either between the Mandating Powers themselves or between the latter and the Turkish government. Development had not started yet in the Euphrates basin, as such these agreements were general in character, and tried to emphasize the right of downstream countries to waters entering their territory.⁷⁰

⁶⁹ Allan and Mallat 192.

⁷⁰ Allan and Mallat 192.

This situation changed markedly in the 1950's with the onset of severe population pressure in the basin, as well as the introduction of large-scale cotton cultivation in the Syrian Jezirah region of the Euphrates basin. In the 1960's, rapid population growth, as well as the utilization of water for irrigation and energy production purposes increased competition over this scarce natural resource.

Communication and actual negotiations over the waters of the Euphrates started in 1962 when the three countries began their development schemes of the Euphrates Basin.

The sixties and seventies witnessed the failure of a series of discussions, which had started in 1962 between Syria and Turkey. Likewise, numerous meetings were convened by Syria and Iraq, in the years 1962-1967. The first round of tripartite talks took place in 1965. The sum of water demands put forth by each country - Iraq, 14 bcm; Syria 13 bcm; and Turkey, 18 bcm- exceeded the annual yield of the Euphrates by 15 bcm.⁷¹

Disappointingly these endless meetings failed to produce any result, with the exception of the formation of a technical committee between Turkey and Iraq in 1980. This committee which was joined by Syria in 1982

⁷¹ John Waterbury, "Transboundary Water and the Challenge of International Cooperation in the Middle East," *Water in the Arab World: Perspectives and Prognoses*, ed. Peter Rogers and Peter Lydon (Harvard University Press, 1993) 56

aimed at sharing and exchanging hydrologic information and data. Moreover, endless rounds of negotiations within the technical committee produced no result in relation to concluding a basin-wide agreement over the sharing of the Tigris and Euphrates rivers. On the contrary, each of the riparian states has been active in developing and utilizing its section of the river independently, disregarding the rights, concerns, or works of its neighbors.⁷²

On the one hand, Turkey undertook the construction of the *Keban Dam* unilaterally and without prior consultation of either of the two riparian countries. *Keban* was only one of a series of dams to be constructed on the Euphrates and Tigris within the framework of GAP.⁷³

On the other hand, both Syria and Iraq went ahead with their separate enterprises for the development of the Euphrates. Syria proceeded with the construction of the *Tabqa Dam*, a prestigious project for the country intended to irrigate large tracts of land in the Euphrates basin. This was followed by the construction of the *Al-Baath Dam*, and the *Tishreen Dam* currently under construction. Iraq also proceeded with its own enterprises for harnessing the waters of the Euphrates and Tigris Rivers.

⁷² Hillel 103.

⁷³ Allan and Mallat 201.

Turkey was not hesitant to exploit to the maximum the Iraqi-Syrian differences and to proceed with its own enterprises. Later meetings of Turkish, Syrian, and Iraqi irrigation ministers in the years 1988 and 1990 produced no results.

Evidently, Turkish officials had no interest in concluding a tripartite agreement over the waters of the Euphrates. Moreover, Turkey has not consulted with or obtained formal agreement from either Syria or Iraq as to the construction of any of the dams within the framework of the GAP project. Both countries have frequently protested this fact.

Tension between the two countries soared to a point in 1987, that Syria and Turkey thought it in their interest to sign a security Protocol. Negotiations were conducted during a visit of Turgut Ozal then Prime Minister of Turkey to Damascus. These negotiations resulted in the signing of a security Protocol, and in Turkey's undertaking to maintain a minimum flow of 500 cubic meters per second from the Euphrates water at the Syrian-Turkish border. This undertaking was considered as a temporary arrangement until a final agreement on the sharing of the Euphrates river is reached between the three riparians. Moreover, This Turkish guarantee concerns only the Euphrates water, with no mention of the Tigris. Finally,

the guarantee made in 1987 was only to Syria. Iraq was left on its own to assure its water supply.

Subsequently, in 1990 Syria signed an accord with Iraq by which it would retain 42 percent and release to Iraq 58 percent of the annual flow it receives from the Euphrates.⁷⁴

Turkey's promise to release no less than 15 billion cubic meters per year of Euphrates water to Syria has not been accepted by Syria as final or sufficient. The Syrians stress that the Protocol of 1987 was an (informal) provisional agreement to help Turkey during the filling of the Ataturk Dam until the three riparians agree on a final division.

In 1990, a serious crisis evolved upon the completion of the Ataturk Dam the largest part of the Southeast Anatolia Project, when Turkey interrupted the flow of Euphrates water to Syria for a whole month. Officially, the action was to fill the reservoir of the dam. While Turkey firmly denies that its action had any political purpose, it is generally accepted that by stopping the flow of the Euphrates River for more than three weeks the Turks were making a point. Both Syria and Iraq protested loudly as they suffered serious deprivation.⁷⁵ During the period of curtailed

⁷⁴ Hillel 103.

⁷⁵ Hillel 106.

flow, Syria not only experienced crop losses but also was forced to reduce its production of electricity, and- because many of the pumps drawing water from wells along the coastal area of Syria are electrical- there were even shortages of drinking water. Iraq also suffered crop losses. Consequently, both countries demanded that Turkey cease impeding the natural flow of the river. A threatened confrontation was averted when the Turks renewed the river's flow. However, that near-crisis was a harbinger of what is likely to happen in the future, if the countries concerned do not enter into a basin-wide water-sharing agreement soon. As of date there are no signs that such an agreement is near.⁷⁶

Before going any further let us examine the official positions of the three countries as regards the sharing of the Euphrates and the Tigris.

Turkey's Official Position.

Turkey claims that contrary to the prevailing belief, it is not a country rich in water resources. Moreover, it is not the richest country of the region in water resources. Turkey also asserts that its possession of a surplus of water derives from the fact that it is not at present in a position to fully utilize its water resources.

⁷⁶ Hillel 106.

Turkey imposes its own legal interpretation on the situation of the Euphrates-Tigris basin when it claims that there is a clear distinction between a transboundary river such as the Euphrates, and an international river. Turkey alleges that an international river is defined as a river the two banks of which fall under the sovereignty of two or more states, in which case the waters have to be shared between the riparian countries. Transboundary rivers such as the Euphrates, however, fall under the sovereignty of the source country, and the downstream countries may not share but may use these waters in a fair, reasonable and optimum manner⁷⁷. Turkey has also accepted during the negotiations within the technical committee, the principle of the obligation of all riparian states not to cause appreciable harm in the course of its use of water.

Therefore, Turkey sees an unlimited use of these waters as a natural right. Considering the waters of the Euphrates and the Tigris as an exclusively Turkish national resource, Turkey draws a parallel between Turkish water and Arab oil. The Turkish Minister of State Kamran Inan stated that: "Turkey possessed the same right to the waters of the Euphrates and the Tigris as the Arabs did to their oil."⁷⁸ Other Turkish officials have

⁷⁷ Allan and Mallat 211.

⁷⁸ Allan and Mallat 208.

made similar comments and remarks on various occasions, asserting that Turkey's commitment in 1987 to release a minimum of 500 cubic meters per second at the Syrian border does not constitute any legal obligation but is rather a gesture of good will.

Turkey has proposed a plan called "The Three-Staged Plan for Optimum, Equitable, and Reasonable Utilization of the Transboundary Watercourses of the Euphrates-Tigris Basin". The plan was first introduced during the fifth meeting of the Joint Technical Committee between 5-8 November 1984. Turkey has reiterated its proposal in 1990, 1993 and recently in 1997. In short, the plan calls for extensive studies to be made of all the lands in Iraq, Syria and Turkey, in order to determine for which lands irrigation makes economic sense.⁷⁹

Turkish officials assert that "the problem with Iraq and Syria is that they have a great deal of unproductive land which is not economically feasible for agriculture. Nevertheless, they insist that Turkey gives them considerable quantities of water to irrigate these unproductive lands, which is totally unrealistic."⁸⁰

⁷⁹ Allan and Mallat 213.

⁸⁰ Allan and Mallat 213.

Iraq's Official Position

Iraq considers the Tigris and the Euphrates to be international rivers and, consequently claim a share of their waters.

Iraq's views in relation to the waters of the Euphrates-Tigris Basin can be summarized as follows: Iraq Stresses on its acquired rights stemming from the fact that for thousands of years the inhabitants of Mesopotamia depended on the water of these two rivers for their livelihood. Therefore no upstream riparian country is entitled to take away the rights of these inhabitants. Iraq has 1.2 million hectares of agricultural land in the Euphrates Basin.

Iraq proposes that the sharing of the Euphrates water should proceed on the basis of firstly allocating water to the needs of all existing projects in the riparian states. The excess water would then be shared proportionally according to the needs of the projects under construction, and lastly to those of future planned projects in the three riparian states.

Syria's Official Position

Syria also maintains that it possesses acquired rights, dating from antique periods, over the rivers that pass through its territory.

Syria stresses further that the Euphrates and Tigris rivers are international watercourses, therefore to be shared between the riparian countries according to a quota to be determined as follows:

Syria suggests that the river flow should be allocated to all projects whether existing, under consideration, or under planning. If the water flow falls short of the needs of all projects, then the deficit would be shared by the three riparians proportionally.

It is to be noted that the main element of disagreement between Turkey on the one side, and Syria and Iraq on the other side, is over the legal definition of an international watercourse. While Turkey considers the Euphrates and the Tigris as an exclusive Turkish national resource, they are reckoned by Syria and Iraq to be international watercourses.

Iraqi-Syrian differences over the sharing of the Euphrates center around how the quota is to be determined. Iraq stresses on its acquired rights since it has large tracts of land irrigated by the Euphrates and Tigris, while Syrians stress future needs as the country is currently implementing huge irrigation projects. Meanwhile, Turkish officials insist that Turkey has no legal obligation to share the water of the Euphrates and Tigris rivers, which they claim to be an exclusive national resource.

Before going any further, it is deemed essential here to examine the main elements in international law pertaining to the sharing of international watercourses.

International Law on Water

Codification efforts concerning the non-navigational uses of international watercourses started mid-century as conflicting demands on limited water resources were the result of a dramatic increase in water consumption-as populations burgeoned-, and as water came to be utilized for a variety of other purposes such as energy production.

The most important milestones in the long and arduous process of codification efforts are: the Salzburg Resolutions of 1961 by the Institute of International Law; The Helsinki Rules of 1966 adopted by the International Law Association at its fifty-second conference held in Helsinki; The African-Asian Commission in New-Delhi in 1973; Finally, and most importantly the Law on the Non-Navigational Uses of International Watercourses.

In 1970, the United Nations General Assembly assigned to the International Law Commission, a UN affiliated body, the task of codification and development of the Law of Non-Navigational Uses of International

Watercourses. The task did not prove to be easy. After about thirty years of deliberations the sixth Committee finally submitted its proposal to the General Assembly for ratification. The Framework Agreement was adopted by the General Assembly in its fifty-first session on 21/05/1997. One hundred and three countries voted in its favor; Turkey, Burundi, and China voted against the law, while twenty seven countries abstained from voting.

The Law on the Non-Navigational Uses of International Watercourses stipulates that the riparians of an international waterway are obliged to use, develop, and protect the watercourse in an "equitable" and "reasonable" manner. Each riparian has a right of utilization equal to that of every other co-riparian. However, equitability in this context does not mean an equal share of the water. Rather equitability implies the idea of proportionality.⁸¹ In chapter 2, article 6 the law states that the utilization of an international watercourse in an "equitable" and "reasonable" manner requires taking into account all relevant factors and circumstances, including:

- A. Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character.
- B. The social and economic needs of the water course states concerned.

⁸¹ Naff 264.

- C. The populations that depend on the watercourse in each watercourse state.
- D. The effects of the use or uses of the watercourse in one watercourse state on other watercourse states.
- E. Existing and potential uses of the watercourse.
- F. Conservation, protection, development, and economy of use of the water resource of the watercourse and the costs of measures taken to that effect.
- G. The availability of alternatives, of corresponding value, to a particular planned or existing use.

In determining what is a reasonable and an equitable share, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.

Reasonable (or rational) usage may be explained as exploitation of water, in such a way as to conserve the resource for the benefit of the present and future generations through careful planning and management.⁸²

As mentioned previously Turkey insists on using the term “transboundary rivers” instead of “international rivers” to describe the

⁸² Naff 264.

waters of the Euphrates and Tigris rivers. It is important at this stage to mention the exact definition of an international watercourse as stated in the Law of the Non-Navigational Uses of International Watercourses under Article 2:

- A. 'International Watercourse' means a watercourse, parts of which are situated in different states.
- B. 'Watercourse' means a system of surface and underground waters constituting, by virtue of their physical relationship, a unitary whole and flowing into a common terminus.
- C. 'Watercourse State' means a state in whose territory part of an international watercourse is situated.

Thus, an international river is a watercourse that separates or crosses the territories of several states. As such the term "transboundary" watercourse falls under the concept of an international watercourse and certainly does not constitute by itself an independent legal system.⁸³

The Euphrates, which has its source in Turkey and crosses Syria and Iraq, is therefore an international river. Once this is established, the problem regarding the Euphrates comes down to a dispute about the scope of the

⁸³ Allan and Mallat 220.

rights of a riparian state to the part of the basin, which comes within the jurisdiction of its territory.⁸⁴

Next we shall examine whether the water/oil parallel is “reasonable”. According to an analysis by Schwebel, the chairman of the International Law Commission (ILC) “water is not confined within a system of political frontiers and has the property of transmitting to a country modifications (quantity and quality of water) that are produced in another country. This necessitates a limitation of state sovereignty and, in consequence, limitations in the utilization of international watercourses.”⁸⁵ So it was considered that “in the case of a fluvial system flowing over two or several states, the principle could be applied, not under the form of a permanent sovereignty on a determined quantity of water crossing national territory, but in the form of a permanent sovereignty over a part of the renewable and unitary resource contained in the fluvial basin which relates to the territorial jurisdiction of the state”.⁸⁶

⁸⁴ Allan and Mallat 220.

⁸⁵ Allan and Mallat 219.

⁸⁶ Allan and Mallat 219.

Thus, the Turkish attitude does not conform to the principles and rules of international law established by the international community on the non-navigational uses of international watercourses.

However, the main problem of international law is that it is not binding and has no means of being enforced. The decision to conclude an agreement will always be up to the states themselves. The Turkish representative put down the following reservation concerning the adoption of the Law on the Non-Navigational uses of International Watercourses: “we do not intend to sign this treaty and it will have no legal implications whatsoever on our country.”

Despite the fact that the Law on the Non-Navigational Uses of International Watercourses cites the obligation not to cause “appreciable harm” and the obligation to cooperate, mainly through the exchange of data, and although it requires a six-month notification period by the initiating party, and another six months of obligatory negotiations, in case negotiations are unsuccessful the initiator of the project is free to proceed with the project despite the other parties’ disapproval.

Moreover, guidelines and rules of international law are generally vague. Terms such as “appreciable harm” or “equitable” and “reasonable” use are difficult to define. The importance of principles of international law

lies in the fact that “they tend to shift international water disputes from contests of power to considerations of fair rights and mutual obligations”⁸⁷

Thus, the unbinding nature of international law and the lack of enforcement measures allowed riparian issues to be manipulated as part of power relationships.

The situation in the basin can be summarized as follows: Turkey the upstream riparian and the militarily and economically strongest power out of the three riparians has little to gain from cooperation and therefore it is reluctant to cooperate. Syria and Iraq on the other hand the downstream states and the militarily and economically weaker sides who are heavily dependent upon the basin waters (access to water is linked to national security concerns) will have to rely on Turkey’s voluntary cooperation to secure their share of the water. According to Lowi: “States must have mutual interests; they must stand to gain from their cooperation...In situations where mutual interest is minimal or absent, under these conditions, states will be reluctant to cooperate with each other and will choose less durable rather than more durable arrangements.”⁸⁸ Thus, Turkey being at the source of the river, it can utilize as much of the water as it chooses unilaterally,

⁸⁷ Hillel 272.

⁸⁸ Lowi 6.

irrespective of downstream needs. It will not cooperate unless it is coerced to do so.

In the end all efforts to solve the water dispute between Turkey and Syria over the Euphrates have so far failed. Turkey continues to pursue its projects on the Euphrates without any consultation or even consideration to Syrian concerns. The two countries' political relations, which are intimately tied to the water issue remain extremely tense. Claims and counterclaims are continuously proffered by both parties. Even worse, relations in the past few years have further deteriorated as Turkish-Israeli cooperation increased. We will look into these aspects in more detail in the next chapter.

4. Syrian-Turkish Inter-State Relations: The Political Dimension of Water.

Syrian-Turkish inter-state relations have proved a formidable obstacle to cooperation. State interactions were always marked by mutual feelings of suspicion. Syria and Turkey differ in their political orientation on a broad variety of international issues. A multitude of cultural, historical, and social factors beyond the scope of this study made the two countries part of two enemy camps.

Since its establishment in 1923, the Turkish Republic has consistently aspired to be part of the west.⁸⁹ In fact, the Turks were still feeling angry at the Arab populations that had rebelled against Ottoman Turkey during the war. The Arabs were considered by Turkey as traitors of the Empire who contributed largely to its downfall.⁹⁰ There was a strong desire in Turkey to "disassociate itself from its former non-Turkish parts of the Ottoman Empire and especially from the Arab world, which so powerfully symbolized the

⁸⁹ Graham E. Fuller, *Turkey Faces East: New Orientations Toward the Middle East and the Old Soviet Union*, (Santa Monica, California: RAND, 1992) 15

⁹⁰ Fuller 16.

Islamic heritage that Ataturk sought to reject".⁹¹ This Turkish attitude which lay at the core of Kemalist ideology, accounted for Turkish aloofness towards most of the Arab world up to the 1970's.

On the other hand, the Arabs were gravely upset by Turkey's recognition of Israel in 1949 and by the development of close relations in trade and intelligence gathering between the two states. Both Turkey and Israel shared distrust of radical forces in the Middle East. Israel's view of Turkey was favorable, starting with the fact of the highly tolerant attitude of the Ottoman Empire toward its Jewish subjects.⁹² Moreover, for Israel, good ties with Turkey reinforced Israel's hope and belief that its problems are more with the Arab world than with the Muslim world in general.⁹³ To add more, Israel's strategy to develop closer relations with Turkey was motivated by the desire to encircle and isolate the Arab world by way of making alliances with regional states hostile to the Arabs.

In addition, Turkey's alliance with the west, and its participation in western security institutions as a member of the North Atlantic Treaty

⁹¹ Fuller 16.

⁹² Fuller 25.

⁹³ Fuller 25.

Organization (NATO), was perceived by its Arab neighbors as serving interests directly hostile to the interests of the Arabs.⁹⁴

Meanwhile, the Syrians were drawn towards the Soviet Union, Turkey's main geostrategic threat. Syria's closer ties with the Soviet Union were viewed by Turkey as serving the interests of its enemy.⁹⁵

Thus, Syria and Turkey were part of two opposing camps, a pro-western camp joined by Turkey and Israel and a pro-Soviet camp joined by Syria.

In addition to differences in political orientation, territorial issues also plagued relations between Syria and Turkey. The Alexandretta (*Hatay*) issue remained a continuous source of tension between Syria and Turkey, as Syria has never accepted the incorporation of the Sanjak of Alexandretta into Turkey in 1939. The Sanjak was part of French mandated Syria. It was handed over to Turkey as part of a deal struck between the French government and Turkey in return for Turkey's neutrality during World War II. The Sanjak of Alexandretta was renamed the province of *Hatay*. Successive Syrian governments have demanded the return of Alexandretta to Syria, and Syrian maps have shown the region as part of Syrian territory.

⁹⁴ Fuller 16.

⁹⁵ Fuller 17.

The Alexandretta issue remains a bone of contention between the two countries "in that Syria, while not actively prosecuting any territorial claim, has not formally renounced its view that the 1939 cession by Turkey was illegal."⁹⁶

As part of its general anti-western orientation and in retaliation for specific grievances with Turkey, Syria supported political movements hostile to Turkey. These included the Kurdistan Worker's Party generally known by its Turkish acronym PKK (*Partia Karkeren-I-Kurdistan*), the Armenian Secret Army for the Liberation of Armenia (ASALA), and other radical Turkish groups.⁹⁷

Syria also provided support to the Cyprus government in its conflict with Turkey regarding the occupation by the latter of northern Cyprus. Syria also provided enthusiastic support to Greece in international circles in exchange for Greece's support to Arab causes. The outstanding Greek-Syrian relation ended in the signing of a military cooperation agreement between the two countries in 1995.

⁹⁶ John B. Allock, Arnold Guy et al, *Border and Territorial Dispute Resolution: Syria-Turkey (Hatay)*, (Longman Group UK Limited, 1992) 3.

⁹⁷ Fuller 22.

Syrian-Turkish Relations during the 1980's and 1990's: Water and the PKK

During the 1980's and 1990's, Syrian-Turkish relations were dominated by two major concerns. Syrian concern over the distribution of the Euphrates River, and Turkey's concern over Syria's growing support to the PKK.

As mentioned previously, Syria's concern over the distribution of the water of the Euphrates, which started with the construction of the Keban Dam, grew in the 1980's as Turkey proceeded to construct a series of dams within the framework of GAP. In its domestic dimension, GAP aimed at transforming a backward area into an area of prosperity. Economic and social development, it was hoped would weaken the Kurdish separatist movement. In its regional dimension, GAP would assist Turkey to fulfill its aspiration to become the major power in the Middle East. Turgut Ozal, who envisaged a major Turkish role in the Middle East suggested a plan that would "combine Arab oil money and western funds for the development of the region as a whole. The Turkish role in this kind of economic cooperation would lie in the provision of water to the region".⁹⁸

⁹⁸ Fuller 20.

Syrian concerns over GAP developments were justified. Dams on the Euphrates give Turkey the ability to either withhold water from Syria (as Turkey did in 1990), or to control how much of Euphrates water would flow into Syria and Iraq. Many Turkish officials were by then publicly enjoying that prospect. Despite Turkish commitment in 1987 to provide an average of 500 cubic meters of water a second on the Syrian-Turkish border, the Syrians knew that water constituted a new lever of power for Turkey with major political implications.

Turkey's refusal to conclude an agreement over the sharing of the Euphrates water and Syria's growing concerns over GAP developments were perhaps the main factors behind Syria's decision to support the PKK and to shelter its leader Abdullah Ocalan.⁹⁹

The PKK is a Kurdish nationalist organization that has its origins in the late 1970's. The world's 20-25 million Kurds mainly live in four countries -Syria, Turkey, Iraq, Iran- with the largest numbers in Turkey.¹⁰⁰ Nationalist feelings among the Kurds grew in the last two decades of the nineteenth century. Following the collapse of the Ottoman Empire the Kurds

⁹⁹ Robert Olson, " Turkey-Syria Relations Since the Gulf War: Kurds and Water," *Middle East Policy* (May 1997): 169

¹⁰⁰ Daniel Pipes. *Syria Beyond the Peace Process*. (Washington DC: The Washington Institute for Near East Policy, Policy Papers, Number 40) 58

were promised the possibility of an independent state in articles 62 and 64 of the Treaty of Sevres, signed on August 10, 1920.¹⁰¹ The Kurdish state did not take shape, since in the aftermath of World War I, we witness the emergence in Turkey of a strong nationalist state under Kemal Ataturk. Subsequent Kurdish revolts in 1925, 1930, and 1937-38 were violently suppressed.¹⁰² Kurdish nationalist challenge subsided for a long period only to reappear again in the early 1980's with the emergence of the PKK.

By supporting the PKK and sheltering its leader Abdullah Ocalan Syria wanted to exert pressure on Turkey to conclude an agreement over the sharing of the Euphrates. Under such circumstances, Syria seems to have given aid and assistance to the PKK in their activities against Turkey. Syrian officials sometimes make this connection explicit: " If we can reach an agreement on the important issue of water, our people will view Turkey with more affinity and sympathy".¹⁰³ Turkey, however, refused any linkage between the two issues.

In fact, during the 1980's and 1990's, the PKK became the biggest threat to Turkish domestic security. A certain pattern evolved over the years

¹⁰¹ Olson, 168

¹⁰² Olson 168.

¹⁰³ Pipes 60.

with Syria either using or withdrawing its support of the PKK as the water issue unfolded.

The situation in 1987 had become serious enough that Turkey and Syria thought it in their best interest to sign a security protocol, which included a Turkish commitment to maintain a minimum Euphrates flow of 500 cubic meters a second at the Syrian-Turkish border.

In October 1989 the situation again deteriorated to the point that the late Prime Minister Turgut Ozal publicly threatened Damascus that if it failed to live up to the 1987 security Protocol, Ankara would turn off the water flowing across the border.¹⁰⁴ In effect, Turkey delivered a strong message and a warning to the Syrians when it completely cut off the water flow to Syria for a whole month in 1990, presumably to fill the Ataturk Dam.

Relations remained extremely tense between the two countries during the years 1987 to 1990. Following the second Gulf War of 1990 and the ensuing Madrid Conference, Syria downscaled its support to PKK activities, probably as a result of Turkish and US pressure. Top Turkish officials headed by foreign Minister Cetin, Interior Minister Sezgin, and Gendarmerie Commander Bitlis met with President Asad and top Syrian officials. A

¹⁰⁴ Pipes 60.

Security Agreement was concluded in April 1992.¹⁰⁵ In the final article of the Agreement the Syrians designated the PKK an outlawed organization in Syria, and declared that any members of the PKK arrested would be delivered to the respective judicial authorities.¹⁰⁶

Nonetheless, the agreement was short-lived as Syria continued to play its Kurdish card against Turkey's water card. Ankara had pursued its water projects on the Euphrates without any consideration to Syrian demands, and stressed that it will not pursue water negotiations until Syria promised to stop supporting the PKK.

A second Security Agreement was signed on November 20, 1993 promising that Syria would not serve as a passage or shelter for anti-Turkish elements.¹⁰⁷ Turkey was assured that if caught Ocalan would be returned to Turkey. Syria for the first time declared the PKK a terrorist organization.¹⁰⁸

In August 1993, Syria participated in a foreign minister level summit conference with Iran and Turkey. Concern over the fragmentation of Iraq

¹⁰⁵ Olson 170.

¹⁰⁶ Olson 171.

¹⁰⁷ Pipes 63.

¹⁰⁸ Olson 171.

and the creation of an independent Kurdish state in northern Iraq figured prominently.¹⁰⁹

It is suggested that Syria's slight change of policy vis-à-vis the PKK, and the conclusion of a series of national security agreements could be explained within the context of the Middle East Peace Process and the ongoing negotiations between Syria and Israel initiated at the Madrid Conference after the second Gulf War. Syria was falling under pressure from the United States, Israel and Turkey. In fact, Syria sought better relations with the west, and with Turkey's ally, the USA. Given the collapse of the Soviet Union, which had been Syria's main outside supporter, Syria had little choice but to move toward the west. Thus, Syria's anti-terrorist remarks and positions were likely in preparation for the summit meeting between President Asad and President Clinton in Geneva on January 16, 1993. Syria, probably thought its anti-terrorism remarks could aid in the removal of Syria from the US Department of State's list of those countries supporting terrorism.¹¹⁰ Moreover, when the Middle East Peace talks are concluded, Syria's role in the region may be enhanced. Such a role demands however, that it no longer pursue policies against the course of wider regional water,

¹⁰⁹ Olson 172.

¹¹⁰ Olson 175.

trade and economic agreements and geostrategic understandings. In turn this would mean less support of PKK activities against Turkey.¹¹¹

Syrian-Turkish relations slightly improved in late 1994 and early 1995 as the two countries engaged in trade discussions. Ankara possibly hoped that when a Middle East peace agreement is signed, Turkish companies would participate in the reconstruction and the development of the region.

However, these prospects did not materialize as the peace process on the Syrian-Israeli track reached a deadlock. Again the two countries were at an impasse in trying to improve their relations. Turkey was emphasizing on every occasion that it would not pursue negotiations over water sharing until Syria guaranteed that it would no longer support PKK activities or shelter its leader Ocalan. Deniz Baykal, Turkey's foreign minister stressed that: "If Syria did not abandon its policy of serving as the headquarters of a terrorist organization, it could not expect any increase in the downflow of the Euphrates."¹¹²

Obviously, the Kurds represent an instrument of pressure and not the goal for Damascus, and if differences on other grounds between Turkey and

¹¹¹ Olson 175-6.

¹¹² Olson 176.

Syria could be resolved, then the Kurdish issue will lose salience for Syria

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However, these differences not only remained unresolved, but further deteriorated as Turkish-Israeli cooperation was revealed. Thus, Syria was reluctant to give up its strongest card the PKK without being assured that a water agreement would be concluded. But, mutual absence of trust led a Turkish newspaper in 1995 to state in its report on Syrian-Turkish relations that: "Syrian officials suspected that even if they handed Ocalan over, Turkey would not increase the downflow of the Euphrates at least not to the rate Syria says it needs for irrigation and hydroelectric purposes."¹¹⁴

In view of deteriorating relations, Turkish authorities in May 1995 decreased the flow of Euphrates water into Syria to just 200-300 cubic meters a second during Eid-el-Adha, explaining that this decrease was due to maintenance work.¹¹⁵

Another development in early 1996 served only to complicate matters.

On February 24, 1996 Ankara signed a " Military Education and

¹¹³ Fuller 23.

¹¹⁴ Olson 178.

¹¹⁵ Pipes 64.

Cooperation Agreement" with Israel.¹¹⁶ The Kurdish issue seems to have figured prominently in the decision to sign the agreement. The military agreement may have aimed among other things to put pressure on Syria for its support of the PKK and for providing sanctuary for Ocalan. It may also help to force Syria to accept a more modest sharing of the Euphrates. Ankara wanted to destroy the PKK at any cost, for its war against the Kurds was costing the country about 8 billion USD a year and it was limiting Turkish foreign policies in the Balkans, Central Asia and the Middle East. Turkey was probably also seeking Israel's help in its fight against the PKK.¹¹⁷

Turkey's strategic alliance with Israel could also be explained within the context of Turkey's efforts to enhance its role following the end of the cold war and the disintegration of the Soviet Union. Turkey's role, which was prominent in NATO, was greatly diminished in the aftermath of these political developments. Turkey's concern of being marginalized and its desire to continue receiving American military aid may have figured prominently in Turkey's decision to strengthen its ties with Israel. Moreover, Turkey was aware of Israel's strong support in the United States especially in Congress. A closer alliance with Israel might help to improve its chances to

¹¹⁶ Olson 178.

¹¹⁷ Olson 179.

attain the Congress' support. To add more, Turkey's failed efforts to enter the European Union have contributed to turn its attention to other alliances.

It is suggested that a closer Turkish-Israeli alliance is supported by the United States. The alliance would have promoted western control over the resources of the Gulf and Israel's dominance in the Middle East, thus, further contributing to US efforts to contain the Iranian challenge in the Gulf.¹¹⁸

It is further suggested that one reason for Israel's strategic alliance with Turkey seems to have been the desire to obtain access to Turkey's water resources that Israel badly needs. Many Turkish water resources are in heavily populated Kurdish areas of Turkey. The success of the Kurdish nationalist movement in Turkey especially the PKK presents obstacles to Israel to gaining access to this water.¹¹⁹

For all of the above mentioned reasons, the Turkish-Israeli military agreement was seen by Syria as constituting a grave danger on the Arab position in the Middle East Peace Process. Furthermore, the agreement was also considered as constituting a direct threat on Syrian national security. Syria also suspected that the agreement backed mainly by the United States, aimed to put pressure on the Syrian negotiator and divert Syria's quest for a

¹¹⁸ Olson 179.

¹¹⁹ Olson 181.

comprehensive and just peace in the Middle East. The agreement did not take into account sensitivities of the Arab states towards Israel at a time when peace in the Middle East remains elusive.

Arab criticism of Turkish-Israeli military pacts was evident at the Arab summit in Cairo on June 22-23, 1996. Nonetheless, despite sharp criticism of Syria and the Arab World to Turkey's new alignment with Israel, Turkey signed on August 26, 1996 a second pact with that country.¹²⁰ In early December 1996, the two countries agreed to engage sometime in 1997 in joint military maneuvers in which the United States would participate. In February 1997, the joint commanders of US-Israeli naval exercises then being held discussed the possibility that Turkey would join such exercises in the future.¹²¹

Tensions which kept on growing in the first half of 1996, abated shortly upon the formation of a new government in Turkey headed by Necmettin Erbakan leader of the Islamic Welfare Party (Rafah).¹²² Tishrin the official Syrian newspaper reported that: "Syria was ready to improve relations with the Turkish people and to see stability and security prevailing

¹²⁰ Olson 179.

¹²¹ Olson 179.

¹²² Olson 184.

in the whole region."¹²³ Syrian officials quoted President Asad as saying: "Erbakan's election opens new horizons to establish ties on the bases of mutual trust and common interests."¹²⁴

Erbakan as leader of the opposition Welfare Party had previously made several declarations stating that allegations that Syria supported and sheltered the PKK were mere propaganda promulgated by the west to destroy the good relations between the two countries. The Syrian ambassador to Turkey Abdul Aziz Rifai responded that the PKK in view of Syria "is an illegal organization and Syria is ready to help Turkey against all harmful actions."¹²⁵

When Erbakan's government won a vote of confidence in early July (1996) Erbakan reiterated his previous position that Syria did not support PKK attacks on Turkey. These were clearly signs that Syria and Turkey were both interested in improving their relations.

The improvement of Syrian-Turkish relations lasted shortly. Soon after, Erbakan retreated from his earlier position and stated that PKK attacks in Turkey indeed had their origins in Syria. This change of attitude seems to

¹²³ Olson 184.

¹²⁴ Olson 184

¹²⁵ Olson 186.

have come as Erbakan fell under severe pressure from the military establishment.

We may conclude that Turkey did not exert any genuine effort to improve its relations with Syria. The two countries' participation in the second Gulf war did not help to ameliorate their relations at least not to the point essential to resolve their acute disagreements. On the contrary, their differences remained, and tensions mounted as Turkish-Israeli cooperation increased. The complete deadlock of the peace process, particularly on the Syrian-Israeli track, did not help to mend relations between Syria and Turkey either, since Syria turned its attention to the return of the Golan Heights from Israel, and considered any Turkish-Israeli cooperation as constituting a threat on it.

5. Conclusion: Prospects and Prognosis

Having carefully examined the water dispute between Syria and Turkey, its origins and development over the past few decades, three tasks remain in our inquiry. First, in light of the historical record, and drawing upon the works of Thomas Naff, and Miriam Lowi to explain dynamics of state behavior in international river basins, we will try to answer the questions posed in the introduction. We will seek to determine the role each factor or variable has played so far in shaping the outcome of the dispute. Second, we will try to explore the future outlooks of the dispute. Finally, based on our findings we state our argument.

Conflict and Cooperation Explained

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- What influences the behavior of states in international river basins?
 - What determines the potential for conflict or cooperation in water disputes?
 - Why do states fail to cooperate and when would they opt for cooperation?
 - Do political relations have an impact on the outcome of water disputes?

In order to answer these questions we will consider the works of two researchers Thomas Naff, and Miriam Lowi.

To determine the behavior of the various riparians in an international river basin, and to allow predictions for conflict potential, Thomas Naff in his study "conflict and Water Use in the Middle East" suggested the use of the Power Matrix Model. Naff describes his Model as: "a predictive Model, that, though simple, currently produces results that allow, reasonably accurate predictions for conflict potential of water."¹²⁶

Naff points out that the conflict potential of water is determined by three factors: resource interest/need, riparian position, and relative power.¹²⁷

The first factor, the need for water directs states toward cooperation or strife. If interests are seen as being advanced or reinforced by other parties, the impulse will be toward cooperation; if needs are perceived as being frustrated by others, the pressure will be toward conflict.¹²⁸

"Sometimes even in the absence of trust among actors, when cooperation benefits all, otherwise hostile groups, acting on interests that are overriding tend to exhibit a willingness to seek accommodation or cooperation."¹²⁹ However, here the factors of power relationship and riparian

¹²⁶ Naff 262.

¹²⁷ Naff 262.

¹²⁸ Naff 278.

¹²⁹ Naff 275.

position come into play. The willingness of states to engage in cooperation is influenced by symmetry or asymmetry of power in a given basin. If the relative power among a basin's users is approximately symmetrical, states will be motivated to cooperate. If power is asymmetrical, that is one actor holds such a predominant or hegemonic position in relation to the other users, then cooperation will occur only if the dominant power in the basin will benefit from it.¹³⁰

The second power-related factor is riparian position, which accords special advantage to the upstream powers over downstream competitors. The upstream riparian may be in a position to determine the quantity and quality of water passing downstream.¹³¹

The third and most important factor is power. A riparian's projectable power is its ability to impose its own will on its rivals at whatever distance necessary, thereby enabling it to govern their behavior in water issues.¹³²

In his Model, Naff assigns a weighted value for each of the factors influencing the potential for conflict, and this for the basin's actors. The sum of the three criteria values determines the overall ranking power of the

¹³⁰ Naff 277.

¹³¹ Naff 278.

¹³² Naff 278.

riparians. The comparison of the relative power of the riparians that must share the same water supply will enable the analyst to predict roughly the potential for conflict.

In applying his power Matrix Model to the Euphrates Basin, Naff concludes that when an uppermost riparian is the most powerful actor in an international basin, that disparity of power, inhibits conflict potential. Turkey's advantage in controlling some 96 percent of the headwater of the Euphrates River was augmented by the destruction of Iraq's projectable power in the Gulf War giving Turkey greater than ever dominance in the basin.

Lowi arrives at similar results in her book "Water and Power: the Politics of a Scarce Resource in the Jordan River Basin", Lowi follows a similar approach to determine the potential for cooperation in international river basins, in arid regions, characterized by a co-existing political dispute. This is done by applying the realist theory of international relations, as a main analytical framework to explain the behavior of states in international river basins.

Lowi identifies four variables that affect states' behavior and account for variations in outcomes in the river basin. These are (1) resource need/dependence: the degree to which a state is dependent upon the water

supply of the basin for its socio-economic development, both absolutely and relative to the other riparian states; (2) relative power resources: the composite of capabilities- economic, military, and political resources- in terms of both their quantity and composition, available to one state relative to that of the other states with which it interacts; (3) character of riparian relations and (4) efforts at conflict resolution.¹³³

Lowi adds that in the case of the Euphrates basin, the dominant power (Turkey) will have no interest in basin-wide cooperation as long as its superior power resources coincide with a superior riparian position.

Future Prospects

While armed conflict between Syria and Turkey could not be ruled out, there are reasons to expect that Turkey would not opt for a military confrontation with Syria, at least not in the foreseeable future.

Turkey, being the upstream riparian and the militarily strongest power has the upper hand in the basin. Given its hegemonic status, which enables it to enjoy the maximum advantage, there is no good reason for it to resort to military power to impose its will on Syria as regards the water issue.

¹³³ Lowi 11.

Even if we take into account other issues of dispute between the two states such as the Alexandretta (Hatay) issue, Syrian support of the PKK, and Israeli-Turkish military cooperation it is still unlikely for Turkey to resort to military action. An open military confrontation with Syria may antagonize the Arab and the Islamic world. Turkey has large commercial relations with the Arab world, and would like to further develop those markets. A war with Syria will not further this goal. Moreover, Turkey fears that Syria and Iraq enemies for years may unite against a common enemy if Ankara decides to take military action against Syria. In fact, the recent rapprochement in Syrian-Iraqi relations is causing concern in Turkey, Israel and the United States. Relations between the two countries which have been hostile for decades have recently improved when recent developments on the world stage made the two countries realize their common interest. The prospect of stronger Iraqi-Syrian relations will prove increasingly worrisome for Turkey.

Furthermore, fear of a stronger Syrian-Iranian alliance may prevent Turkey from adopting a determined policy against Syria.

Lastly, a clash with Syria will give Greece, the archenemy of Turkey, the opportunity to strengthen its objection to Turkish attempt to EC membership.

Despite the United States deep sympathy towards Turkey and Israel, it is not sure that the US will at present tolerate an open war and aggression by Turkey on Syria. The United States, the sponsor of the Middle East Peace Process will be concerned that a war between Syria and Turkey will not create an atmosphere conducive to a settlement. Syria, a central participant to the peace process may endanger the whole negotiation by withdrawing from it.

Moreover, The United States remains vitally concerned with events in the Middle East. Any interruption to Middle East oil would have serious consequences to the world economy. Outside powers therefore have an incentive to do what they can to ensure stability in the region, and to avoid disputes in the future, disputes that could spill over into conflict.

However, Turkey may resort to limited military action in the form of preemptive strikes against specific targets, in Syria and possibly Lebanon, which Turkey suspects are linked to the PKK. The international community and especially the US would be more tolerant of such an action and would probably impede any international effort to confront this aggression.

These developments may come about as Turkey becomes increasingly annoyed by the operations of the Kurdish insurgents. In fact, the Turkish army's war against the Kurds constitutes a heavy financial burden on the

Turkish economy. A limited war will give the Turks a valuable opportunity to strike against the PKK. Also, limited war would divert attention from the economic and social difficulties in Turkey, and the increasingly dominant position of the military establishment, which makes key decisions when they pertain to national security.

In another respect, it is beyond any reasonable assessment that Syria will challenge Turkey in any direct military sense. Despite Syria's acute need for water and its interest in a water sharing agreement, its inferior power position both geographically and militarily will prevent it from posing any considerable challenge to Turkey. Moreover, Syrian military strength is heavily deployed in Lebanon and versus Israel leaving little to spare for the north. Syria has nothing to gain from a military confrontation with a much stronger and better equipped Turkish army. This is more so, since Syria will be unable to count on Iraq's support, whose military and economic capabilities were completely destroyed in the Gulf War.

If the likeliness of both Syria or Turkey to resort to an open military confrontation is small then is cooperation between the two states a more likely outcome. Once more the answer seems to be negative, there are no reasons to expect Syria and Turkey to cooperate. Lowi explains that: "a water-sharing agreement in the basin will not take shape, no matter how

badly the two downstream states-Syria and Iraq- may need one, as Turkey with its hegemonic status both geographically and militarily does not want one. Being the upstream riparian, Turkey has no need and no desire to share the Euphrates water"¹³⁴

Furthermore, political disputes between Syria and Turkey serve as an added deterrent to cooperation over water. Several political issues remain to plague Syrian-Turkish relations. These include old territorial issues such as the Alexandretta issue, as well as other political differences over Syrian support of the PKK and Armenian guerilla groups and the more recent Israeli-Turkish military cooperation considered by Syria as constituting a serious threat on its national security.

Given that a Turkish-Syrian open military confrontation over the sharing of the Euphrates River seems unlikely. Likewise, the fact that prospects for real cooperation aimed at realizing a basin-wide formal water-sharing agreement seem remote makes the persistence of the status quo situation more probable. This would entail that the dispute will at times rise to crisis levels and at other times recede to the backstage of events.

Nonetheless, we can picture certain political developments that could pave the way for resolution of the water dispute. A cooperative solution to

¹³⁴ Lowi 203.

the water dispute would depend to a considerable extent on the broader evolution of the Middle East Peace Process. Cooperation would require strong inducement to cooperate. These could materialize within the context of a larger Middle East settlement. It is true that negotiations initiated at the Madrid conference in 1991, followed by bilateral and Multilateral negotiations had reached a deadlock. However, the latest breakthrough between the Israelis and Palestinians give hope of breakthroughs on other tracks. In that case, regional cooperation would necessarily involve water cooperation.

We can sum up that in the water dispute between Turkey and Syria over the Euphrates water, Turkey the upstream riparian and the militarily and economically stronger power is reluctant to cooperate with Syria, as it has little to gain from cooperation. Differences on territorial issues, and Turkey's developing relations with Israel are plaguing the political relations between the two countries, and represent an added obstacle to the resolution of the water dispute. Moreover, the unbinding nature of international law and the absence of enforcement measure make it practically inapplicable in issues of sharing rights.

Nevertheless two very recent developments that came to the forefront during the current month of October allow us to end this study on a less

pessimistic note. A security agreement was concluded between Turkey and Syria, which should appease Turkey's suspicion about Syria's support to the PKK. Followed at a few days interval, Palestinians and Israelis reached an agreement sponsored by the USA releasing the Palestinians more territory of the West Bank.

We may assume that these two very recent developments will defuse the tension in the whole Middle East region, and help pave the way to some sort of cooperation. Under these circumstances, the dispute between Turkey and Syria over the Euphrates water will lose salience and the two countries helped by the international community will devise a solution based on the concept of fairness, thus enhancing peace in the whole region.

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