

A quarterly publication from the AAAS Center for Science Diplomacy

Julie Trottier and David B. Brooks, “Academic Tribes and Transboundary Water Management: Water in the Israeli-Palestinian Peace Process,” *Science & Diplomacy*, Vol. 2, No. 2 (June 2013*). www.sciencediplomacy.org/article/2013/academic-tribes-and-transboundary-water-management.

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*The complete issue will be posted in June 2013.

Academic Tribes and Transboundary Water Management: Water in the Israeli-Palestinian Peace Process

Julie Trottier and David B. Brooks

THE scientific approach to characterizing the Palestinian-Israeli water conflict is intertwined with and modified by the social and political dimensions of the broader conflict. The result is that there have been only specific and limited proposals for a solution to the water conflict. The interplay between the reformulation of scientific knowledge and the social and political relations leads to the “coproduction” of the natural and social norms and hierarchies.¹ Examining this coproduction in the Palestinian-Israeli case offers potential solutions to reframing the water conflict and, consequently, potential development of new solutions. An instructive case is the Friends of the Earth Middle East (FoEME) proposal first put forward in 2010 and revised in 2012. It provides a novel approach to sharing water between Israelis and Palestinians.² The opposition this proposal unleashed sheds light on the disciplinary construction of issues hindering progress on the Israeli-Palestinian water conflict and general lessons for constructing solutions to transboundary water conflicts in situations where legal pluralism prevails concerning water management.

Lawrence Susskind and Shafiqul Islam recently emphasized that most difficulties in water negotiations result from rigid assumptions about how water

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must be allocated.³ In the Palestinian-Israeli case, rigid assumptions concerning political aspects of water management prevail within the dominant epistemic communities in hydrology and water engineering. This rigidity constitutes a greater obstacle to progress on solving the Palestinian-Israeli water conflict than national divisions.

Disciplinary Knowledge as Territory

Tony Becher and Paul Trowler suggested that academics are socially organized, collective actors and that their disciplines are territories these social actors maintain, occupy, conquer, or lose to one another.⁴ Viewing academic disciplines as tribes and the body of knowledge they produce as territory they defend sheds light on water conflicts. Hydrologists and water engineers have long published political analyses of Israeli-Palestinian water issues.⁵ In doing so, they carried out incursions into the territories of social scientists. Social scientists in turn have demonstrated that a political debate concerning the environment never occurs just on the basis of the prior establishment of a neutral and objective scientific truth.⁶ Rather, the construction of the discourse on the environment cannot be dissociated from the political and social struggles that affect it.

The epistemic communities dominating studies of the Israeli-Palestinian water conflict have rarely integrated this finding. While Samer Alatout tackled the political construction of the discourse of Israeli hydrologists⁷ and Julie Trottier studied the construction of the Palestinian discourse on water,⁸ geographers and political scientists have largely neglected the political construction of the scientific arguments hydrologists and engineers deployed. For example, they accepted the hydrologists' and engineers' portrayal of water as state-managed on both sides of the Green Line. This assumption has largely shaped the formulation of the water conflict and of the proposed solutions.

Hypotheses about Water Management

International water treaties have largely reflected power structures related simultaneously to three variables:

- the Westphalian international structure;
- the national power structure that hydrologists and water engineers deem legitimate; and
- a specific role for hydrologists and engineers within these states as experts.

Within international river basins, water has been viewed in quantitative terms, as a pie to be shared among the riparian states. Allocating a given volume to one state or another has been at the heart of these negotiations. Sometimes the quality of that water is also considered. International water law recognizes only states as

legitimate actors in these negotiations. Once a quantitative allocation of the water is reached among the states, it is assumed that each state will manage the allocation according to its national law while respecting its obligations toward its neighbors according to the treaty it concluded.

Most geographers and political scientists studying such agreements have assumed a state centralization of water management. This was not necessarily required by such treaties, but it constituted the logical development of their underlying hypotheses. If states were the only legitimate actors to negotiate water within international basins, the thinking went, they should remain the only actors governing water inside their territories.

This formulation suited hydrologists and water engineers. They tended to view themselves as legitimate depositaries of decision making concerning water management within their state by virtue of their expertise. Michel Callon described this as the “double delegation” system, because decision making is delegated first to state authorities on the basis of democratic representation, and then it is delegated by state authorities to scientists (that is, hydrologists and water engineers) on the basis of their knowledge.⁹

Today, this double delegation system is coming under growing scrutiny in the Western world as the public becomes increasingly aware of the political construction of science and as scientists become increasingly careful concerning uncertainty in their results. Water professionals have so far remained largely immune to this challenge, especially in the Palestinian-Israeli case, where serving one’s state still constitutes an act of nationalism that can be intimately enmeshed with one’s professional identity. Most Palestinian scientists and engineers consider the centralization of water regulation necessary to the creation of a Palestinian state. Similarly in Israel, the discourse on water long focused on the development of resources as part of a nation-building effort. This nationalism invested water engineers and hydrologists with an ideological mission that they conveyed to both politicians and the public.¹⁰

Legal Pluralism

The existence of legal pluralism is widely acknowledged throughout the developing world, and its political ramifications in water management have been explored. It occurs when overlapping, and often overtly contradictory, sources of law seem to apply simultaneously to the resource. Institutions that determine water allocations are frequently the result of local history and circumstances. They systematically influence the application of decisions made by national governments. Within legal pluralism, national legislation, religious and/or customary laws, development project rules, and unwritten local norms may all address who should receive water, from which sources, and for what purposes.¹¹ Local law is usually composed of multiple legal fields and draws on diverse sources of authority.

Actors call upon a given source depending on the situation. When courts are weak or distrusted, disputants will usually choose other outlets. Strengthening existing local institutions that already allocate water and deal with conflicts often proves more efficient than imposing national legislation. Unfortunately, such legal pluralism as exists within a state is rarely incorporated in transboundary water treaties.¹²

Academics have neglected legal pluralism in Palestinian water management. The rare studies focusing on Palestinian water management usually deploy an economic approach devoid of institutional analysis. Israel does not present the same situation of legal pluralism concerning water. Its 1959 law centralized water management at the national level. Any progress concerning the Israeli-Palestinian water conflict, therefore, needs to address an asymmetrical situation: an existing state with a highly centralized water management and a future state with legal pluralism as the norm in water management. Such asymmetries also exist elsewhere in the world where neighbors deploy very different structures of water management.

Hydrologists and water engineers have often defined both the water problem and its political solution. Privileging the assumption that water must be state managed, they have proposed a form of water management for Palestinians that would be centrally controlled by the state, as it is in Israel. This contradicts research that demonstrates the necessity to capitalize on existing and functioning institutions that manage natural resources, no matter how informal they are, rather than to simply wish them away.

The FoEME Water Proposal

In 2010, the FoEME proposal broke with the dominant approach to water in the Israeli-Palestinian conflict.¹³ It considered that joint management of the shared water should aim to be (1) economically efficient, (2) socially and politically equitable, (3) environmentally sustainable, and (4) implementable in practice. The proposal defines economic efficiency as having long-term cost effective actions, where “cost” also included quantitative recognition of environmental impacts. Social and political equity was defined as the generation of equivalent impacts rather than quantitatively equal impacts. International law recognizes that sharing water equitably does not necessarily mean equal quantities. What proportions constitute an equitable share depends on the respective demographics of riparian states, the structures of their economies, and their relative dependence on water consumption. The FoEME proposal goes further and sets social and political equity among its goals; in other words, the impact on the social and political organization of both parties had to be equivalent. This excludes redesigning the institutions of one party to copy those of the other if so doing would entail an upheaval in the complex social organization woven around water.

The second goal was closely linked with the fourth one: joint management of shared water that would be implementable in practice. The Oslo Accords between Israel and the Palestinian Liberation Organization projected Israeli-like water institutions upon Palestinians. As a consequence, although the Palestinian water law, promulgated in 2002, defined water as a public good, most Palestinian water was in fact managed according to a communal property regime. Parachuting a public property regime upon a resource that is already tightly managed as a communal property regime by a great number of local institutions is very problematic. Within a public property regime, the state spells out the rules concerning water access and allocation. Within a communal property regime, a local group spells out these rules concerning the communal well or spring. Notably, the group alone sets the boundary between those participating in the communal property and those who do not. This capacity to exclude others from using or accessing the resource contradicts the principle of water as a public property. Yet this capacity is a key factor in the resiliency and the sustainability of this type of natural resource management.¹⁴ Most Palestinian irrigating farmers still ignore the existence of the 2002 water law and pursue water management as they always have. This type of situation is not unique to the Palestinian-Israeli conflict; it often happens when a law is drafted in a capital city by international consultants who do not attempt to build on the local grassroots institutions. However, much accumulated experience shows that building on existing institutions is crucial in order to design legal texts, such as water agreements, that can be implemented.

Forgoing Fixed Quantitative Allocations

The FoEME proposal breaks with the idea of quantitative allocation of water to Israel and a future Palestinian state. A quantitative allocation cannot fulfill the four goals detailed earlier because it leads to a securitization of the resource and a rigidity that prevents adjusting to natural changes or socioeconomic developments. In addition, it bases water policy on an ecological fiction. These issues deserve attention.

By securitizing water allocations, the resource becomes portrayed as an essential component of national security. It leaves the realm of what is negotiable; compromise is no longer acceptable. When a quantity of water “must” be received according to a treaty, nature is being asked to oblige—a request that nature is not always able to fulfill. Yet, once such allocations have been fixed, changing them is perceived as a threat to national security.

Quantitative allocations also entail problematic rigidity. First, climate change in the Middle East is likely to alter the overall quantities available to the Israelis and Palestinians. Present, fixed quantitative allocations may become impossible to honor in a few years. Second, demographic evolution and economic development will affect demand for water in unforeseeable ways. Fixed quantitative allocations

that seem equitable now may be considered inequitable in a few years by one party or the other. Percentage allocations of whatever quantities are available could accommodate climatic variability, but not different economic and demographic developments of the two parties.

Third, water is a mobile natural resource, both on the surface and underground. Each drop is used several times between the moment it falls as precipitation on the West Bank and the time it reaches the sea or some other sink, or evaporates or evapotranspires. The quality of that water changes, generally often degrading, as it travels. As water moves, it is used within different polities, each with its own structure of power determining the rules of its management. It may be used a first time within a Palestinian farmer-operated irrigation system based on a communal property regime before it returns, by now laden with some pesticide, to the aquifer. It may then reappear in an Israeli well operated by Mekorot to supply drinking water to a municipality. At every step, the set of actors attempting to prevent the drop of water from evaporating or from being contaminated is organized differently, and all of these organizational systems need to be considered if a final status agreement is to be implemented in practice. However, both securitization and fixed quantitative allocations prevent consideration of these important factors.

Taking into account that, because of their disciplinary backgrounds and their personal values, different authors have different definitions of what is environmentally sustainable, socially and politically equitable, economically efficient, and implementable joint management, the FoEME proposal details ongoing institutional processes under which each of these goals could be continuously defined and attained. It does not, for instance, define water rights as fixed and permanent quantities allocated to each party, as hydrologists have commonly done. It instead defined them as a bundle of rights and responsibilities to access water, use water, treat water, and release wastewater. Among the rights and responsibilities in its definition is to set the limits necessary for these actions in ways that maintain the quantity and quality of flow in all shared water sources. It specifies that these rights are the same for both parties and for their citizens. The proposal does not focus on attributing resources to one party or the other, but rather on institution building with processes to allow both parties to enjoy these rights and meet these responsibilities.

Dealing with Scientific Uncertainty

The FoEME proposal deals only with water *shared* by Israel and the future state of Palestine. It defines that water as what flows naturally across, along, or under a border between the two parties and therefore requires joint management. In that region, most of the water is shared, and much of it is found in karstic (limestone) aquifers, which are especially difficult to model. The pivotal process that is proposed is therefore the extraction of shared groundwater on the basis of

regular joint monitoring and in quantities and flow patterns that are continuously modulated. The proposal therefore includes an office where natural scientists from both sides of the Green Line can establish maximal seasonal abstraction rates for *all* wells tapping shared water, whether Israeli or Palestinian. Currently, under the Oslo agreements, the Israeli-Palestinian Joint Water Committee determines the maximum abstraction of Palestinian wells, but it has no authority over Israeli wells. As opposed to the prevailing situation, this proposal circumscribes closely the role played by scientists within an overall process where the social and political aspects of scientific decisions are made visible and open to democratic decision making.

The pivotal process of the proposal lies in the articulation of the principle of subsidiarity: all issues must be resolved at the most appropriate scalar level on the basis of established priorities, with a minimal per capita access to drinking water as a top priority. Embedding the principle of subsidiarity and this list of priorities in the management process ensures many crucial processes:

1. The institutions actually managing wells and springs according to communal property regimes made invisible by the present Palestinian water law would be recognized and integrated in the overall water management.
2. These institutions would be included in the design of solutions. For example, if the scientific advisors required an irrigation well to reduce its abstraction rate, the irrigating farmers, who are best placed to design solutions in a way to minimize loss of crop or revenue, would propose the calendar.
3. Parties would have to demonstrate that all possibilities of mutual help to solve a water problem had been attempted among local actors and between Israel and the future state of Palestine before a request could be made to donors for increasing a supply of water through a technological project.

The subsidiarity principle would apply to both parties equally. Its translation into everyday practice, however, would vary radically. The distinctions in the management process would not make much sense to most Israeli water scientists. All Israeli water users must submit requests for annual water licenses that stipulate the amount of water allocated to them. Few communal water management institutions exist in Israel, where a public property regime is in place. However, the proposed management process recognizes that legal pluralism prevails in Palestinian water management, so state, private, and communal wells are included.

The priority for domestic water suggested in the FoEME proposal is not controversial; it is commonly defined as fifty liters of water per person-day, of which no less than twenty liters must be potable and the rest sufficiently good for other household uses. In addressing mutual help between parties, the proposal contains an element that locks in both parties to an obligation of mutual help to ensure that a defined minimum household requirement is met. This requirement is crucial to avoid the scramble for foreign funds to develop large water infrastructure

within a supply management approach. Another area of the proposal requires that both parties make all attempts at demand management before international funds are sought to increase water supply. Supply management treats any demand for water as an incompressible human right that must be satisfied via technological development. Yet, water demand is an economic term describing the quantity that aggregated buyers will purchase at a given price. Demand management considers that water resources are incompressible and treats demand as the result of social and economic processes that can be acted upon. Demand management therefore targets these processes in order to reduce water consumption. The mutual obligation of help between the two parties would allow them to switch to demand management—something not possible under the provisions of the Oslo agreements, which locked them in supply management.

By applying the principle of subsidiarity, the proposal also respects the present legal pluralism in the future state of Palestine, under which farmers within a communal property regime determine among themselves the allocations of their resource. The proposal includes these institutions in negotiating the rate of flow reduction so that farmers can alter their crop patterns to mitigate the harm entailed by any reduction in abstraction. Most importantly, the proposal addresses a condition when pumping from a well exceeds allowable extraction rates or has an adverse effect elsewhere in the aquifer. Determining whether such abstraction has an adverse effect elsewhere in the aquifer requires the involvement of natural scientists. Previous proposals counted on scientists working for the state to determine who should cease pumping and who could continue, implicitly relying on the arm of the state to enforce their scientific decisions. The new proposal foresees instead that any institution managing a well or a spring should be able to enlist scientists to demonstrate it is negatively affected either by some form of land use or by the abstraction of another well. This satisfies the requirements of international law while also recognizing the variety of situations that legal pluralism entails in order to make the goals achievable. Moreover, it fragments power over water along several axes, whether national lines or along the divide between scientists and lay persons. Finally, the proposal allows institutions managing wells and springs to request a change in land use that affects them negatively, an institutional design that enables true Integrated Water Resources Management. This principle has been widely advocated in water communities but has rarely been implemented for want of appropriate institutions.¹⁵

The Institutional Structure

The FoEME proposal would establish four main bodies: a Bilateral Water Commission (BWC), an Office of Scientific Advisors, a Water Mediation Board, and a Local Water Management Board. The BWC would replace the current Joint Water Committee but would deal with all shared water, whether in Israel or a

future state of Palestine. Its responsibilities would include granting permits for drilling, water withdrawals, wastewater collection and treatment, and controlling releases of effluent and ensuring that they are treated to an appropriate level of quality. The Office of Scientific Advisors would report to the BWC and serve as links to information and analyses in their respective governments as needed by the BWC. The Water Mediation Board would promote mediation processes for issues that cannot be resolved within one of the other bodies. It would not have judicial authority but would seek outcomes that are acceptable if not optimal for communities and institutions that bring issues before it. The Local Water Management Board would first identify and register local water management institutions deploying communal or private property regimes. Next, it would enable these institutions to approach the Water Mediation Board with equity, providing assistance such as translation or literature searches, if needed.

Removing national labels from quantities of water allows the Water Mediation Board to propose compromises based on priority of uses, impact on the environment, and impact on the community using the water, independently of the nationality of the users. The relative importance for Israel of the quality of water released in the environment by Palestinian users, located upstream from Israel, has grown in comparison with the importance of the quantity in the same aquifers since Israel has embarked on an extensive desalination policy to supply its domestic water. On the Palestinian side, the concern with accessing a minimal quantity of water still outstrips any concern with the quality of water released in the environment. The FoEME proposal would allow Palestinians to access more water in the short term while simultaneously improving the quality of water they release in the environment. Keeping mediation at the lowest institutional level ensures that the smallest scale, and often the cheapest, measures would be adopted by the smallest scale institutions that have the social capital to devise and implement rules, whether to access water, or to treat and release it.

Deciphering the Reaction

Two Israeli hydrologists who advised FoEME opposed the proposal.¹⁶ Understanding their objections sheds light on blockages that currently hinder progress on an Israeli-Palestinian water agreement. Disciplinary divisions played a far more important role than nationalist divisions. Hydrologists and water engineers are keen to play a specific role between the state and the natural resource, and therefore they oppose the reformulation of such interactions. Many hydrologists and engineers elsewhere in the world share these perceptions of their role. Examining these perceptions and their consequences is thus important to make progress in the design of water agreements around the world.

The Israeli hydrologists argued several points:

- The quantity of fresh water used by Israel has dropped.
- This is a zero-sum game, and if Palestinians want more water, Israel will eventually propose to desalinate and sell it to them. The main concern is to identify who would pay for the desalinated water.
- The “First-in-Time; First-in-Rights” principle is dominant around the world. This means that Israel, having been first to develop its use of the bulk of shared water, does not have to give up that right.
- The issue of “just” or “equitable” has no legal basis.
- Without increasing water supply, there is no solution. The solution therefore is to desalinate water and to treat and reuse sewage.
- The additional seventy million cubic meters from the Eastern Aquifer needs to be developed for use by the Palestinians as foreseen in the Oslo agreements. It is cheaper to desalinate this brackish water than to desalinate seawater.
- There needs to be an interim period that would allow for funding of the joint management.
- Israel’s National Building Commission already gave the Palestinians extraterritorial land next to Caesaria to build a desalination plant for Palestinian use.
- There needs to be a provision to renegotiate the quantitative allocation of water between Israel and Palestine after a number of years in case climate change affects the overall quantity of water.

The objections raised by the Israeli hydrologists must be contextualized. Since 1993, the international community has been heavily subsidizing the creation of the Palestinian Authority. Defining the water conflict as a quantitative one for which desalination offers a solution implies a paradigmatic transformation of a problem of joint natural resource management into one of international aid. The experience of the past eighteen years suggests this approach is realistic. If the international community wishes to purchase tranquility in the Middle East, it might as well pay for the Palestinians’ water bill when Israel sells them desalinated water. Clearly, in this case, the existence of a technical solution (desalination) to increase overall supply largely contributed to the definition of the problem because it allowed this paradigmatic reformulation of a problem of water management first into a problem of supply management and then into a problem of foreign aid. This is typical of structured disciplines where the available methods and technologies tend to determine the choice of problems. The pursuit of a straightforward supply management approach follows a historic continuity while it is also typical of applied knowledge, which is more open to external influence from outside the academic community producing it.

The hydrologists’ arguments also relied on the convergent characteristic of their discipline, which maintains reasonably uniform standards and procedures. Here, a

stable elite retains significant intellectual control over the body of knowledge. Their definition of an agreement as being necessarily a quantitative allocation is so well rooted in their academic community that the FoEME proposal is unintelligible to many hydrologists. The elite status of hydrologists and hydraulic engineers allowed them to be the unavoidable advisors to the Israeli government within every peace initiative. Divergent academic communities lack these features. Social scientists cannot rely on such a well-disciplined community to support their efforts if they challenge the paradigmatic transformation of a natural resource management issue into a technical issue and into an issue of international aid. They have not secured the same authoritative positions in part because their approaches are necessarily divergent. They have not achieved the same unity that proved empowering for hydrologists.

Finally, some of the positions taken by the Israeli advisors were simply wrong. For example, “First-in-Time; First-in-Rights” is no longer dominant around the world if it ever was. It remains in place only in a few western regions of North America, and even there it is highly qualified.¹⁷ And other positions, along with time to adjust to the new institutions, were built into the proposal from the first draft.

The Palestinian chemist and water engineer who advised FoEME did not oppose the proposal in the same manner. The proposal is more advantageous to the Palestinians than a quantitative allocation. It would provide Israelis with sustainability of water management and the Palestinians with increased access to the resource. Yet, the Palestinian chemist and water engineer recommended a quantitative allocation based on percentages instead of fixed quantities. They subscribed to the Israeli hydrologists’ paradigmatic transformation of a problem of joint management of a natural resource into one of supply management and international aid. This unanimity between Israeli and Palestinian water scientists sheds light on the power-knowledge nexus producing the dominant discourse on the Israeli-Palestinian water conflict. Their approach is shaped more by their disciplinary background, their “academic tribe,” than by their national identity.

When designing an infrastructure, a water engineer needs to know the quantity of water that will be managed. Hydrologists and water engineers perceive a very specific role for themselves as the necessary link between the resource and the state. To fulfill this role, they need a proposal that provides a quantitative allocation. However, the dominant discourse on the Israeli-Palestinian water conflict locks water scientists in the “double delegation system” at a time when this very system is crumbling in Europe and North America. This same process also locks all actors into an unsustainable supply management approach. Demand management is currently largely discouraged by the persistent interest of donor countries to channel extremely large sums toward the area. Promoting demand management would be compatible with ecologically sustainable water management. But it runs against nationalist interests as they are currently constructed, and it challenges the

role water scientists believe they need to play. Reformulation of the water conflict harnessing knowledge produced by social sciences, as shown in the FoEME proposal, opens new perspectives. **SD**

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