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## The Tigris–Euphrates River Basin: A Science Diplomacy Opportunity

### Summary

- Iraq's post-conflict struggles for sustainable economic growth and regional stability are undermined in both the short and long term by poor water management in the Tigris-Euphrates basin.
- Poor regional water management has negative effects on Iraq's regional political relationships, its economy and its ecology.
- Despite the severity and urgency of many of these concerns, diplomatic deadlock persists as a result of zero-sum politics, unequal power relationships between regional players, lack of transparency in data sharing, and intragovernmental dynamics.
- These concerns are best addressed through regional scientific cooperation. This approach should be based on the creation of networks that facilitate collaboration between both technical and diplomatic stakeholders.

### Introduction

The Euphrates and Tigris rivers have been a source of tension between Iraq and its neighbors for generations. Iraq is heavily dependent on those two rivers for fresh water for drinking, sanitation and irrigation, while Turkey has tightened its control of the headwaters through extensive hydro-electric dam projects. Zero-sum competition is reinforced by 10–20 year projections indicating that water demand will exceed the supply for the region as a whole.

Near-term drought poses even more urgent threats. Iraq's director of water resources, Oun Thiab Abdullah, said in May 2009 that Iraq faced “a catastrophe” during the summer unless Turkey triples the Euphrates water flow. Though impending drought was not a core campaign issue for the recent 2010 Iraqi elections, it is sure to present a challenge for the new Iraqi government.

In this context, this Peace Brief outlines the threats posed by poor water management in the Tigris-Euphrates basin to Iraq and the region at large. It also describes the political interests that underlie the current deadlock, and the role that regional scientific collaboration can play in creating sustainable diplomatic solutions to these issues.

### Consequences of Poor Water Management

#### *Political, economic and ecological fallout*

Iraq faces one of the world's most challenging water management situations, and its effects are far reaching. These challenges are numerous and interlinked, having significant impact on:

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- *Regional politics:* Iraq's vulnerability as the downstream nation has complicated relations with its neighbors, as Turkey and Syria balance their national interests with the need for sustainable stewardship of the two rivers. The lack of regional agreements and institutions for transboundary water management makes it even more difficult to pursue long-term solutions to these challenges. The second year of drought in the summer of 2009 caused severe hardships, raising tensions between Iraq and its neighbors over the declining Tigris and Euphrates rivers. Iraqi ministers and legislators criticized Turkey and Syria for using hydroelectric dams to limit flows from the rivers' headwaters, while Iraq was faulted by its neighbors for inefficient water management.
- *The economy:* Left without sufficient water for irrigation, southern Iraq's fragile agricultural sector has produced a record low wheat crop, and thousands of Marsh Arabs have abandoned their farms. Water quality is so poor that Basra and other southern cities import desalinated water from the United Arab Emirates. Three thousand people were evacuated from two villages due to water scarcity and sanitation problems. Nasiriyah lost 50 percent of its hydroelectric power during the summer of 2009 due to low water levels.
- *The ecology:* The ecosystems that rely on the Euphrates and Tigris rivers are quite fragile, especially the marshes of southern Iraq. Two years of drought have caused severe salination, displacing many farmers and villagers, and have caused serious water quality challenges in Iraqi cities.

### *Factors for Political Deadlock*

Despite the enormity of the threats posed by poor water management in the Tigris-Euphrates basin for both Iraq and its neighbors, there has been little political progress made towards addressing them. Water ministers from Iraq, Turkey and Syria held a joint meeting in September of 2009, which proved to be inconclusive. Political inertia in the region is the result of a number of inter- and intrastate factors:

- *Perception of misaligned interest.* Like all extractable resources, interstate freshwater management is perceived as an inherently zero-sum political issue. When domestic political actors lobby for more freshwater resources, they are typically unsympathetic to the needs of neighboring states. Indeed, any concession made by one government in this regard can undermine their domestic political futures. These pressures are particularly high for the governments that control upstream dams, like Turkey.
- *Unequal power relationships.* Turkey's geographical and political position makes it a dominant player in the region. In the September talks, ostensibly convened to begin negotiations with Iraq and Syria on water-sharing, Turkey's energy minister ruled out increasing its water delivery to its downriver neighbors. Absent greater geopolitical leverage or wider international pressure, there appears to be little that Iraq and Syria can do to change this dynamic.
- *Lack of open technical data.* A crucial roadblock is the lack of agreement on actual flow levels and water quality because of deficient measurement technologies, limited public hydrological data, and insufficient technical expertise to make environmental and agricultural impact assessments based on generally accepted scientific standards.
- *Intragovernmental relationships.* Water management in Iraq is not centrally administered. The Ministry of Water Resources takes the lead on water related issues, but its purview is limited. The ministry decides water distribution between regions, but it has little to do with ensuring water quality, proper agricultural use, and the supply of safe drinking water to urban populations. Iraq's Ministry of Agriculture, Ministry of Planning and Development Cooperation, Ministry of Environment and various local bodies deal with these issues

jointly. These internal dynamics add another stratum of political interests that inhibit coordinated problem-solving.

### *Existing International Efforts*

The international community has supported some efforts at water management at the local and national levels in Iraq. Notable examples include USAID, the U.S. Army Corps of Engineers, and the United Nations Environment Program in Iraq, and the World Bank in Syria. However, these have not yet supported a comprehensive approach that could enable regional collaboration, sustained over the long term by strengthened national and regional institutions in Iraq, Syria, and Turkey. The international community needs to help foster and support a regional approach.

## Recommendations

### **1. Invest in Scientific Cooperation for Regional Water Management and Conflict Resolution**

To deal with the interrelated political, economic, and ecological issues that arise for Iraq from poor water management in the Tigris-Euphrates basin across various time horizons, we recommend an approach that has regional scientific cooperation as its foundation. Scientific cooperation initiatives in river basins ranging from the Nile to the Mekong have demonstrated that enhanced management of transboundary water resources provides a strong basis for economic growth and political stability. Our fundamental assumption is that the scientific elements of such a strategy make trust and cooperation possible since stakeholders have a common understanding of the problem based on accepted scientific standards, thus bringing political rhetoric more in line with reality. International scientific collaboration can break a diplomatic logjam.

Furthermore, President Barack Obama's recent pledge to invest in scientific collaboration during his Cairo address to the Arab world has triggered the U.S. government's renewed interest in building domestic technical capacity in Iraq and in supporting regional scientific collaboration initiatives. The time is ripe for such an approach.

Specifically, we argue for a two-pronged programmatic approach to water management in post-conflict Iraq:

- Support for regional technical cooperation
- Support for regional policymaking and diplomatic initiatives

### **2. Support Regional Technical Cooperation**

Regional cooperation between scientists, academics and technical experts on water management can help tackle various parts of the political challenges outlined in earlier parts of this Peace Brief. Firstly, they serve to create more open forums for information and technical data sharing. Most data about water usage, flow and quality have been guarded as a national security secret to conceal violations of pledged water management practices, making it difficult to depoliticize the issue with trusted information. Regional cooperation breaks collective action problems underlying the resistance to sharing sensitive data. It also enhances the development of technical expertise, leveling the playing field between counterparts over time.

Secondly, scientific cooperation serves to realign states' interests from a zero-sum perspective to a more comprehensive approach based on interdependence. Turkey has resisted the establishment of a joint regulatory body, but the door is opening to technical collaboration, which had been dormant since the 1991 Gulf War. A multidisciplinary, cooperative approach is appropriate, given that the interconnected scientific and engineering problems of the basin go well beyond

legal wrangling over water rights. For example, outdated technology for agriculture (90 percent of Iraq's water usage) exacerbates water shortages in the entire region and has caused severe downstream salination. But the 2007-2010 Iraqi National Security Strategy states that decreasing water flow "directly threatens environmental and nutritional security [and] stems from...large dams in Turkey and Syria...that do not take into consideration the rights of Iraq." Thus, the improvement of water management capacity in Iraq is in the interest of both Turkey and Syria, promoting efficient water usage throughout the region and warding against possible conflicts.

A technical cooperation program should aim to create the following elements:

- Practices for reliable end-to-end *data collection* about water flow, water quality, salinity, precipitation, irrigation and consumption rates.
- Practices for *data management*, exchange and public availability according to the most advanced technical standards.
- *Institutional forums* to promote exchange and cooperation among technical experts in the region.

Participants involved in regional technical cooperation should represent a range of disciplines, including:

- *Hydrologists and geologists*: to facilitate the development of shared databases of hydrological information, designed to be apolitically managed, analytically useful, and publicly available.
- *Environmental scientists/engineers and biologists*: to facilitate information sharing and joint study of the fragile ecosystem of the river basin, and to assess potential ecological effects of development projects.
- *Agronomists and biotechnologists*: to facilitate assessment of current agricultural practices' impact on the ecosystem and long-term water supply, and to evaluate opportunities to invest in irrigation and food-production practices that require less water and energy.
- *Energy experts*: to facilitate impartial data collection on the effects of upstream hydroelectric projects on downstream water supplies, and to involve leaders in alternative solar and wind energy to enable integrated regional energy and water planning.

### 3. Support Regional Policymaking and Diplomatic Initiatives

The second piece of a regional cooperation strategy should involve bringing together scientists, policymakers, bureaucrats, ministerial staff, and other decision-makers from various relevant ministries in all three countries. This would engender a number of positive outcomes that specifically address concerns we have outlined.

Firstly, by engaging ministerial staff from water, environmental, and natural resource ministries in the three countries, this phase would establish a foundation for ongoing institutionalized collaboration for "Track Two" science and engineering diplomacy that would reduce the likelihood of tensions over scarce water resources spilling over into a cause of conflict in the region.

Secondly, by bringing together staff from these different ministries, the diversity of intragovernmental concerns can be brought to bear on the issue, ensuring that multilevel stakeholders are engaged and have buy-in in the final diplomatic outcomes of cooperation. This whole-of-government approach is vital to effective regional cooperation.

Thirdly, this would help Iraqi, Syrian and Turkish scientists and engineers establish regional bonds, accelerate their professional development and networks, adopt leading international standards and data management tools, and deepen constructive engagement with governmental decision-makers.

## ABOUT THIS BRIEF

This Peace Brief was written by Joel Whitaker, senior adviser to the Center of Innovation for Science, Technology, and Peacebuilding at the United States Institute of Peace, and Anand Varghese, program assistant to the Center of Innovation for Science, Technology, and Peacebuilding.

This phase of engagement should aim to achieve some or all of the following outcomes:

- *Trilateral agreements* on practices for monitoring and reporting data on water quality and quantity.
- Cooperative approaches to developing, operating and maintaining major water projects for *energy, irrigation and water supply*.
- Cooperative approaches to *environmental protection* of the shared river basin.
- The establishment of *joint technical facilities* to enhance collaboration and knowledge sharing among scientists and engineers in the region.
- Additional mechanisms for coordinating water policy and allocations, potentially including the formation of a *transboundary water commission* empowered to resolve disputes.



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