

# STRATEGIC WATER FOR IRAQ: THE NEED FOR PLANNING AND ACTION

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## INTRODUCTION

Iraq has drawn the attention of the world since the first Gulf War in 1991. Since the 2003 invasion, the international community has devoted a tremendous amount of effort and resources to Iraq's reconstruction. With the primary emphasis on security and rebuilding infrastructure, the challenges have been formidable and well documented. However, many have ignored another threat, one that will become increasingly important in the years ahead. Iraq heavily depends on the waters of the Euphrates-Tigris, the source of which comes primarily from outside its own borders. Without a plan to preserve the long term "strategic" water for Iraq, and prompt action, any gains in the security or economic sphere in Iraq may be lost.

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Unique geography and its access to water have shaped the history of the Euphrates-Tigris Basin. The “Rivers of Eden” find their source in modern-day Turkey, in the central highlands where rain and snow are plentiful. The Euphrates flows through Syria and Iraq to the head of the Persian Gulf, where it joins the Tigris at the Shat-Al-Arab. The Tigris flows directly from Turkey to Iraq, where it obtains additional flows from the Zagros Mountains in Iran.

Turkey has been blessed with an environment that can optimally utilize the waters of the “Two Rivers” of the Euphrates-Tigris. Deep valleys, cooler temperatures and fertile soil provide good conditions for catchment, water diversions and agriculture. This is not true for the neighbors to the south, both Syria and Iraq, where desert conditions and high evaporation rates prevail. Population growth and increasing demands from agriculture will seriously affect the supply, both in quantity and quality, in the years ahead.

As the population in Turkey, Syria and Iraq expands, potential water deficiencies have become a major concern. The Two Rivers provide a substantial amount of the fresh water for all three countries, although Syria’s reliance on the Euphrates is noteworthy. In a study completed in 2001, the World Bank Environmental Department predicted the amount of fresh water available per capita for “water stressed” countries in the region in 2025.<sup>1</sup> For Iraq the 1990 figures were 5,285 cubic meters per capita per year (“CMY”) but the 2025 figures are projected to be 2000 CMY.<sup>2</sup> For Syria the 1990 numbers were 439 CMY but they will be reduced to 161 CMY by 2025.<sup>3</sup>

Of the Two Rivers, the Euphrates requires particular attention. While approximately fifty percent of the water in the Tigris originates outside Iraq, “more than [ninety percent] of [the

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1. RAFIK HIRJI & HANS OLAV IBREKK, ENVIRONMENTAL AND WATER RESOURCES MANAGEMENT 8 (World Bank Env’t Dep’t, 2001), *available at* [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2002/05/20/000094946\\_0205040403116/Rendered/PDF/multi0page.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2002/05/20/000094946_0205040403116/Rendered/PDF/multi0page.pdf) (noting that water stressed areas often have a heightened threat of conflict in times of drought).

2. Rafik Hirji & Hans Olav Ibrekk, Water Resources Data: Water Stressed and Water Scarce Countries: 2025 Projections, <http://www.waterinfo.gr/pages/data.html> (last visited Dec. 4, 2008) [hereinafter Hirji & Ibrekk, 2025 Projections].

3. *Id.*

Euphrates] water comes from outside the country.”<sup>4</sup> An agreement reached between Syria and Iraq in April 1990, granted to Iraq fifty-eight percent of the water received by Syria from Turkey.<sup>5</sup> In May 2004, the Iraqi Minister of Water Resources stated that Iraq historically used nearly thirty billion cubic meters (BCM) per year from the Two Rivers but now uses about a third of that amount.<sup>6</sup> Predictions always entail some degree of guesswork, but the evidence is clear that water demand in the region in the next ten to twenty years will exceed supply.

When rivers cross international boundaries the most difficult questions arise: Who is entitled to the water, and how can downstream countries be protected? Turkey is clearly in the strongest position in the Euphrates-Tigris Basin, geographically, politically and militarily. But this is a volatile region where international relations are driven by numerous factors, including oil, politics, extremism, economics, and outside intervention.

## I. WATER WARS IN THE MIDDLE EAST?

The question of water and conflict is receiving increased attention from scholars and policy makers. There is a long history of water playing a role in conflict; Peter Gleick of the Pacific Institute has attempted to provide a comprehensive chronology.<sup>7</sup> Gleick regularly

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4. Food and Agriculture Organization of the United Nations, AQUASTAT – FAO’s Information System on Water and Agriculture: Iraq, <http://www.fao.org/nr/water/aquastat/countries/iraq/index.stm> (last visited Aug. 18, 2008) [hereinafter 2008 FAO Report] (comparing the relative significance of the two rivers to Iraq’s access to and control over international watercourses).

5. See Eyal Benvenisti, *Water Conflicts during the Occupation of Iraq*, 97 AM. J. INT’L L. 860, 867 (2003) (relating the fact that this is less than one-third the amount of water Iraq previously received from the Euphrates river).

6. See Dale Gavlak, *Iraq Seeks to Ease Water Shortage*, BBC NEWS, May 31, 2004, [http://news.bbc.co.uk/2/hi/middle\\_east/3764905.stm](http://news.bbc.co.uk/2/hi/middle_east/3764905.stm) (explaining the view of Iraq’s Minister for Water Resources, that the water shortage is caused by a lack of information-sharing and cooperation between countries, as well as poor infrastructure).

7. See generally PETER H. GLEICK, WATER CONFLICT CHRONOLOGY (Pacific Institute, 2008), <http://worldwater.org/conflictchronology.pdf> (dividing the world’s water conflicts into six types, including conflicts over control of water resources, conflicts treating water as a military tool, conflicts treating water as a political tool, conflicts targeting water sources as tools of terrorism, conflicts that feature water systems as targets of military actions by the nation or state, and conflicts where

updates the chronology, and the most recent events are generally attributed to terrorism, including the 2003 bombing of a water supply pipeline in Iraq. Although water has rarely been the primary factor in war, there is an emerging consensus that the likelihood of conflict over water will increase in the next fifteen years “as countries press against the limits of available water.”<sup>8</sup> In a 2001 speech, the Chairman of the U.S. National Intelligence Council warned:

By 2015 nearly half the world’s population—more than 3 billion people—will live in countries that are “water-stressed”—having less than 1,700 cubic meters of water per capita per year—mostly in Africa, the Middle East, South Asia, and northern China . . . . Water shortages occurring in combination with other sources of tension—such as in the Middle East—will be the most worrisome.<sup>9</sup>

Professor Tony Allen of the University of London, School of Oriental and African Studies notes that “the Middle East as a region ran out of water in the 1970’s.”<sup>10</sup> Professor Allen has theorized that the shortage has been made up by importing food, and the water is now “virtual” and contained or imbedded in the imported commodities.<sup>11</sup> As an example, one kilogram of wheat requires 1000

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water systems play a significant role in development disputes).

8. NATIONAL INTELLIGENCE COUNCIL, GLOBAL TRENDS 2015: A DIALOGUE ABOUT THE FUTURE WITH NONGOVERNMENTAL EXPERTS 27 (2000), *available at* [http://www.dni.gov/nic/PDF\\_GIF\\_global/globaltrend2015.pdf](http://www.dni.gov/nic/PDF_GIF_global/globaltrend2015.pdf) (noting that historically water shortages have a tendency to increase cooperation, but as water becomes more scarce and populations increase, the likelihood of conflict over water also increases).

9. John C. Gannon, Chairman, Nat’l Intelligence Council, Remarks at a Conference Sponsored by Friedrich Ebert Stiftung: The Role of Intelligence Services in a Globalized World (May 21, 2001), *available at* [http://www.dni.gov/nic/speeches\\_globalizedworld.html](http://www.dni.gov/nic/speeches_globalizedworld.html) (emphasizing the vulnerability of the Middle East to more serious water conflicts due to the already-high political tensions in that region).

10. J. ANTHONY ALLAN, THE MIDDLE EAST WATER QUESTION: HYDROPOLITICS AND THE GLOBAL ECONOMY 5 (2002) [hereinafter ALLAN, THE MIDDLE EAST].

11. J. Anthony Allan, *Water Stress and Global Mitigation: Water, Food, and Trade*, ARID LANDS NEWSL., Spring/Summer 1999 (Office of Arid Land Studies, Univ. of Ariz., Tucson, Ariz.), *available at* <http://cals.arizona.edu/OALS/ALN/aln45/allan.html> (offering one theory on how the Middle Eastern economic systems compensate for water scarcity in the region).

liters of water to produce.<sup>12</sup> A nation that is water-scarce can make up for the shortage by importing food. But this is not a solution for countries that do not have the economic resources, and in matters of food security a nation will prefer not to rely on the good will of neighboring states to make the food available.

There have been dire predictions of water wars for years. In 1988, author R.Z. Chesnoff posited the following hypothetical scenario: “Nov. 12, 1993. War erupted throughout the Middle East today in a desperate struggle for dwindling water supplies. Iraqi forces, attempting to smash a Syrian blockade, launched massive attacks on the Euphrates River valley. Syria answered with missile attacks on Baghdad.”<sup>13</sup> Long after his prediction, the scenario depicted by Mr. Chesnoff has not yet occurred. The “water pessimists” have been consistently proven wrong, but their alarm is not misplaced.<sup>14</sup> Although there may not be a clear and present danger of a water war between Turkey, Syria, or Iraq, the next twenty years are likely to see more political instability and declining public health in the region. A water crisis is likely, but may not occur as a classic shooting war. Some analysts believe the problem is not water stress *per se* (as with conditions within individual countries) but rather the unilateral attempts to develop an international river without an agreement between neighbors.<sup>15</sup> Further, there seems to be new consensus that water will become an increasingly volatile strategic issue in the next ten to twenty years.<sup>16</sup> Combined with a global food

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12. World Water Council, Virtual Water, <http://www.worldwatercouncil.org/index.php?id=866> (last visited Sept. 26, 2008) (illustrating how a country can reduce domestic water use by importing foods that require a large amount of water to grow).

13. Richard Z. Chesnoff, *When Water Feeds Flames*, U.S. NEWS & WORLD REP., Nov. 21, 1988, at 47 (imagining violence between Iraq and Syria as they fight for control over the water of the Tigris and Euphrates Rivers).

14. ALLAN, THE MIDDLE EAST, *supra* note 10, at 3 (arguing that into the future, the countries in the region of the Middle East and North Africa will encounter the greatest difficulty in ensuring freshwater supply sufficiently satisfies the needs of their growing populations).

15. Sandra L. Postel & Aaron T. Wolf, *Dehydrating Conflict*, FOREIGN POL’Y, Sept.-Oct. 2001, at 60, 63 (stating that “[W]ater disputes between countries, though typically not leading to war directly, have fueled decades of regional tensions, thwarted economic development, and risked provoking larger conflicts before eventually giving way to cooperation.”).

16. Jason J. Morrisette & Douglas A. Borer, *Where Oil and Water Do Mix:*

crisis that has already taken its toll in 2008, there is real cause for alarm.<sup>17</sup>

Since 2003 and the invasion of Iraq, the strategic landscape in the region of the Tigris-Euphrates has changed dramatically and is still unstable. Without increased international attention, the situation will undermine other factors that might otherwise favor regional stability.<sup>18</sup> This means that even if the optimists are right, and Iraq eventually emerges as a stable and peaceful country, all gains can be lost if a water crisis envelops the area. Even though the situation in Iraq remains unsettled, the long-term consequences of a water crisis in the next ten to twenty years cannot be ignored.

## II. INTERNATIONAL WATER LAW

Prior to World War I, international law with respect to rivers primarily served to resolve disputes concerning freedom of navigation.<sup>19</sup> Since that time, increasing population and dwindling water supplies have led policy-makers to attempts to provide general guidelines applicable to the world's watersheds. The concept of a "drainage basin," for example, was accepted by the International Law Association in the Helsinki Rules of 1966, it also provided guidelines for the reasonable and equitable sharing of a common

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*Environmental Scarcity and Future Conflict in the Middle East and North Africa*, PARAMETERS, Winter 2004-2005, at 86, 87 (noting that trends towards elites holding ownership of scarce natural resources and the associated violent conflicts are likely to continue and worsen without peace agreements and an increased reliance on virtual water, the water conserved by importing food).

17. See, e.g., Anthony Faiola, *The New Economics of Hunger*, WASH. POST, Apr. 27, 2008, at A1 (highlighting the outbreaks of violence in numerous countries as a direct result of the global food crisis and rising food prices).

18. HENRI J. BARKEY, *TURKEY AND IRAQ: THE PERILS (AND PROSPECTS) OF PROXIMITY* 19 (U.S. Inst. for Peace, 2005) available at <http://www.usip.org/pubs/specialreports/sr141.pdf> (noting the many setbacks Iraq has suffered since the overthrow of Saddam Hussein, and highlighting the impediment to dialogue between Turkey and Iraq that the invasion has caused).

19. FREDERICK M. LORENZ & EDWARD J. ERICKSON, *THE EUPHRATES TRIANGLE* 30 (1999) (outlining the history of international water law); see also *INTERNATIONAL WATER LAW: SELECTED WRITINGS OF PROFESSOR CHARLES B. BOURNE* 30-31 (Patricia Wouters ed., Kluwer Law Int'l Ltd. 1997) (explaining that during the eighteenth and nineteenth centuries, international water law served to ensure freedom of navigation).

waterway.<sup>20</sup> Under Article IV of the Helsinki Rules, “[e]ach basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin.”<sup>21</sup>

Developing broad concepts that apply to all watersheds has been challenging from the start. Even the term “international drainage basin” has proven to be controversial in the Euphrates-Tigris Basin, and Turkey has consistently maintained that the two rivers form a single basin.<sup>22</sup> This argument can lead to both practical and political benefits for Turkey. If Iraq should claim a water shortage in the flow of the Euphrates, Turkey can argue any deficit be made up from the excess flow of the Tigris inside Iraq. And Turkey can point to the fact that Iraq has already created a canal to do just that, strengthening its argument on the “one basin” theory.<sup>23</sup>

Applying general legal guidelines to particular rivers is a daunting task. Article V of the Helsinki Rules lists eleven factors to consider in defining reasonable and equitable use of water.<sup>24</sup> “There is no hierarchy provided for these components; they are instead to be considered as a whole. One important shift in legal thinking in the Helsinki Rules is the right to beneficial use of water, rather than to water *per se*. But this change has not made the rules any easier to

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20. International Law Association, *The Helsinki Rules on the Uses of Waters of International Rivers*, 52 INT’L L. ASS’N REP. CONF. 484 (1966) [hereinafter *Helsinki Rules*] (outlining the duties and obligations of States using and sharing international drainage basins, including both surface and underground waters).

21. *Id.* art. 4 (stating, with further explanation in art. 5, that States determine the definition of a reasonable and equitable share in the light of all relevant factors).

22. AYSEGUL KIBAROGLU, *BUILDING A REGIME FOR THE WATERS OF THE EUPHRATES-TIGRIS RIVER BASIN* 241 (Kluwer Law International, Ltd. 2002)

23. *Id.* at 241-42 (describing the Thartar Canal in Iraq and surplus water in the Tigris River).

24. *Helsinki Rules*, arts. 4, 5, *supra* note 20 (listing the factors that States must consider, including but not limited to: the geography of the basin, the hydrology of the basin, the climate affecting the basin, the past utilization of waters of the basin, the economic and social needs of each basin State, the population dependent on the waters of the basin in each basin State, the comparative costs of alternative means of satisfying the economic and social needs of each basin State, the availability of other resources, the avoidance of unnecessary waste in the utilization of waters of the basin, the practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses, and the degree to which of a basin State may be satisfied, without causing substantial injury to a co-basin State).

apply, and the Helsinki Rules have rarely been used to help define water use. The Mekong Committee used the Helsinki Rules definition of 'reasonable and equitable use' in formulation of their Declaration of Principles in 1975, although no specific allocations were determined.<sup>25</sup> Although they were rarely applied, in the absence of any other framework for resolving international water disputes most States considered them to be valid as customary international law.<sup>26</sup>

During the United Nations' review of the Helsinki Rules, some states (notably Brazil, Belgium, China, and France) viewed the drainage basin approach as contravening national sovereignty, and objected to its prominence.<sup>27</sup> "Others, notably Finland and the Netherlands, argued that a watershed was the most rational and scientific unit to be managed. Still others argued that, given the complexity and uniqueness of each watershed, general codification should not even be attempted."<sup>28</sup> States were of course determined to promote their own national interest and each brought a unique history and experience in disputes over water. Some States were heavily reliant on water from outside their own borders, and others, such as China, Canada and Turkey, were more concerned with sovereignty over water inside the country. On December 8, 1970, the U.N. General Assembly directed its own legal advisory body, the International Law Commission to prepare a draft Codification of the Law on Water Courses for Purposes other than Navigation.<sup>29</sup>

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25. LORENZ & ERICKSON, *supra* note 19, at 30. *See also* Aaron T. Wolf, *Criteria for Equitable allocations: The Heart of International Water Conflict*, NAT. RESOURCES F., Feb. 1999, at 3-4 (noting that although States have only used the guidelines once, several States have questioned the potentially under inclusive process used in drafting the Helsinki Rules).

26. *See* Salman A. Salman, *The Helsinki Rules, the UN Watercourses Convention and the Berlin Rules: Perspectives on International Water Law*, 23 INT'L J. WATER RESOURCES DEV. 630 (2007) (discussing the history and development of the Helsinki Rules).

27. Other Legal Questions: Progressive Development and Codification of the Rules of International Law Relating to International Watercourses, 1970 U.N.Y.B. 817, 819, U.N. Sales No. E.72.I.1 [hereinafter Other Legal Questions] (noting the vote of Brazil against the resolution and reporting the objections of China and other countries to various parts of the resolution).

28. LORENZ & ERICKSON, *supra* note 19, at 30; *see also* Other Legal Questions, *supra* note 27 at 817.

29. *Id.* at 818.

Despite an additional call for codification at the U.N. Water Conference at Mar de Plata in 1977, the International Law Commission took twenty-one years to complete its Draft Articles. Political and hydrological problems slowed the process. As an example, “in response to a 1974 questionnaire submitted to member states, about half the respondents supported the concept of a drainage basin (e.g. Argentina, Finland and the Netherlands), while half were strongly negative (e.g. Austria, Brazil, and Spain) or ambivalent.”<sup>30</sup> Some viewed the recognition of a “Watercourse system” as a basin to threaten national sovereignty.<sup>31</sup> Again, each State was motivated to protect its own special concerns and unique geographical setting. Downstream and upstream States are inherently skeptical of the actions of the other.

More than two decades after receiving its direction from the General Assembly, the International Law Commission adopted thirty-two draft principles in 1994. Three years later, the U.N. General Assembly adopted the draft principles as “The Convention on Non-Navigational Uses of International Watercourses [“Framework Convention”].”<sup>32</sup> The Convention provided that thirty-five States had to ratify before it would become effective.

Similarly to the Helsinki Rules, the Framework Convention generally requires communication and cooperation among riparian states along an international watercourse.<sup>33</sup> Further, the Convention strives to promote the exchange of data and information and notification of possible adverse effects among states sharing a watercourse. Further, states should aim to protect eco-systems, and the Convention provides for emergency situations. “Allocations are dealt with through equally vague language. ‘Equitable and reasonable use’ within each watercourse state, ‘with a view to attaining optimal and sustainable utilization thereof and benefits

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30. LORENZ & ERICKSON, *supra* note 19, at 30.

31. *See id.*

32. Convention on the Law of Non-Navigable Uses of International Watercourses, G.A. Res. 51/229, at 5-6, U.N. Doc. A/RES/51/229 (July 8, 1997) [hereinafter Convention] (including sections on cooperation and the sharing of information among parties to the treaty).

33. *See, e.g.*, Stephen C. McCaffrey & Mpazi Sinjela, *Current Development: The 1997 United Nations Convention on International Watercourses*, 92 AM. J. INT’L L. 97 (1998) (providing an overview of the Convention and its negotiation).

therefrom,' (Article 5) is balanced with an obligation not to cause 'significant harm' (Article 7)."<sup>34</sup> The latter provision is always of greatest concern to the upstream riparian, and it is easy to contemplate a situation where an upstream country would be ordered by an international court to release more water if Article 7 had been violated.

One of the major difficulties in managing transboundary water is that much of it is moving underground and is therefore much more difficult to measure and regulate. The term "watercourse" in the Framework Convention can include both surface and groundwater, and is based largely on the terms of the Helsinki Rules, but it includes only groundwater that is connected to the surface water.<sup>35</sup> It does not incorporate a broader definition of groundwater contained in what is now known as the Seoul Rules, which includes transboundary aquifers that are not connected to surface waters of an international drainage basin.<sup>36</sup>

Existing law for transboundary water has proven easy to argue but very difficult to apply. For example, in many areas of the world with frequently changing political boundaries, riparian positions and legal rights may shift just as quickly. The Framework Convention sets up "a balancing test more appropriate for the courtroom than the politically-charged atmosphere of international water disputes. A balancing test requires some third party, such as an arbitrator, watermaster, or court, to resolve the issues. In water basins without such a regime, balancing tests are not particularly useful."<sup>37</sup>

The uncertainty in international water law is compounded by the fact that cases are generally heard by the International Court of Justice (ICJ) only with the consent of the parties involved, and no practical enforcement mechanism is available.<sup>38</sup> These considerations

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34. LORENZ & ERICKSON, *supra* note 19, at 30; Convention, *supra* note 32, at 4-5 (showing both the obligation to make reasonable use of the waters and to avoid causing significant harm to other watercourse States).

35. *See* Convention, *supra* note 32.

36. *See* Salman, *supra* note 26, at 630 (describing the efforts of the International Law Commission in Seoul in 1986 to clarify certain provisions of the Helsinki Rules).

37. LORENZ & ERICKSON, *supra* note 19, at 30-31.

38. Statute of the International Court of Justice, art. 36, 59 Stat. 1042, T.S. 993 (1945).

have limited the ICJ to just a single case concerning the law of transboundary rivers.<sup>39</sup> In the one case heard by the ICJ the results were mixed, and although the case may have clarified some of the general principles of equitable utilization it failed to resolve the dispute between the riparian countries.<sup>40</sup> This reveals the fundamental problem in transboundary water law, complex standards to be decided by a judge using a “balancing of interests” are of limited value on the international stage.

International law plays only a minor role in the Euphrates-Tigris Basin, as the Framework Convention is not yet in force, and Turkey refuses to become a party.<sup>41</sup> All the parties have legal arguments, but they have more political value than practical effect. Turkey has consistently opposed efforts to “internationalize” the matter, relying on the same legal doctrines that the U.S. once used in disputes with Mexico concerning the Colorado River.<sup>42</sup> At the time of this writing only sixteen states had ratified the Framework Convention, and that number includes both Syria and Iraq.<sup>43</sup>

In regions such as North America, with plentiful water resources and good international relations, the record of cooperation is excellent. But Middle Eastern river basins face pressures from

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39. Aaron T. Wolf, *Shared Waters: Conflict and Cooperation*, 32 ANN. REV. ENV'T & RESOURCES 3.1, 3.18-3.19 (2007) (noting that, in its fifty-five-year history, the International Court of Justice has only heard one case pertaining to international waters).

40. Gabčíkovo-Nagymaros Project (Hung. v. Slov.) 1997 I.C.J. 7 (Sept. 7).

41. See Murat Metin Hakki, *Borders and Boundaries in International Law: Cross-Border Water Conflicts in Mesopotamia: An Analysis According to International Law*, 13 WILLAMETTE J. INT'L L. & DISP. RESOL. 245, 255 (2005) (noting Turkey's attempt to analogize oil and water rights and suggesting Turkish officials believe the rivers' waters are the sole property of Turkey); Scott L. Cunningham, Comment, *Do Brothers Divide Shares Forever? Obstacles to the Effective Use of International Law in Euphrates River Basin Water Issues*, 21 U. PA. J. INT'L ECON. L. 131, 158 (2000) (noting Iraq's current contention that Turkey has violated numerous existing international treaties with respect to water law).

42. See Hekki, *supra* note 41 (discussing Turkey's assertion of the “Harmon Doctrine” which the U.S. used in its dealings with Mexico concerning the water of the Colorado River).

43. See International Water Law Project, Status of the Watercourse Convention (Jan. 8, 2008) available at [http://www.internationalwaterlaw.org/intldocs/water\\_course\\_status.html](http://www.internationalwaterlaw.org/intldocs/water_course_status.html) (listing signers of the Convention on the Law of Non-Navigable Uses of International Watercourses).

growing populations, limited resources and political turmoil. Unfortunately, international law has often reinforced separate and competitive theories among states that share the same watercourse. The conflicting doctrines that formed the basis of international water law give every State a point to argue, but little help in achieving common ground.

It is a fair question to ask, why have so few States supported the Framework Convention some eleven years after its opening for signature? The Lead Counsel for the International Water Resources Association believes that it is due in part to inaccurate perceptions and interpretations of the Convention.<sup>44</sup> In a recent article he notes that both upstream riparians (e.g. Turkey and China) and downstream riparians (e.g. Egypt and France) believe that the convention favors the other party. He also points out another area of confusion, it is little understood that upstream riparians can be harmed caused by the prior use and the claiming of rights by downstream riparians.<sup>45</sup>

Other reasons why the Framework Convention has not been adopted is a “total failure to comprehend the basic rules of contemporary international water law that have long rejected the principle of absolute territorial sovereignty.”<sup>46</sup> He argues that it is now generally agreed that the “management of international watercourses should be determined less by the traditional notion of ‘restricted sovereignty’ than by a positive spirit of cooperation and effective interdependence.”<sup>47</sup>

Although he is not a lawyer, Dr. Tony Allan provides insight on the question of international law and its impact on water rights in the Middle East and North Africa (MENA) countries.<sup>48</sup> He notes that the legal principles are largely developed by “water outsiders”<sup>49</sup> and the introduction of water policy reform (and water law) has been slow.

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44. Salman M.A. Salman, *The United Nations Watercourses Convention Ten Years Later: Why Has its Entry into Force Proven Difficult?* 24 WATER INT'L 1, 9 (2007).

45. *Id.* at 10.

46. *Id.* at 12.

47. *Id.*

48. See generally ALLAN, *supra* note 10, at 263-308 (discussing International Water Law in the Middle East and North Africa).

49. See generally *id.* at 3-40 (providing an overview of the debates between water pessimists and optimists, insiders and outsiders).

Because water is highly mobile, and monitoring is difficult, any rules are difficult to enforce. Moreover, “alien legal principles, evolved in alien outsider institutions . . . have little appeal to MENA politicians, professionals and communities when they will disrupt existing practice and are not founded on the cultural and religious conventions of the region.”<sup>50</sup>

Although legal principles are of potential significance in the Euphrates-Tigris basin, they have had little impact in the region. The current rules are complex and misunderstood, and face tremendous obstacles to implementation. Only with the right diplomatic and economic incentives can we look to international law to provide a roadmap for cooperation between Turkey, Syria and Iraq.

### III. WATER NEEDS FOR IRAQ

The population of Iraq is currently about twenty-eight million people, but recent large scale displacement within Iraq, and the exodus of refugees, makes accurate data difficult to obtain.<sup>51</sup> Approximately twenty-five percent of the population historically depended on irrigated agriculture for their livelihood.<sup>52</sup> Agricultural products traditionally accounted for a significant proportion of Iraq’s exports, but this has been reduced by the recent turmoil. Agriculture still uses about ninety percent of Iraq’s average annual water supply, and is therefore critical to fresh water development and management.<sup>53</sup> Salination of a large part of the irrigated land results in reduced crop yields and high salinity of the rivers, creating

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50. *Id.* at 288.

51. Central Intelligence Agency, World Factbook: Iraq, <https://www.cia.gov/library/publications/the-world-factbook/geos/iz.html> (last visited Aug. 19, 2008) (listing the Iraq population in July 2008 as 28.2 million people, while also reporting that about two million people have fled the ongoing conflict in Iraq).

52. Press Release, U.S. Dep’t of Agric., Johanns Announces \$7.8 Million in Extension Funds to Revitalize Iraq’s Agriculture (Sept. 25, 2006), *available at* [http://www.usda.gov/wps/portal/!ut/p/\\_s.7\\_0\\_A/7\\_0\\_1RD?printable=true&content\\_idonly=true&contentid=2006/09/0378.xml](http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1RD?printable=true&content_idonly=true&contentid=2006/09/0378.xml) (announcing U.S.-led programs to connect U.S. and Iraqi land-grant institutions to support Iraq’s agricultural sector, which is the country’s second largest industry and employs one-fourth of the workforce).

53. 2008 FAO Report, *supra* note 4 (reporting that in 1990, Iraq used ninety-two percent of water withdrawal for agricultural purposes, while more recent estimates list this figure at eighty-five percent).

problems in the municipal water supply, as well as ecological problems, which threaten the restoration potential of marshlands that Saddam Hussein had drained while he was in power.<sup>54</sup>

Iraq has over 500 major pumping stations meant to distribute water to farms and cities that gravity canals cannot reach. These pumping stations are currently in disrepair due to years of neglect by the previous regime, and the looting and damage that occurred immediately following the U.S. led invasion. In the summer of 2003 the pumping stations were operating at about forty percent efficiency.<sup>55</sup> By the summer of 2004 there was no improvement; the money allocated for repair had not been spent due to contract inefficiencies and security concerns.<sup>56</sup> In September 2004 it was announced that the original amount allocated for improvements to water and sewage in Iraq of \$4.15 billion, would be cut to \$2.21 billion. This was part of the shift in American priorities in Iraq, and recognition of the seriousness of the security situation.<sup>57</sup>

The Iraqi Ministry of Water Resources was reorganized and staffed in 2003 and 2004 with U.S. assistance. It developed ambitious plans for a transboundary water commission in the hopes of coordination with Iraq's upstream neighbors.<sup>58</sup> By 2007 there was

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54. NURIT KLIOT, *WATER RESOURCES AND CONFLICT IN THE MIDDLE EAST* 159 (1994) (naming soil salinity as the greatest obstacle to Iraqi agriculture, and noting that as early as 1949, an estimated sixty percent of the land irrigated by flow water was seriously affected by salt); *see also* Press Release, IRIN Humanitarian News and Analysis, Iraq: New Dams Threaten Agriculture and Marshland (Nov. 29, 2006), *available at* <http://www.irinnews.org/PrintReport.aspx?ReportId=61975> (reporting that due to Saddam Hussein's marshland flooding policies, an area that in 1970 comprised 3600 square miles of marshlands shrank by ninety percent to 300 square miles in 2002).

55. Eugene Z. Stakhiv, Senior Advisor, Iraq Ministry of Irrigation, Fact Sheet, (July 4, 2003) (on file with author).

56. Interview with Walled Abdel-Hameed, Planning Coordinator, Iraq Ministry of Water Resources, in Baghdad, Iraq (Aug. 1, 2004).

57. James Glanz, *Iraqis Warn that U.S. Plan to Divert Billions to Security Could Cut Off Crucial Services*, N.Y. TIMES, Sept. 21, 2004, at A12 (explaining that the dramatic reduction in resources allocated for water and sewage improvements resulted from shifting priorities and factors stemming from the sociopolitical conflict).

58. Press Release, Coalition Provisional Authority, Ambassador Bremer and Iraq's Minister of Water Resources Announce Major Irrigation Project as Ministry Takes Final Steps Toward Sovereignty (May 10, 2004), *available at* <http://www.cpa-iraq.org> [hereinafter CPA Press Release] (explaining how the

little progress in rebuilding Iraq's water infrastructure, by some estimates it will take \$15 billion to fully restore Iraq's water system.<sup>59</sup> Without a guarantee of a long-term water supply, any progress in this sector could be for naught.

The Iraqi leadership recognized the threat of reduced water supply in their Iraqi National Security Strategy for 2007-2010.

The problem of decreasing water levels in the Tigris and Euphrates Rivers is a dangerous phenomenon that directly threatens environmental and nutritional security. It affects the climate and wetlands, increases desertification, and even decreases the availability of potable water in the middle and southern regions. This problem stems essentially from the fact that there are large dams in Turkey and Syria for storing the water of the two rivers that do not take into consideration the rights of Iraq to water resources and the longer stretch of these rivers on its territory. Therefore, leaving this problem as it is due to the failure of joint committees formed to resolve it leaves Iraq subject to a catastrophe that threatens its current and future national security.<sup>60</sup>

Recognizing the threat as a security issue may be the first step in dealing with the problem. However, having the diplomatic and economic resources to deal with Turkey and Syria on these issues remains a formidable obstacle for Iraq.

#### IV. THE KURDISH QUESTION

The question of Kurdish autonomy and possible independence from Iraq has been the subject of much debate, with the sharing of oil resources being a central factor in that discussion.<sup>61</sup> But the sharing

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advances made by the Ministry after its administrative reorganization have helped the Ministry gain sovereignty).

59. *Iraq Needs \$15bn to Fix Water Supply*, ALJAZEERA NEWS, June 29, 2005 (reporting that the Water Resources Minister's estimation of the cost to build and repair dams, irrigation canals, sewage systems and purification stations).

60. Republic of Iraq Nat'l Sec. Council, IRAQI NATIONAL SECURITY STRATEGY 16 (July 2007), available at [http://www.iraqslogger.com/downloads/NSS\\_English.pdf](http://www.iraqslogger.com/downloads/NSS_English.pdf) (listing Iraq's ecological interdependence as a threat to the country's stability and laying out strategies to overcome the recognized security threats).

61. See Jason Campbell, Michael O'Hanlon & Amy Unikewicz, Op-Ed., *The State of Iraq: An Update*, N.Y. TIMES, Mar. 9, 2008, at WK13 (setting hypothetical

of water resources within Iraq is rarely reported, despite the fact that the Kurdish areas in the north control a major part of the flow of the Tigris River, as well as major dams. Expanding irrigation and agriculture in northern Iraq, or the building of new dams, will further complicate the already tenuous water situation in the south.

The Kurds in northern Iraq have long recognized the importance of controlling their own water resources. It is no accident that an influential Kurd, Latif Rashid, was appointed to the newly formed Ministry of Water Resources in Baghdad soon after the U.S. led invasion in 2003.<sup>62</sup> The Kurds seem better organized than their Iraqi brethren in the south; comparatively good security in the north has no doubt been a factor. And the Kurdish Regional Government (KRG) has an independent water resources management system, with its own strategic planning apparatus.<sup>63</sup> The Kurds are not reluctant to criticize Turkish projects, such as the Ilisu Dam, that are likely to impact their own water resources.<sup>64</sup>

The Kurds are moving ahead in developing Northern Iraq without waiting for stability in the central government in Baghdad.<sup>65</sup> On March 16, 2008 the KRG Minister of Water Resources received a commercial delegation from the United States that included Jay M. Garner, a retired U.S. General and former head of the Office of

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political goals for Iraq which include holding a referendum on the disputed northern oil city of Kirkuk); *see also* Gary Kent, *Iraq's Kurds Deserve Better Neighbors*, NEW STATESMAN, Feb. 28, 2008, <http://www.newstatesman.com/media/2008/02/iraq-turkey-kurds-pkk-syria> (explaining that the debate over Kirkuk is mainly over oil reserves and the fear that Kurd control of a portion of the oil reserves could provide a basis for Kurds to favor independence over the current stance favoring autonomy).

62. *Iraq's Post-War Cabinet*, BBC NEWS, Sept. 1, 2003, [http://news.bbc.co.uk/2/hi/middle\\_east/3199561.stm](http://news.bbc.co.uk/2/hi/middle_east/3199561.stm) (listing all new cabinet members to the Ministry of Water Resources by ethnic and religious grouping).

63. *See* NABAZ TAHIR, MINISTRY OF WATER RES., STRATEGIC OUTLOOK (2007), *available at* <http://www.mowr-krq.org/PDF/Strategic%20Outlook.PDF> (outlining the plan for the Ministry of Water Resources to effectively attend to the water needs of the Kurdish Region).

64. *See* Press Release, Kurdish Human Rights Project, Reemergence of Discredited Ilisu Dam Project: Turkish Dams Violate EU Standards and Human Rights (Apr. 6, 2006), *available at* <http://www.khrp.org/news/pr2005/06-04-05.htm> (arguing that besides displacing up to 78,000 mostly Kurdish people, that the dam project will also submerge important archeological sites).

65. *See* Ministry of Water Resources, *Minister of Water Resources Meet USA Delegation*, Mar. 16, 2008, <http://www.mowr-krq.org/>.

Reconstruction and Humanitarian Assistance.<sup>66</sup> The purpose of the meeting was to find a mechanism to involve the private sector in reconstruction of the Federal Region of Kurdistan. The outlook for Iraq, in terms of a federal system or autonomy for the north, remains unresolved at the time of this writing. But the issue of water resources between the north and the south will have to be part of the final resolution.

## V. THE TURKISH DAMS

In the 1930s, the father of the Turkish Republic, Kemal Atatürk, proposed the construction of a series of dams with the idea of harnessing the mighty Euphrates and Tigris rivers. The Southeast Anatolia Project (“GAP” from Turkish) is the culmination of that dream and a source of great national pride.<sup>67</sup> The GAP was funded without the benefit of international financial organizations or the World Bank. International concern about the impact on downstream neighbors prevented loans and grants for the Turkish dams.

The GAP is a large-scale and multi-sector regional development project with major implications for the region. It is one of the major river basin development projects in the world and the largest and most comprehensive project ever carried out in Turkey. The project is located in Southeastern Turkey and includes eight provinces covering a vast area that includes Turkey’s most desolate and poorest regions.<sup>68</sup> The GAP is intended to bring industrialization and growth to the poorest regions of the country, send electricity to population centers and add to the agricultural export base of Turkey. It is also designed to provide hope for the large Kurdish minority in the region.

The GAP project area includes nearly half of the total watershed of the Tigris and Euphrates rivers within Turkey, and when fully

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66. *Id.*

67. See generally İ.H. Olcay Ünver & Rajiv K. Gupta, *A New Perspective on Water Development and Poverty Reduction in Southeastern Anatolia, Turkey*, in WATER DEVELOPMENT AND POVERTY REDUCTION 231, 232 (İ.H. Olcay Ünver et al. eds., 2003) (explaining that the Southeast Anatolia Project was developed to spur socio-economic development in the “fertile crescent” by abolishing inter-regional differences through infrastructure investment).

68. See *id.* at 233, 237 (providing a map of the GAP region and describing the high infant mortality rate and low average household income).

developed it will provide irrigation for 1.7 million hectares (nearly four million acres) of land, or twenty percent of the irrigable land in Turkey.<sup>69</sup> The GAP includes thirteen major irrigation and hydropower schemes that involve the construction of twenty-two dams and nineteen hydroelectric power plants on the two rivers.<sup>70</sup> The GAP will eventually double Turkey's 1984 hydroelectric capacity, and is expected to generate twenty-seven billion KWH per year; a substantial portion of Turkey's electric power needs.<sup>71</sup>

Today hydroelectric production from GAP is estimated to be at about ninety-six percent of capacity, but the irrigation infrastructure is estimated to be only twenty percent complete, far behind the objectives described in the original Master Plan.<sup>72</sup> The regional economic growth has not matched the predicted development indicated in the plan, placing limits on construction of new canals. Pessimistic local Turkish newspaper reports have estimated the GAP irrigation system could take another thirty years to complete.<sup>73</sup> But hydropower presents a high priority for Turkey; the immediate economic benefit of power generation was a strong motivation to keep those aspects of the project on track.

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69. SOUTHEASTERN ANATOLIA PROJECT REG'L DEV. ADMIN., LATEST SITUATION ON SOUTHEASTERN ANATOLIA PROJECT ACTIVITIES OF THE GAP ADMINISTRATION 1-2 (2006), available at <http://www.gap.gov.tr/English/Genel/sdurum.pdf> [hereinafter REG'L DEV. ADMIN.] (reporting that although the GAP region is only ten percent of the geographical area of Turkey, it possesses twenty percent of the irrigatable land).

70. Ünver & Gupta, *supra* note 67, at 240 (explaining the construction needed to succeed in developing and sustaining the region).

71. *Id.* at 241; see also REG'L DEV. ADMIN., *supra* note 69, at 2.

72. JAPAN INTERNATIONAL COOPERATION AGENCY, THE STUDY ON THE REG'L DEV. PLAN FOR THE EASTERN BLACK SEA REGION IN THE REPUBLIC OF TURKEY 4-10 (2000) (illustrating the official GAP Plan in 1989 as published by the GAP Regional Development Administration).

73. The author lived in Ankara during 2003 and again in 2007 and reviewed local media. The consensus of published reports seemed to be that the project would take at least twenty more years to complete. See also SEMINAR FOR DOCTORAL STUDENTS AT THE ETH ZURICH, CASE STUDY: SOUTHEASTERN ANATOLIA PROJECT IN TURKEY – GAP 6 (2007), available at [http://www.eawag.ch/research\\_e/apec/Scripts/GAP07feb01.pdf](http://www.eawag.ch/research_e/apec/Scripts/GAP07feb01.pdf) [hereinafter SEMINAR] (noting that the deadline for the GAP project has been moved to 2047 due to financial constraints).

Today Turkey maintains that it uses only 25.9 billion cubic meters (BCM) of its capacity of 110 BCM of fresh water.<sup>74</sup> It claims that the remaining 84.1 BCM “is not surplus,” but “cannot yet be allocated to its needs.”<sup>75</sup> This part of Turkey’s position can be verified in the sense that Turkey has been unable to complete its grand plans for irrigation infrastructure, and the water behind the dams in Turkey remains largely unused for agriculture. Slow progress of the GAP irrigation project has indirectly benefited the downstream countries by delaying the inevitable impact on water resources. Currently, less than twenty percent of the total irrigation diversions have occurred and the dams producing hydropower, once filled, will not reduce the flow of the rivers.<sup>76</sup> But the long term impact of increased irrigation in Turkey is a different matter.

During the author’s time in Ankara in the summer of 2007, water was a major topic of concern, but only because of the drought and water supply cuts that were affecting everyone in the city.<sup>77</sup> A visit to the GAP Administration offices in August revealed that the agency was focusing more on the social and economic aspects of the project than the overall irrigation and consumptive water use.<sup>78</sup> The GAP Administration has responsibility for coordinating all aspects of the project, but lacks the authority to control water infrastructure. In

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74. THE TURKISH MINISTRY OF FOREIGN AFFAIRS, DEP’T OF REG. AND TRANSBOUNDARY WATERS, WATER ISSUES BETWEEN TURKEY, SYRIA, AND IRAQ 2 (1996), *available at* <http://www.sam.gov.tr/perceptions/Volume1/June-August1996/WATERISSUESBETWEENTURKEYSYRIAANDIRAQ.pdf> [hereinafter WATER ISSUES STUDY] (explaining that the amount of fresh water available to Turkey per capita is one-fifth of the amount available in water-rich countries).

75. *Id.*

76. *See* REG’L DEV. ADMIN., *supra* note 69, at 4 (noting that the project was 13.7 percent complete at the end of 2005).

77. *See Water Supply Cuts Create Controversy in Turkey Suffering from Drought*, THE NEW ANATOLIAN, Aug. 4, 2007, *available at* <http://www.thenewanatolian.com/tna-28079.html> (reporting water levels in the Konya Basin, containing forty percent of Turkey’s groundwater resources, down eighteen meters in the past twenty years, and three meters in the past year).

78. In previous visits to the GAP project headquarters between 1997 and 2003 the author was provided a bag full of pamphlets and materials, in English, with the positive aspects of the GAP project emphasized. This may have been due in part to the proactive work of the previous director, Dr. Olcay Ünver, who left the project in 2003 for a teaching position at Kent State University in the United States. He has since moved on to lead the UNESCO World Water Assessment Program in Paris.

Turkey the real authority in terms of dams and irrigation lies with the State Hydraulic Works, which is responsible for “the utilization of all water resources in Turkey.”<sup>79</sup>

In the summer of 2007 the AK (Justice and Development) Party won reelection in Turkey, and continued to push ahead with modernization policies and movement towards membership in the European Union.<sup>80</sup> This could have important implications for the Euphrates-Tigris Basin, because the E.U. will have a moderating impact on Turkish policy, and ultimately require Turkish consistency with E.U. environmental standards.<sup>81</sup> If the E.U. ultimately rejects Turkey, or Turkey decides to move away from the E.U., there may be less incentive for Turkey to cooperate on water issues with its neighbors to the south.

The Turkish position on transboundary waters has been consistent and open, beginning with the argument that “Turkey is not a country with excess water capacity.”<sup>82</sup> It states, “[a]lthough Turkey has at present more water resources than some of its neighbors, it can be regarded as a country which will find itself in a position not to meet its own needs in the near future.”<sup>83</sup> As mentioned earlier, Turkey has consistently maintained that the Euphrates and Tigris constitute “one

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79. TURKISH GENERAL DIRECTORATE OF STATE HYDRAULIC WORKS, MISSION AND DUTIES, <http://www.dsi.gov.tr/english/about/goreve.htm> (last visited Sept. 27, 2008) (stating a mission to develop water resources for a number of functions, including irrigation, hydroelectric power generation, city water supply, recreation, and research).

80. *Turkish PM Vows to Pursue Reform*, BBC NEWS, July 23, 2007, available at <http://news.bbc.co.uk/2/hi/europe/6911223.stm> (announcing the re-election of the Islamist-rooted AK-party Prime Minister, Recep Tayyip Erdogan, and reflecting that his efforts may meet resistance from a secular Turkey).

81. See generally EUROPA, OVERVIEW OF THE EUROPEAN UNION ACTIVITIES: ENVIRONMENT, [http://europa.eu/pol/env/print\\_overview\\_en.htm](http://europa.eu/pol/env/print_overview_en.htm) (last visited Aug. 26, 2008) (emphasizing the importance of protecting the environment and using alternative sources of energy); TURK. REPUBLIC PRIME MINISTRY UNDERSECRETARIAT OF STATE PLANNING ORG., MILLENNIUM DEVELOPMENT GOALS REPORT: TURKEY 52 (2005), [http://www.undp.org.tr/publications/Documents/6161-Turkey\\_MDG\\_Report.pdf](http://www.undp.org.tr/publications/Documents/6161-Turkey_MDG_Report.pdf) (explaining the major legal changes Turkey is making to conform its environmental policies to those of the United Nations).

82. See WATER ISSUES STUDY, *supra* note 74, at 1.

83. See *id.* (explaining that a large portion of the unutilized fresh water in Turkey is not surplus but rather water that has not yet been harnessed in a usable form).

basin,” with the implication that any downstream shortage (in Iraq, for example) can be made up by re-allocating water between the Two Rivers.<sup>84</sup> In Iraq the situation for the Tigris is less severe than for the Euphrates, as Iraq draws a portion of its water from Iran through the Tigris, but the Euphrates flow is virtually all from Turkey.

Today in Turkey the GAP project is moving ahead, with virtually all of the hydropower units completed. Reports from mid-level water officials in Ankara in 2007 indicated that the water is now available behind the dams for expanded irrigation in the GAP Region, but that the infrastructure is still only twenty percent complete due to financing difficulties.<sup>85</sup> In an attempt to move the process forward, the Prime Minister made a major speech just before the election in 2007 stating the need for a program of private investment in the GAP Region.<sup>86</sup> In 2008 world financial difficulties began to have an impact on emerging markets like Turkey, presenting another risk to infrastructure development.<sup>87</sup> Turkish agriculture has still not received the amount of water promised more than ten years ago, and while this may delay the ultimate impact in Syria and Iraq, it certainly will not prevent an eventual water crisis.

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84. See BÜLENT TOPKAYA, WATER RESOURCES IN THE MIDDLE EAST: FORTHCOMING PROBLEMS AND SOLUTIONS FOR SUSTAINABLE DEVELOPMENT OF THE REGION (1998), <http://www.akdeniz.edu.tr/muhfak/publications/gap.html> #Turkey (presenting Turkey’s proposal for equitable distribution of the river waters between Turkey, Syria, and Iraq by moving some of the Tigris’ water to the Euphrates in an attempt to between the country’s solutions).

85. Interviews with Officials at the GAP Administration and the State Hydraulic Works (DSI) (Aug. 2007); see also SEMINAR, *supra* note 73, at 6 (estimating only 450 million US dollars were invested in 1999 when there need to be closer to 900 million US dollars invested and that the lack of funding has caused at least a 15 year delay in construction).

86. See *Turkish PM Unveils Investment Plan for South East*, NTVMSNBC, May 27, 2008, available at <http://www.ntvmsnbc.com/news/447959.asp> (proposing funding to come from Turkey’s unemployment insurance fund, public and private sector joint projects, and the central budget); *Turkish Premier Encourages Dutch Investors*, BBC WORLDWIDE MONITORING, Feb. 28, 2007, (discussing a meeting of the Turkish Prime Minister and the Dutch, along with Queen Beatrix of Netherlands, in which the Netherlands expressed a desire to double the number of Dutch businessmen in Turkey).

87. Alexei Barrionuevo, *Emerging Markets Find They Aren’t Insulated From the Tumult*, N.Y. TIMES, Oct. 7, 2008, at B1.

## VI. AVERTING A CRISIS

Although the GAP project in Turkey is behind schedule, the downstream impact is already apparent. In Iraq the decline in water quality and quantity is complicating the already difficult program of reconstruction. Under the leadership of Saddam Hussein, Iraq was uninterested in planning and coordinating water issues with Syria and Turkey. Water infrastructure in Iraq went into a steady and catastrophic state of decline. The “joint technical committee” on water resources between Turkey, Syria and Iraq did not meet between 1993 and 1997. In 2004, Turkey provided a limited amount of water flow data to the Iraqi Ministry of Water Resources, indicating that confidence-building measures are possible.<sup>88</sup> This was significant because the parties have long treated flow data as a national security secret.

Even more important than water quantity is the question of water quality. As more land is brought into production in Turkey, the agricultural return flow will surely reduce the quality of water received by the country’s neighbors to the south. The question of water quality in the basin is not well documented or understood, in part because the parties are generally unwilling to make data available to outside review.

Will there be a water war in the Euphrates-Tigris Basin in the next ten to twenty years, when the GAP in Turkey significantly impacts the natural flow of the rivers? Rather than a classic shooting war, we are more likely to see tensions, exacerbated relations, human suffering and localized violence. With additional demands being made on the rivers by uncooperative parties, water quantity and quality will be a central cause of regional instability, leading to a decline in economic and public health conditions. This decline will in turn make the region’s peoples more susceptible to fundamentalism and extremism, thereby undermining recent security gains.

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88. Interview with Waleed Abdel Hammad, Water Ministry of Iraq in Baghdad, Iraq (Aug. 1, 2004); *see also* CPA Press Release, *supra* note 58 (providing that Turkey and the Iraqi Ministry of Water Resources established a weekly exchange of information with important water flow data that has helped the Ministry gain sovereignty).

In his article “WaterWorld,” Robert Kaplan looks at the potential consequences of climate change and rising sea levels in Bangladesh.<sup>89</sup> He describes how the explosive mix of environmental degradation, human misery, and religious extremism is at work to destabilize the government. Water shortages can provoke the same results, as people find it more difficult to live their daily lives. This can in turn cause the people to turn to extremism and violence as their only recourse against an unresponsive government. In 2008 there were disturbing signs of instability based on regional food shortages; this could be a prelude to a greater threat when water supplies and water quality decline.<sup>90</sup>

What, if anything, can be done to avoid these consequences? There may now be an historic opportunity for the creation of an effective transboundary water initiative for Turkey, Syria and Iraq. Despite the current turmoil in Iraq, the parties have demonstrated the ability to meet and discuss confidence-building measures that could lay the groundwork for further cooperation. In January 2008, there were some promising signs that representatives of Turkey, Syria and Iraq were meeting to discuss issues of common interest in the water sector.<sup>91</sup>

A number of working models can provide a basis for regional cooperation. The International Joint Commission<sup>92</sup> addresses U.S.-Canadian water issues and the Mekong River Commission<sup>93</sup>

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89. Robert D. Kaplan, *Waterworld*, THE ATLANTIC, Jan.-Feb. 2008, at 60.

90. Andrew Martin, *Mideast Facing Difficult Choice, Crops or Water*, N.Y. TIMES, July 21, 2008 at A1 (quoting Alan R. Richards, a professor of economics and environmental studies at the University of California, Santa Cruz: “The countries of the region are caught between the hammer of rising food prices and the anvil of steadily declining water availability per capita”).

91. Ercan Yavuz, *Turkey, Iraq, Syria to Initiate Water Talks*, TODAY’S ZAMAN, Mar. 12, 2008, available at <http://www.todayszaman.com/tz-web/detaylar.do?load=detay&link=136183> (reporting recent meetings of water officials in Damascus and Istanbul, as well as a meeting of the Joint Technical Committee that had not met since 1993 on the Iraq Ministry of Water Resources web site in March 2008).

92. See International Joint Commission, [http://www.ijc.org/en/home/main\\_accueil.htm](http://www.ijc.org/en/home/main_accueil.htm) (last visited Aug. 19, 2008) (illustrating that the International Joint Commission is an independent body for resolving disputes between the United States and Canada over the two countries’ transboundary waters).

93. See The Mekong River Commission, <http://www.mrcmekong.org/> (last visited Aug. 19, 2008) (explaining that the commission’s role is to implement the

coordinates water management efforts in Southeast Asia. Further, with international support, the parties should benefit from a diplomatic initiative similar to the one making progress in the Nile Basin.<sup>94</sup> The European Union and the World Bank can be principal agents, making it a truly international endeavor. Turkey will certainly resist the creation of an agency with anything that approaches regulatory powers, but an “initiative” that respects sovereignty could have some hope for success.

Over the past five years U.S. diplomacy has played a minor role with respect to water issues in the Euphrates-Tigris Basin.<sup>95</sup> During the period of U.S. occupation of Iraq there was little or no movement on the subject, other than the direct assistance to the Ministry of Water Resources previously mentioned. And since the Iraqis have regained sovereignty they have been generally too weak and divided to assert a clear foreign policy on any subject. But the US presidential elections in November 2008 could provide a catalyst for change. The Obama administration will hopefully enter the region with a renewed sense of purpose, and this could encourage movement and cooperation in the Basin. There should be a recognition in the United States that some well crafted diplomacy could help retain stability during a time of transition in Iraq, and promote long term benefits in the water sector.

We should not ignore a number of important programs that are already helping to encourage progress and confidence building measures in the Basin. The U.S. Army Corps of Engineers has developed a number of initiatives, including a basin-wide modeling

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Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin as agreed upon by Cambodia, Lao PDR, Thailand and Viet Nam).

94. See Nile Basin Initiative, NBI Background, [http://www.nilebasin.org/index.php?option=com\\_content&task=view&id=13&Itemid=42](http://www.nilebasin.org/index.php?option=com_content&task=view&id=13&Itemid=42) (last visited Sept. 27, 2008) (describing the committee as a partnership developed by the countries of the Nile River and aimed at cooperative development of the Nile).

95. In 2007, I inquired of a U.S. diplomat as to whether the United States had a policy to help build cooperation concerning water in the Euphrates-Tigris Basin. The answer revealed the state of affairs; “It depends on what you mean by policy.” Interview with anonymous U.S. diplomat (2007).

system, at the Hydrologic Engineering Center at Davis, California.<sup>96</sup> Obtaining accurate data, and sharing it with all the Basin countries, should help to promote cooperation. Technical assistance of this kind, including the training of Iraqi water professionals, can go a long way in enabling Iraq to deal effectively with domestic and international water issues.

## CONCLUSION

Declining water supplies, food shortages and financial problems have recently combined to threaten stability in many parts of the globe. But other events could help provide a window of opportunity in the Euphrates-Tigris Basin on water issues. Action should be taken now to encourage, with financial backing, the formation of an international commission or other initiative for Turkey, Syria and Iraq. The United States should take a greater role in sustaining such an initiative and promoting basic confidence building measures. With the right support, the people of the Euphrates-Tigris Basin can begin to move towards cooperation rather than conflict with regard to their water resources. And this will ultimately help to preserve the fragile gains in Iraq that are so essential to regional stability. Obtaining accurate data, and sharing it with all the Basin countries, should help to promote cooperation. Technical assistance of this kind, including the training of Iraqi water professionals, can go a long way in enabling Iraq to deal effectively with domestic and international water issues. The World Bank is now supporting the work of an Arab Water Academy in Abu Dhabi, United Arab Emirates, that will be the regions first water educational institution.<sup>97</sup>

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96. See Nani Gould & Fauwaz Hanbali, *Army Engineers Develop Model to Support Iraqi Water Management*, ENGINEER, Oct.-Dec. 2004, at 11, available at <http://www.wood.army.mil/engrmag/PDFs%20for%20Oct-Dec%2004/Gould-Hanbali.pdf>

97. See The World Bank, *Workshop Launches Arab Water Academy*, available at <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/WBIWATER/0,,contentMDK:21823813~pagePK:64156158~piPK:64152884~theSitePK:443986,00.html> (last visited Dec. 8, 2008).