Transnational Water Issues in Turkey, Syria, and Iraq: Planning and Investing for the Future

A Multi-Agency Policy Paper to Establish the Euphrates-Tigris River Basin Commission

Collin Douglas

Abstract

The connection between access to clean and reliable water and social unrest is a relationship that is beginning to be fully understood. The Euphrates River provides drinking water for nearly 27 million people, water for irrigation, and hydroelectric power for millions of people in Turkey, Syria, and Iraq. Due to reduced rainfall and increased temperature, combined with overuse, the amount of water running through the Euphrates River has reached a new low point in recent decades. This phenomenon is a serious threat to peace and stability. Turkey, the upstream country, is heavily reliant on the Euphrates for drinking water, irrigation water, and for producing hydroelectricity. Water infrastructure and management in Syria has been degraded due to conflict. Before the war, water resources were managed poorly, which led to political unrest due to loss of livelihoods and urban migration. Agriculture in Iraq has been devastated due to reduced water flow and poor water management practices. Iraq receives roughly 98 percent of its water resources from the Tigris-Euphrates Basin, and Iraq has seen its share of river flow plummet in recent years. There exists no trilateral agreement between all riparian states dealing with the Euphrates. There have been several bilateral agreements regulating flow, but these have often been ignored, or are impossible to enforce. The necessary measures needed to create sustainable practices regarding the river cannot be taken without an enforceable trilateral agreement.

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Introduction

The importance of Turkey, Syria, and Iraq to United States national security cannot be overstated. Turkey is a NATO member on the frontlines of the war against the Islamic State in Syria and both a destination and gateway for millions of refugees. Syria is in the midst of a massive civil war that has turned into what some may call a global proxy war. The power vacuum in Syria has aided the flourishing of terrorist groups like the Islamic State. Iraq is a potential counter to the influence of Iran in the region, and a strong

Iraq could begin to stabilize the situation in Syria. Iraq is a potentially strong future ally of the United States in a region where there are many enemies.

Therefore, the goals of the United States should be a politically stable and economically strong Turkey; the creation of a Syrian government post-conflict that addresses the grievances that led to the war, and a growing and viable Iraq. Connected to all of these goals is the management of water resources, especially the resources of the Tigris-Euphrates River Basin. Issues of resource allocation have taken a backseat to the civil war in Syria, and rightfully so. But these issues should be at the back of the minds of every player because they have importance for the war itself and any attempt to maintain peace after the war.

The Connection Between Water and Conflict

While the connection between water and conflict is not a new revelation, it is a relationship that is still in the process of being understood and defined. Peter Gleick, of the Pacific Institute, has done much to explore the relationship between conflict and water. He has researched the effects of water on conflicts in Kenya, Yemen, and Syria among others. Here, Syria will be used as an example to partly illustrate the importance of water to political stability.

Between 2006 and 2011 Syria suffered an unprecedented and devastating drought that led to widespread failure of crops across the country. These crop failures set off a chain reaction of loss of livelihoods, migration to cities, unemployment, social unrest, and finally political unrest.² The drought was exacerbated by poor management of water resources by the Assad government. The government's subsidization of water for crops that required a large volume of water, coupled with over pumping of groundwater and inefficient water delivery systems made the bad situation of the drought much worse.³ Gleick estimates that, "more than 1.5 million people—mostly agricultural workers and family farmers—moved from rural regions to cities and temporary settlements near urban centers, especially on the outskirts of Aleppo, Hama, Homs, Damascus, and Dara'a."

Gleick quotes the Syrian Minister of Agriculture as saying in 2008 that the drought was, "beyond our capacity as a country to deal with." It seems that the Minister was right, and in 2011 when political unrest began it was in places populated by displaced and unemployed farmers, like Dara'a. Gleick and many others writing on this water-conflict nexus are not claiming that the civil war was caused by water scarcity, only that it was among the contributing factors sparking the civil war.

¹ Peter Gleick and Matthew Heberger, "Water and Conflict: Events Trends and Analysis" Brief 3, in *The World's Water* (Washington: Island Press, 2014).

² Peter Gleick. 'The Syrian Conflict and the Role of Water" Brief 1, in *The World's Water* (Washington: Island Press, 2014).

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid

⁷ Francesco Femia, Troy Sternberg, and Caitlin E. Werrell, "Climate Hazards, Security, and the Uprisings in Syria and Egypt," *Seton Hall Journal of Diplomacy and International Relations 26*, no. 1 (2014): 71-84.

Existing Transnational Water Agreements

There are existing examples of successful transnational water agreements between countries that have tense relationships, like the Permanent Indus Commission, consisting of Pakistan and India, concerning the Indus River and the Mekong River Commission between Thailand, Cambodia, Vietnam, and Laos. Both of these commissions are made up of countries that are familiar with conflict among member states.

The Mekong Commission has initiatives concerning agricultural irrigation and climate change adaptation and acts as a platform for information exchange and technology sharing. The original Mekong Committee was seen as a counter to communist influence and was supported by the United States. During the war the committee was a helpful platform for discussion of issues. This commission and its successes serve as a direct example of what is needed for the Euphrates River.

Transnational Water Issues and the Euphrates River

The Euphrates River, running from Turkey through Syria and Iraq and into the Persian Gulf, makes up part of the Tigris-Euphrates River Basin. This area is known as the cradle of civilization and the birthplace of agriculture. The nearly 1,700 miles of the Euphrates River are important for energy, agriculture, sanitation, and drinking water. Now, due to anthropogenic climate change causing increased temperatures and decreased precipitation and other human-caused problems, the viability of the river basin itself is threatened. The main risk posed to the Euphrates and those reliant on it is the fact that the amount of water flowing downstream in the river has decreased by 40-45 percent since the 1970s ⁹

The Euphrates provides the drinking water for roughly 27 million people across the riparian states, and also irrigates the crops and creates the hydroelectric power for millions more. The reliance of the region on the benefits provided by the river is striking when compared to the precarious position of the river today. And yet, there exists no trilateral and all-encompassing treaty between the three riparian states concerning the flow of the Euphrates. Historically, treaties have been negotiated between two of the three states, usually at the expense of the third state. Turkey, as the originating country, is in the position to control flow to downstream countries. There are 141 dams in the river basin across Turkey, which give Turkey an estimated 90 billion cubic meters of water storage capacity.

This capacity gives Turkey the capability of, "preventing all flow of the Euphrates from entering Syria for two or three years (based on average yearly flows)." This ability, among other things, has often made Turkey the target of complaints from both Syria and Iraq. There is a record of Turkey abusing its upstream power over its neighbors in the past, even going as far as nearly cutting off flow of water entirely. Turkey has often expressed its self-proclaimed right over the river's resources. Turkey has repeatedly returned to the

⁸ Mekong River Commission, "History," accessed December 11, 2015, http://www.mrcmekong.org/about-mrc/history/.

⁹ Nouar M. Shamout and Glada Lahn, *The Euphrates in Crisis: Channels of Cooperation for a Threatened River* (London: Chatham House, 2015).

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

mode of thinking in line with the doctrine of absolute territorial sovereignty, which states, "that upstream states have national sovereignty over the rivers within their territory." Under this line of thinking, also known as the Harmon Doctrine, the only options available to downstream countries are to hope for cooperation or prepare for war. To further illustrate Turkey's views on this issue, Zawahri quotes Turkey's former Prime Minister Suleyman Demirel, "Neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. We have a right to do anything we like. The water resources are Turkey's, the oil resources are theirs." This mode of thinking has prevented many past chances for agreements, and could stand in the way of any future agreement if Turkey is not shown the benefits of cooperation.

There have been agreements about the river between the three countries, but none with mechanisms powerful enough to be enforced. Agreements during colonial rule went relatively smoothly because the countries were much less reliant before the construction of hydroelectric plants and a population boom. After the mid-twentieth century things became more difficult, however. Between 1964 and 1975 Syria and Turkey were filling reservoirs at their new dams. After a failed process to somewhat lessen the damage to Iraq, no agreement was made and the countries carried on filling their reservoirs. This devastated the Iraqi agricultural industry because the flow of the Euphrates went from an average of 920 cubic meters per second to 197 cubic meters per second. A failed mediation attempt by the Arab league led to Iraq threatening to bomb the Syrian dam, which caused Syria to send troops to the Iraqi border. While this period of tension was ended by intense Saudi diplomatic work, it highlights the vital importance of these water resources to the survival of the three riparian states.

Possibly the most important previous bilateral agreement is the 1987 Protocol on Technical and Economic Cooperation, which dictated that Turkey would release an average of 500 cubic meters per second yearly. This agreement is generally adhered to by Turkey but sometimes inconsistently. Syria and Iraq also have a bilateral agreement which distributes 58 percent of the flow to Iraq and the remaining 42 percent to Syria.¹⁶

Issues in Turkey

Turkey is heavily reliant on hydroelectricity for its power generation, which produces 45,000 Gigawatt hours (GWh) per year, or around 25 percent of Turkey's total power generation. Combined with the decreases in the flow of the Euphrates, it is clear that Turkey's power generation is at risk. Since the 1970s Turkey has invested heavily in hydroelectricity to meet its needs, especially through the Southeastern Anatolian Project (GAP). The GAP has already invested \$16 billion into developing Turkey's agricultural irrigation and hydroelectricity infrastructure. RAP has already completed twelve dams and 80 percent of planned hydroelectric capacity of the twenty-two dams and

¹³ Neda A. Zawahri, "Stabilising Iraq's Water Supply: What the Euphrates and Tigris Rivers Can Learn from the Indus," *Third World Quarterly* 27 (2006): 1041-1058.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Turkish Ministry of Foreign Affairs, "Turkey's Policy on Water Issue," http://www.mfa.gov.tr/turkey_s-policy-on-water-issues.en.mfa.

¹⁸ Ibid.

nineteen hydropower plants planned for construction. ¹⁹ A hoped-for positive side-effect of the GAP for Turkey is to make regions populated by Turkey's Kurdish minority more prosperous through improving employment and economic prospects. ²⁰ Some nationalistic groups among the Kurds, which form the majority in several Southeastern provinces, have been engaged in a low-intensity war with Turkey for several decades, and improving their economic position is a tactic to undercut popular support for their cause.

Energy consumption is rising in Turkey in pace with population growth and increasing urbanization. Current energy consumption growth in Turkey is 5.7 percent yearly, with an estimated total consumption growing from 265 billion kilowatt hours (kWh) in 2010 to 528 kWh in 2020.²¹ Water consumption is also expected to rise, and the Turkish government expects overall water demand to more than double between 2012 and 2023.²² Another factor to consider in Turkey's water situation is the impact of Syrian refugees. There are currently almost 2.3 million Syrian refugees in Turkey, and that number will continue to rise until the conflict is resolved.²³ This rapid influx of people has added to water demand. Turkey has been receiving international aid, especially from Europe, to support its refugee programs, but how long this will continue into the future is unclear. If these refugees stay in Turkey indefinitely, then this will add to the future water stress of the country.

While Turkey does not presently suffer from water scarcity issues, it is very likely in the near future if trends continue. One study estimates a possible reduction of surface waters in Turkey, "of 20%, 35% and 50% for 2030, 2050 and 2100." With a population of roughly 15 million Turks working in agriculture a decrease in per capita water resources will lead to unemployment and possibly further urbanization. ²⁵

Issues in Syria

Syria is in a potentially disastrous situation regarding water security. Before the conflict Syria's water system was stressed by rapid urbanization and the prevalence of water-intensive crops. The mismanagement of these resources led to an estimated 800,000 Syrians losing their livelihoods by 2009, and many thousands more moving to cities. The Syrian water system is dependent on the Euphrates, with the river providing, "70 per cent of surface water resources and 50 per cent of total renewable water resources in Syria." The Euphrates is the sole source of water for many of Syria's largest cities. Prior to the civil war, 60 percent of Syria's energy was provided by hydroelectricity. Also, due to Syria's reliance on water-intensive crops for its economy, the agricultural sector pre-war employed a quarter of the Syrian workforce and comprised 30 percent of Syrian Gross Domestic Product (GDP). The industries revolving around tobacco, olive oil, and cotton,

¹⁹ Nouar M. Shamout and Glada Lahn, *The Euphrates in Crisis*.

²⁰ Zawahri, "Stabilising Iraq's Water Supply."

²¹ Turkish Ministry of Foreign Affairs, "Turkey's Policy on Water Issue."

²² Nouar M. Shamout and Glada Lahn, The Euphrates in Crisis.

²³ United Nations High Commissioner for Refugees, "Syria Regional Refugee Response," accessed December 12, 2015, http://data.unhcr.org/syrianrefugees/country.php?id=224.

²⁴ European Union Centre for Climate Adaptation, "Freshwater resources in Turkey," accessed December 12, 2015, http://www.climateadaptation.eu/turkey/fresh-water-resources/.

²⁵ Ibid.

²⁶ Shamout and Lahn, *The Euphrates in Crisis*.

²⁷ Ibid

all reliant on water from the Euphrates, represented half of the manufacturing sector of Syria before the war.²⁸

Much of the river and water infrastructure today is controlled by militants, namely the self-described Islamic State (IS). The Islamic State controls the Tabqah dam, "the largest dam and main water-storage and flow-regulating body on the Syrian section of the Euphrates." Lowered water levels at the dam have cut off drinking water for many Syrians. The Islamic State has proclaimed in a released statement that the dam has been wired with explosives, and IS has threatened to blow the dam if they are attacked. This would release 11 million cubic meters of water from the dam, possibly threatening millions and doing untold damage. The rules of war have often been ignored in the Syrian civil war, which means that water infrastructure and other types of infrastructure have not escaped air strikes. Articles 51 and 54 of Protocol I of the Geneva conventions forbid attacks on water supplies. A water treatment plant near Aleppo was bombed in December 2015, threatening the water supply of millions of Syrians. Although it is unclear who carried out the airstrike, some believe it was the US-backed international coalition. This is not the first time this kind of attack has happened in Syria.

The resources to manage Syria's water infrastructure are sparse after years of war. Information and records have been destroyed, technicians have been killed or fled the country, and the infrastructure itself has been utterly destroyed in some places.

Issues in Iraq

The Islamic State has also come to control some of the water infrastructure of Iraq. The Islamic State in Iraq has used their control over water as a weapon against the Iraqi government, going so far as to cut off the flow of water to some southern Iraqi cities using the Fallujah regulator, which also caused flooding upstream. The United States has already publicly stated the importance of water infrastructure in Iraq by supporting Peshmerga efforts to recapture Mosul dam from IS in 2014. President Barack Obama publicly stated, "The failure of the Mosul Dam could threaten the lives of large numbers of civilians, endanger US personnel and facilities, including the US Embassy in Baghdad, and prevent the Iraqi government from providing critical services to the Iraqi populace."

A stable and prosperous Iraq is contingent on a stable, clean, and reliable source of water. Iraq gets 98 percent of its water supply from the Tigris-Euphrates River Basin.³⁴ The flow reaching Iraq today has dropped over the past decades, and is estimated to be as low as 44 billion cubic meters (bcm). To explain the direness of this situation, the Iraqi Ministry of Irrigation has projected Iraq's water needs to be 101 bcm in 2020. Crops all over Iraq have been failing, and the agricultural industry is feeling the squeeze. Large-scale internal migrations are happening in Iraq, with many rural poor moving to the cities. This

³¹ International Committee of the Red Cross (ICRC), Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, 1125 UNTS, accessed December 15, 2015, http://www.refworld.org/docid/3ae6b36b4.html.

²⁸ Zawahri, "Stabilising Iraq's Water Supply."

²⁹ Shamout and Lahn, The Euphrates in Crisis.

³⁰ Ibid

³² Ammar Abdullah, "U.N. condemns air strike that cut water supplies to Syria's Aleppo,"

http://www.reuters.com/article/us-syria-crisis-aleppo-water-

idUSKBN0TK4F020151201#BMDEuYsrs4GpLDsD.97.

³³ Shamout and Lahn, The Euphrates in Crisis.

³⁴ Zawahri, "Stabilising Iraq's Water Supply."

migration is a direct result of the failing agriculture industry and is a threat to Iraqi stability.35

Iraq is also plagued by aging and inefficient water systems and management that is rampant with corruption and incompetence. Much of the water infrastructure is decades old and barely functioning, including nearly 8,000 miles of drains and canals that move water across the country. Not all of the infrastructure is antiquated, however. By 2009 the US Army Corps of Engineers had finished twenty five large water projects and 800 smaller ones distributing drinking water to Iraqis, with the total price tag of \$65 million.³⁶ But the US Army Corps of Engineers is gone, and Iraqis still lack reliable access to drinking water. An overhaul of Iraq's nationwide water distribution system would cost millions of dollars and likely take years to be completed. The need for modern methods of irrigation is understood in the Iraqi government, but the finances and the focus are harder to track down.37

Iraq's rebuilding process was making some progress before the Syrian civil war spilled across the border. Water issues had been pushed off, along with other state services, in order to focus on security and stability. This process makes sense when addressing the basic needs of the state, but the next step was never taken. Prime Ministers Maliki and Abadi did not and have not had time to address these issues, let alone the resources or political will. When the state is under direct threat, the future is disregarded until the present is secure.

Recommendations

For Turkey: To ensure that Turkey's energy mix is less reliant on a water source that is shrinking, and in order to make more water available for agriculture, Turkey needs to diversify energy sources, and diversify water sources.

Turkey has had trouble financing the later stages of its massive GAP and timetables have been pushed back.³⁸ There are two options to ease the burden of the GAP and hydroelectric reliance in Turkey. First, the trilateral agreement addressed below will likely bring outside financial sources by stabilizing the atmosphere within Turkey. Second, the United States should invest in the energy security of its ally Turkey by encouraging energy source diversification. This same notion could be applied to Turkish imports of Iraqi oil and Iranian natural gas, but for the purposes of this paper the reliance on domestic hydroelectric power is most important. Through the Department of State's Clean Energy Solutions Center, advice and analysis should be provided to Turkey in developing a renewable energy sector that does not rely on hydroelectricity.

These techniques could also be applied to the development of a desalination industry in Turkey to provide an alternative to drinking water from the Euphrates, freeing up more water for agriculture. Payment for this could be included as part of the trilateral agreement or as a separate issue. Although these plants may not directly reduce consumption from the Euphrates, they will strengthen the water source mix in Turkey.

³⁵ Martin Chulov, "Iraq: Water, Water Nowhere," World Policy Journal 26 (2009): 33-41.

³⁷ IRIN News, "Iraq: Call to adopt modern irrigation techniques," http://www.irinnews.org/report/94921/iraqcall-to-adopt-modern-irrigation-techniques.

³⁸ Zawahri, "Stabilising Iraq's Water Supply."

For Syria: During the conflict, the international coalition led by the United States should avoid bombing and damaging water infrastructure because it will be critical after the war. During Vienna negotiations, negotiators should require that a replacement government address grievances, including proper management of water resources.

The Department of Defense should work to identify and communicate the location of all critical water infrastructure in Syria with other combatants, including the United Kingdom, France, and Russia. This includes dams, reservoirs, pumping stations, pipelines, and any and all other infrastructure that could not be easily and cheaply rebuilt after the war. This infrastructure will be sorely needed once peace is restored if Syria is to become a functioning and stable society.

The Department of State must include in any political transition agreement assurances that the question of water management is addressed. While this is obviously not an immediate concern while the conflict still rages, it is essential for the future of Syria. No new government, no matter its make-up, will be effective without attempting to solve Syria's water problems. The peace talks planned for January 1, 2016, if successful, should provide the opportunity to begin to address resource management and governance issues.

To reduce the reliance of Syria on the Euphrates for providing drinking water, investments in desalination plants should be made. Like the proposed plants in Turkey, these could be financed outside of the Euphrates River Commission or from within. These plants would be a large expense for a young government but would be an important step for water security in Syria.

For Iraq: Through USAID, the US government should invest in rebuilding water infrastructure, and training farmers and civil servants to support efficient water use.

USAID has similar programs in different countries to improve water delivery systems and to train those connected to the agricultural industry, be they farmers or civil servants, in more water efficient practices. This program would include providing funds for efficient irrigation technology. USAID, through its Securing Water for Food grand challenge development goal, should distribute grants to groups working in Iraq to strengthen the agricultural sector.³⁹ These projects should focus on a number of things: building an efficient water delivery system for the country, promoting the use of and teaching farmers about the benefits of planting crops that are less water-intensive and general water efficiency, and the training of a professional and knowledgeable water resource civil service.

These projects would necessarily be long-term, especially considering the atmosphere in Iraq today. The Department of Defense has maintained a presence in Iraq, and has recently expanded that presence. The US Army Corps of Engineers should resume work on laying pipes and rebuilding infrastructure in Iraq. This would provide a step in the right direction for the Iraqi economy and would do much to quell anti-US sentiments.

Barley and wheat, two common crops grown in Iraq, are highly water intensive. Substituting these for crops with lower water intensities would reduce consumption and

³⁹ USAID, "Securing Water for Food: A Grand Challenge for Development Announces 12 New Awardees," https://www.usaid.gov/news-information/press-releases/nov-3-2015-securing-water-food-grand-challenge-development-announces-12-new.

increase agricultural production numbers. This is another area in which USAID should pursue organizations to receive grants. The training of the Ministry of Water Resources civil service would most likely not fall to USAID, but could possibly be facilitated through an exchange and training program with a US organization like the Environmental Protection Agency.

The United States Department of State and the Department of Energy are already cooperating on strengthening the energy sector in Iraq through the protection of critical infrastructure, providing expert analysis, and improving Iraqi government capacity. Technical assistance is provided and a working group has been established to promote renewable and efficient energy. ⁴⁰ A similar relationship needs to be established concerning water, a resource that is vitally more important to the success of Iraq than oil.

Overall: Support the establishment of a trilateral agreement with clear standards that include broad climate change adaptation measures.

After the resolution of the Syrian civil war, the United States should broker a trilateral agreement between the three riparian states to define usage standards while also addressing climate change adaptation measures. While the region is currently unstable, any hope of future stability partially hinges on reliable water resources and the responsible management of those resources.

Taking into account the successes and failures of previous transnational river agreements, like the Mekong River Commission and the Permanent Indus Commission, the United States Department of State should spearhead the creation of an independent Euphrates-Tigris River Basin Commission (ETRBC) to oversee monitoring and information sharing systems, act as an effective dispute mediator, and provide guidance on future climate change adaptation projects.

The largest obstacle to forging a trilateral agreement is enticing Turkey to cooperate. In its current position, Turkey can maintain its strategy of consuming what it wants and leaving the rest for Syria and Iraq. For Turkey to be willing to cooperate with the other riparian states, there must be an incentive. The most viable option for enticing Turkey is for the other riparian states to provide partial financing for Turkey's renewable energy transition in exchange for increased river flow. The details of this arrangement would be decided through the ETRBC process, but Syria and Iraq would provide partial financing for Turkey's development of solar and wind energy, and in return Turkey would increase downstream flow into the Euphrates. This financing would be implemented by the ETRBC and would be subject to monitoring to ensure agreements are being respected. This commission hinges on Turkey's willingness to participate and work with its neighbors to address a common threat and to benefit mutually.

Strategic Benefits to the United States and Concluding Remarks

This large multi-agency plan would boost US influence in the region considerably. With the recent progress in Turkey's EU ascension, interest has been renewed in the process. Leading Turkey toward energy and water security would help

⁴⁰ U.S. Embassy Baghdad, "Joint Statement of the Iraq-U.S. Joint Coordination Committee on Energy," http://iraq.usembassy.gov/pr020514.html.

strengthen the Turkish economy and be a step toward EU membership for Turkey. This would prevent Turkey's recent moves to re-engage with the East and put in place the popular notion of neo-ottomanism.

Being involved in the first steps of creating a new democratic government gives the US a chance to have considerable influence in the new government. A stable and functioning Syria is in the interest of the US, and water security is a cornerstone of that stability. Employment, a prosperous agricultural industry, and reliable water resources will ensure the long-term stability of Syria. The same can be said for Iraq which is in the middle of a troubling time. A prosperous economy and a vibrant agricultural industry will stabilize and strengthen Iraq.

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