TURKEY AND WATER RESOURCES MANAGEMENT
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Executive Summary

Turkey is located in the Middle East near Syria and Iraq. It is the only country located in both Europe and Asia and is the gateway to Europe from Asia. Turkey is bordered by the Black Sea, Aegean Sea, and the Mediterranean. The Tigris and Euphrates rivers originate in Turkey.

Many different civilizations of people have lived in Turkey throughout the ages. The Hittites, Greeks, Romans, and Turks are some of the key civilizations. Istanbul was the second capital of the Roman Empire, the capital of the East Roman Empire, and the capital of the Ottoman Empire. Turkey became a republic at the end of World War I. The first president of Turkey was Mustafa Kemal, who adopted the name “Ataturk,” or Father of the Turks.

The original Turkish people were from Central and East Asia. They had a unique culture and dialect. They were forced to move westward by invading Mongols and settled for a time in the areas of present day Iraq and Iran. When they were settled in these areas, they adopted the religion of Islam. When they first entered Turkey, they brought their language and religion to the people there. The Turks of today are descendent of these original Turks from East Asia.

There have always been issues with water supply in Turkey because of the harsh climates in the desert regions and the tremendous populations of the cities. Various empires have dealt with the water management in different ways throughout the ages. There has always been an issue of keeping the infrastructure of Turkey updated. The struggle of the rulers of Istanbul to supply water to the ever-growing population is an excellent example of how water resources management affects the people of Turkey. The GAP Project in Southeast Anatolia is an example how water management practices are being used to improve the lives of people in the arid desert region.

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Introduction

Water resources management has affected the quality of life for people in Turkey since the beginning of the civilization. Some of the most important factors that have influenced water management throughout the ages are related to the geography, history, and culture of Turkey. It is important to understand these aspects of Turkish life in order to understand the importance of water resources. The history of water in Istanbul demonstrates how governments throughout history have dealt with changing times and booming populations. The Southeastern Anatolia (or GAP) project is a demonstration of how water can be used to benefit people and give them a sustainable life for centuries to come.

Geography

Turkey is the only country in the world that is located on two continents, Europe and Asia. The European side of Turkey is called Thrace and includes part of the city of Istanbul and the city of Edirne. Thrace occupies less than five percent of Turkey’s 779,452 square kilometers. The Asian side of Turkey is called Anatolia, from the Greek word for east. Anatolia is bordered by all natural land barriers. The Black Sea lies to the north, the Aegean Sea is to the west, the Mediterranean Sea is to the south and there is a formidable mountain range to the east. The eastern mountain ranges are not the only mountains in Turkey, in fact, less than ten percent of the country is flat. The Anatolian Plateau is bordered by the Pontic Mountains in the north and the Toros (Taurus) Mountains in the South. Both of these mountain chains join the eastern mountain chain, practically surrounding the plateau. The countries surrounding Turkey are; Greece and Bulgaria on the west, Iran and the former Soviet Union to the East, and Iraq and Syria to the south, the northern border is completely occupied by the Black Sea (Cook, 1994).

Geographic Regions

Turkey has four distinct regions; the Black Sea Region, the Aegean Region, the Mediterranean Region, and the Anatolian Region. The Black Sea Region is the thin
strip of land between the Black Sea and the Pontic Mountains. This area is relatively secluded due to its geography. The main industries of the Black Sea Region are fishing and wood products. The Aegean Region is the portion of the country that borders the Aegean coast. This is the most advanced area of Turkey. It has a major tourist industry due to its warm climate, beautiful beaches, and the vast collection of remains from the ancient empires. The Mediterranean Region is the entire Mediterranean coast of Turkey, stretching all the way to the border of Syria. The region is mostly mountainous, with some accessibility to beaches. Antalya is a popular beach area in the Mediterranean Region. The Anatolian Region is the center of Turkey, it has no coastline. The Anatolian Region is subdivided into smaller regions. The central portion of the region is desert and grassland with hot summers and freezing winters. The South is characterized by lakes between mountains. The Southeast is desert land. The Tigris and Euphrates rivers both run through Southeast Anatolia. The East of Anatolia is mountainous and it is the most sparsely populated area of Turkey (Sheehan, 1993).

Climate

There are three distinct climatic regions in Turkey; Irano-Turanian, Euro-Siberian, and Mediterranean. Central Anatolia is the Irano-Turanian climatic region. As stated previously, the area experiences very hot summers, and very cold winters. In fact, the winters are so extreme, that snow cover can last up to 120 days and temperatures may fall to -105 degrees Fahrenheit. The Black Sea Region and the Aegean region have Euro-Siberian climates. Temperatures in these areas are very mild, but can be very wet in the winter. This Euro-Siberian climate supports European-style deciduous forests that are found throughout the area. The rest of Turkey is a Mediterranean climate. The coastal areas have more lush vegetation than the deserts to the south and to the east, but the common factor is the extreme hot temperatures experienced in the summer months. It is not uncommon for temperatures in the Mediterranean region to reach 115 degrees Fahrenheit in the summer (Darke, 1997).
Surface Features

In the evolution of Turkey, there have been many earthquakes and volcanic eruptions. This is how its mountains, lakes, and important water passages were formed. The Dardanelles, Bosporus, and even the Black Sea were formed by earthquakes. Much of the geology of Turkey is volcanic rock. Although there are no more active volcanoes in Turkey, earthquakes are still a problem.

Two large and important rivers find their origins in the mountains of Turkey. These are the Tigris (Dicle) and Euphrates (Firat) Rivers. Turkey and its neighboring countries rely on these rivers as a water supply and power source. These rivers play a significant role in water resources management, not only in Turkey, but in Syria and Iraq as well (Cook, 1994).

History

The Hittites and Lydia

The Hittites were the first civilization of record in Turkey. They were a fairly advanced civilization with a few appearances in the recorded history of ancient Egypt. The Hittites lived in Turkey from 1700 BC – 1200 BC. The end of their civilization came when they were overtaken by invading tribes from the west. From the end of the Hittites rule until 546 BC, many small states appeared to have control over Turkey. Very few of these small states were notable, except the last one, called Lydia.

From 900 BC – 700 BC, many Greek colonies were forming along the Aegean coast. It is a testament to the power of Lydia that its rulers were able to reign over these Greek colonies. However, this power proved to be Lydia’s downfall. When the Persians learned of the power and wealth of Lydia, they conquered it, bringing Turkey under the rule of the Persian Empire in 546 BC (Sheehan, 1993).

The Persians and Alexander

The Persian Empire was a very oppressive governing body that ruled over Turkey until the time of Alexander the Great. Alexander was on a mission to free western
countries from eastern rulers and establish them as independent states under Greek rule. This period of history is called the Hellenistic age. Alexander the Great freed Turkey from the rule of the Persian Empire in 334 BC.

The time of Greek rule over Turkey was relatively peaceful. The Greeks colonists that had been driven out of Turkey by the Persians returned to the Aegean coast. A new foundation was laid for the administration of Turkey and the future city of Istanbul was named Byzantium by Alexander the Great (Sheehan, 1993).

**The Romans**

By 133 BC, Greek rule in Turkey had transferred to Roman rule. Christianity was spread as the official religion of the Roman Empire and was adopted by most of the population. Christianity was the first widespread religion in Turkey.

In 330 AD, the emperor Constantine chose Byzantium as the capital of the eastern portion of the Roman Empire. This made it the second capital, with Rome being the first. Constantine renamed the new capital, Constantinople, after himself.

Although Rome fell in 476 AD, the eastern portion of the empire, located on the Asian continent, continued to thrive. Constantinople effectively became the only capital of the remaining empire, called the Byzantine (East Roman) Empire. Although the rule of the Byzantine Empire did not end until the thirteenth century, a majority of Turkey was lost to another power in the eleventh century.

In 1071, Turkish tribes from central Asia defeated the Byzantines in Anatolia. This marked the arrival of the first Turks in Turkey. These people had been forced west by invading Mongols. During their westward movement, they had settled temporarily in Persia, Syria, and Iraq. It was in these countries that the Turks adopted the Islamic religion, and when they came to Anatolia, they brought Islam to the area. These first Turks were called the Seljuk Turks. The Seljuk Turks controlled Anatolia, leaving only the Aegean coast and Constantinople under the rule of the Byzantine Empire.

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The rule of the Romans in Turkey came to an end in the thirteenth century, near the time of the end of the Seljuk Turks. The Seljuk Turks fell to invading Mongols, while the Byzantine Empire fell during one of the crusades. Strangely enough, the Seljuk Turks were the target of the original crusades, yet it was their enemies the Byzantines who fell in their place (Sheehan, 1993).

The Ottoman Empire

After the fall of the Seljuk Turks and the Byzantine Empire, there was no significant ruler for a few decades. The Turks were broken up into smaller tribes spread around Anatolia. It was out of one of these scattered tribes that a significant force began to grow. A particular tribe, calling itself the Ottoman Turks, began to gather forces and influence in 1288. This new empire grew to great power between 1288 and 1529, controlling North Africa, Turkey, Iraq, and large pieces of Eastern Europe. Constantinople fell to the Ottoman Turks in 1453 and was given the name of Istanbul. The Ottoman Empire experienced the first step toward its decline in 1529 when it was unable to capture Vienna. In 1683, westward expansion was stopped once again and the territory of Hungary was lost. This marked the decline of the Ottoman Empire. Finally, after over 600 years of rule, the Empire took the side of Germany in World War I, which led to its end in 1918 (Sheehan, 1993).

Ataturk

The hero of World War I for the Ottoman Empire was a colonel in the army named Mustafa Kemal. Turkey was marched on two times at the end of World War I, and both times it was Mustafa Kemal who led the resistance. At the end of the war, the Ottoman Empire was forced to sign over a great portion of its land. The only parts of the Empire that were retained by the Ottomans were Anatolia and Istanbul. These two areas comprise modern Turkey. Mustafa Kemal led a campaign to abolish the sultanate. He became the first president of the Republic of Turkey in 1923. He adopted the name Ataturk, meaning "Father of the Turks." Ataturk made many reforms to Turkey to bring the country into sync with the western world, in order for Turkey to be able to compete in a global marketplace and to improve the

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lives of its people. There were many important reforms that Ataturk made; a few of the key reforms were the separation of the government from Islam, a language purification process and adoption of the western alphabet, and the establishment of women’s rights.

Ataturk encouraged the Turkish people to embrace being Turks and to embrace the country of Turkey. He established a feeling of nationalism that had never been inspired before. Turkey was a cultural melting pot and it was rarely unified as one state throughout its history. It was more often divided into two or more states, or was part of a much larger empire. Ataturk united Anatolia and Istanbul, two areas that were historically separated, to form the Republic of Turkey and established a sense of national pride that is unrivaled throughout the world. This is one of Ataturk’s greatest achievements (Sheehan, 1993).

**Culture**

**The Turks**

The Turks originated from the Mongolian steppes stretching from the Caspian Sea to Mongolia. They possessed a unique culture and spoke their own Turkish language. They were driven out of Central Asia by invading Mongols and came to the Middle East in search of land and food. For a time, these tribes settled in Persia, Syria, and Iraq, it was in these countries that the Turks adopted the Islamic religion. When their westward journey brought the Turks to Anatolia, they were a relatively small group of settlers compared to the natives that were already there (Sheehan, 1993).

Before the arrival of the Turks, there had been many different ethnicities settled in Anatolia. All of these ethnicities were well mixed by the time to Turks came. The native Anatolians were a mix of Hittites, Greeks, Persians, Romans, Celts, Jews, and Armenians. They were almost entirely Christian and spoke either Armenian or Greek. It is a wonder of history that a small group of Turkish settlers were able to transform an entire population of Greek (or Armenian) speaking Christians into a Turkish speaking Moslem population. The Turks did not force change
and they did not expel other minorities, they simply assimilated with the people of Anatolia. Instead of being lost in the mix with other minorities that had come to the area, the Turks managed to spread their culture and produce an entire nation of Turks (Darke, 1997).

The Kurds

Although Turkish people can trace their heritage back to several different ethnic groups, and have different facial features depending on their region of origin, they have a common language, history, and nation that unite them all as Turks. There is only one significant ethnic group in Turkey, who do not speak the Turkish language or identify with the Turkish state, these are the Kurds.

The Kurds came to Anatolia in the seventh century, AD. They originated from a nomadic people located in central Asia. During the Ottoman Empire, they occupied a mountainous area located in present day Turkey, Iraq, and Syria, known as Kurdistan.

The end of World War I left the Kurds without a homeland, even though a treaty had been signed to establish an independent Kurdistan. Ever since that time, the Kurds have been trying to gain a state. There have been several uprisings for an independent Kurdistan. The source of problems in Turkey has been the guerilla organization called the Kurdish Workers Party (PKK). This group has used violent tactics in its quest for autonomy.

Kurds have not always been accepted as a separate ethnicity by the Turkish government. Their language has, at times, been called a dialect of Turkish. The word Kurdish has often been replaced with "Eastern Turks" or "Mountain Turks." In more recent times, more thought has been given to the plight of the Kurds and their livelihood. It is the hope of the Turkish government, that by providing irrigation to Southeast Anatolia, Kurds will be able to make a better living and that the prosperity of Southeast Turkey will grow. This will hopefully provide an acceptable life for Kurdish people within Turkey and curb the swelling migration of rural people into the cities (Sheehan, 1993).

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Water Resources Management in Istanbul

For centuries, Istanbul has been one of the most important cities in Turkey. As Constantinople, it was the second capital of the Roman Empire and the only capital of the Byzantine Empire. After the fall of the Romans, Istanbul became the capital of the Ottoman Empire. Today it is a city of 15 million people. The population has been growing for centuries and the infrastructure has changed many times throughout the various empires. Istanbul has always been a challenge to the management of water resources. From delivery, to storage, to treatment, the water resources story of Istanbul is an important one. Water has shaped Istanbul and its people. The following verse is an illustration of the significance of Istanbul and water:

"Istanbul...The capital city shaped by water and faith...Istanbul...An unequalled collection of cultures, bearing signs of all the beauties of the world cities. Istanbul...The cradle of civilizations, with a constantly gleaming face of newly established cities, alive as if breathing all through the existence of the earth, and fertile so as to show off its greatness...Istanbul...The intersection of the East and the West, of the North and the South; the meeting point of Asia and Europe; the juncture of the different societies, cultures, beliefs and civilizations...Istanbul...The city that has preserved its characteristic of being a cultural, political, military and commercial centre of attraction, with the Bosporus the marvel of nature, with the estuary known as the Golden Horn; the city, the mostly precious heritage of an exceptional geographical setting among the world cities with its water and with its soil, of the seven hills and the seven streams; the dream city of the future...Istanbul...A city of water, a beauty of water. The unequalled harmony of history, that has given way to the establishment of a civilization, on a path shaped by water with its glamorous roar... (ISKI, 2003)"

The Romans and Water

Previous to the Roman Empire, the people of Istanbul were using underground wells, small springs, and underground reservoirs for water supply. When Istanbul

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(then called Byzantium) became part of the Roman Empire, the population began to swell, and the old water systems could not support the new demand. A new water supply was needed for the city. The first transmission line into Byzantium was commissioned by the Emperor Hadrian in the second century. The pipe stretched from the west of Istanbul. This transmission line solved the current water supply problem and Byzantium began to build popularity as an urban area.

Byzantium was renamed Constantinople by the Emperor Constantine in the fourth century and it became the second capital of the Roman Empire. The population of the new capital continued to swell. It was around this time that another water shortage was experienced by the people of Constantinople. Constantine commissioned the city’s second transmission line to be built extending from the northwest direction. Once again, the city had ample water supply.

The response to growth continued in this way throughout the Roman Empire. The city grew steadily throughout the ages, and whenever a water shortage was experienced, a transmission line was built. The successor of Constantine, Emperor Valens, completed a third conduit and his successor, Theodosius, brought a fourth line to the city. Whenever new water was brought into the city, the population would grow in proportion to the amount of water available. There was potential that this pattern of building lines in response to population growth would continue indefinitely throughout time, however, history changed the way in which the government would be able to respond to water needs (ISKI, 2003).

The Byzantines and Water

When Rome fell, Constantinople became the sole capital of the Byzantine Empire. The capital was under attack from many different forces during this time, and parts of the transmission lines were destroyed during attacks on the city. It was no longer possible to use or build transmission lines into the city. It was necessary to find alternate means of supplying water. The solution was to store water in reservoirs within the city walls.

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Open and closed reservoirs were built to store the city's water. 800,000 cubic meters were stored in three open reservoirs and 200,000 cubic meters were stored in cisterns, or closed reservoirs. The need for water was so great that some households built makeshift cisterns out of their basements. The water quality in the still storage basins was not nearly as high as that coming from the transmission lines, but there were no other options at that point in time. Constantinople was in major decline, and it was unknown what would save its people from the serious lack of water (ISKI, 2003).

The Ottomans and Water

When the city fell to the Ottomans, the water was let loose from the storage basins and used to water gardens and grow flowers. The entire city turned green with foliage. This was a sign of conquest and signified the good times to come. The first order of business for Mehmed the Conqueror was to restore flowing water to the city. Invaders were no longer attacking the transmission lines, so those that had been built by the Romans were repaired, rebuilt, extended, and enlarged. New lines were built throughout the reign of the empire to keep up with the booming population of Istanbul.

It is clear that an adequate and consumable water supply was essential to the survival of Istanbul’s people and to the success of its rulers. Water was highly integrated into the day to day life of the people. The waters of Istanbul were believed to be very special waters with medicinal uses and the fountains throughout the city were an essential part of religion and culture. The fountains of Istanbul were a major part of the character of the city. Without water, the fountains were merely ornaments and lost their importance. In this way, water was essential to the character, religion, and culture of the city. There were 1,553 fountains built during the reign of the Ottoman Empire. Water flowed freely throughout the entire city.

Had time not progressed, this type of water resources management practices may have provided water for Istanbul until the end of time, but with the advance of time and technology, the old ways become inadequate and a

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civilization must look at new ways of managing its infrastructure. By 1869, Istanbul was in need of water again. Not only had the population outgrown the current water supply, but multi-story buildings were beginning to become common. In order to supply water for multi-story structures, pressurized water was needed.

In order to update the water system to provide pressurized water, the government hired foreign companies. The companies were charged with the task of using springs, aquifers, and surface waters to provide new supplies of treated, pressurized water for the city. The changes that were set forth by the private companies deprived the citizens of Istanbul of water, even though there had been water before. Things only got worse while these companies controlled the water. Istanbul suffered a severe water shortage at the end of the Ottoman Empire due to the misconduct of these foreign contractors. The future of the water was uncertain during the transition from the Ottoman Empire to the Republic (ISKI, 2003).

The Republic and Water

In 1937, the control of the nation’s water was turned over to the authority of the Istanbul Board of Waterworks. The board made many updates and improvements to the water supply system, but their efforts were not enough to provide for the cities growing population. The population was once again growing in proportion to new water supply. The Board could not provide for the industrialization and urbanization of Istanbul. In 1994, a new organization, called ISKI, took responsibility for the water problem.

It was the goal of ISKI to return Istanbul to the city of water that it had once been. They completed a master plan projected out to the year 2040 for the management of the city’s water. Water supply improved dramatically in the nine years between 1994 and 2003. The water supply was larger than it had been in any previous years and dramatic improvements were made to the city infrastructure.

One of the first tasks of ISKI was to determine the amount of useable water supply in and around Istanbul and find ways to dramatically increase the water supply. Very quickly they added underground water treatment and new

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wells to increase the amount of available water in the interim. After water supplies had been increased for the short term, work began to provide larger quantities of water for the long run. Seven dams were built on seven creeks to provide water for Istanbul. This was all completed in less than nine years.

Giant steel transmission lines were put in place to convey water to Istanbul. These were the first steel lines to be placed in Turkey. All pipes of the ancient empires had been earthenware. The new lines are at least twenty kilometers long and convey raw water to treatment plants where the water is made potable. Water treatment was a relatively new problem for Istanbul. The original water came from untouched sources in forests and springs. In later time, water had grown so scarce that quality was a secondary issue. Raw water quality was at a low that had never been experienced before. Old water treatment systems were obsolete and had to be rebuilt. Many new treatment plants had to be built to treat the increased water supply.

Today, Istanbul is once again a city with water. The efforts of ISKI have resulted in returning a reliable potable water supply to the city and major renovations will continue into 2040 to make room for future systems, and restore the water resources of the past. Istanbul has grown to an amazing fifteen million people. The water quality is such that the water can be drunk from the tap and the taps always flow. The infrastructure of Turkey has been saved and its great people will be able to flourish for generations to come (ISKI, 2003).

Water Resource Management in the Southeastern Anatolian Region

Water resources management is not just an important topic in the highly populated cities of Turkey. In Southeast Anatolia water management is being used to help advance the economy of the area. Since the late 1970’s, Turkey has been working on a project called the Southeastern Anatolia (or GAP) project. This project will provide irrigation for a large portion of Anatolia and hydroelectric power equal to half of the countries current demand. This project will dramatically change the lives of the people who live in Southeastern Anatolia. It is an
excellent example of how water resources management can shape peoples lives.

The GAP Project

The GAP Project is the largest-scale regional development project ever undertaken by the government of Turkey. The project has thirteen components, which are primarily for the production of hydroelectric power and irrigation. The expected outcome of the project is to develop the land of Southeast Anatolia for agriculture and provide economic prosperity for the people who live there, while providing hydroelectric power for the entire country.

During the entire course of the project, 22 dams will be built on the Tigris and Euphrates rivers along with 19 hydroelectric plants. The total power capacity of the full development of the project is approximately 27 billion kWh of electricity each year. The full area of irrigation is 1.7 million hectares.

The cornerstone of the project is the Ataturk Dam. The Ataturk Dam is the largest dam in Turkey and it is the sixth largest dam in the world. It is a rock-filled dam capable of producing 2400 MW of energy. The Ataturk Dam is the third dam to be completed along the Euphrates River (DSI, 2003).

Life of the Kurds

Southeast Anatolia has a large Kurdish population. The farmers of the area are primarily Kurdish. If the primary purpose of the GAP project is to provide electricity and more agricultural lands for Turkey, than it is the secondary purpose to give economic prosperity to the Kurds. Political reasons for this are to decrease the amount of rural citizens moving into the cities each year, and to assimilate the Kurds with the rest of Turkey.

Irrigation waters have already reached parts of Southeast Anatolia, and the results have been an increase in the average household income of the farmers. Families no longer have to farm all year long in order to make ends meet, and they are finding themselves with a small amount
of expendable income to spend on things like household appliances.

One drawback of the GAP project is that many families have had to be relocated in order to make room for the project. The role of feudal landlords has also increased. These people seem to be reaping most of the benefits of economic prosperity, however, the farmers are happy because they have more than they have had before, and that seems to be good enough. It is unclear what will happen to the role of small family farmers when the project is complete. It is likely that they will be growing fruits and vegetables on small plots of land, while a large quantity of the newly irrigated land will be for large scale farmers to raise cereal grains and cotton.

The women of the family are being taught how to contribute to their family incomes via social programs sponsored by the government. They are being taught how to start small business, like day care centers. It is not only the goal of these social programs to help women earn a living, but to modernize the Kurdish ideas of women’s role in the world. It may be too early to tell how effective these programs are.

The role of children is also being considered during the course of the GAP Project. Currently there are many children pan handling in order to make money for the family. Ultimately, it would be ideal for children to go to school while parents provide the entire family income.

Environmental Impacts

The full scope of the environmental impacts of the GAP project seems to be unknown. There have been concerns raised about water quality, but on the topic of dams, there are many additional concerns that must be dealt with. During the first phase of irrigation, salinity and high water table problems began to persist; these can be expected to worsen as more of the project components come online. Effects of the project on channel geometry and flora and fauna are still unknown.

Downstream Neighbors

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Although the GAP project is great for the economy of Turkey, Syria and Iraq have been less than enthusiastic at various stages. The origins of the Tigris and Euphrates are in Turkey, which means Turkey has primary control of the water flowing into Syria and Iraq. Neither of the downstream neighbors were pleased when the Euphrates was turned off for a month in order to fill the Ataturk Reservoir. It has been projected that when all of the dams are completed, Turkey will release thirty percent less water than it did previously. This has Iraq and Syria concerned about a possible water deficit.

Water quality is also a potential problem for Turkey’s neighbors. The water used for irrigation will undoubtedly contain soil and agricultural chemicals. This water will drain back into the rivers and these wastes will be carried downstream to Syria and Iraq. These countries will not be thrilled to accept polluted water. The countries have already met together to discuss these issues. Hopefully a balance will be struck that will be acceptable to all parties and peace will remain intact between the three countries.

Conclusion

Turkey’s unique landscape and ancient history have shaped it into the country that it is today. All through the ages, there has been a question of water. The advances made by ISKI in the twenty-first century have saved Turkey’s infrastructure for future generations. The GAP project will transform Southeast Anatolia into an area of economic prosperity. The Turkey of today is different than the Turkey of yesterday and tomorrow. All through these changes there has been water. Turkey is a country of water, in a region of the world where water is very valuable. It is through the management of water that Turkey will prosper economically and earn its place in the western world.

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References


