

**Adaptive Visions of Water in the Middle East:
Lessons from a Regional Water Planning Initiative**

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THE CHALLENGE: THINKING AND PLANNING REGIONALLY ABOUT WATER

As the 21st century unfolds, it is already clear that water management will become yet more important and challenging for Jordan, the Palestinian Authority (Haddad, 2004; Sabbah and Isaac, 1995), and Israel (Tal, 2002; Beyth, 2006). Population in the region is growing – faster than the rate of growth of world population. Agriculture, which accounts for most water use in the region, remains important to the region's economy and community development. Large and small industries require water of various qualities to operate. Inadequate treatment of sewage and waste fouls water supplies. Climate change projections forecast a drier and more turbulent Mediterranean.

Awareness of water issues is already high. The shelf of books and articles on water in the region is a long one. Water in the Middle East is possibly one of the most thoroughly studied topics in the world. Jordan, the PA, and Israel have government bodies to study and plan around water. International aid agencies have supported a wide variety of plans and projects. The volume of studies and plans is a good sign, indicating how much expert and political energy has already been allocated to the problem.

The continuing output of studies and plans, however, is also a sign of the continuing seriousness of the regional challenge of sustainable and adaptive water management. Water withdrawn from coastal and mountain aquifers exceeds what rainfall replenishes. The Mediterranean is becoming more polluted (Benoit and Commeau, 2005; European Environmental Agency 2006; Zalul, 2007). The Jordan River carries very little water as compared to forty years ago. The Dead Sea is shrinking and land around it has become unstable. The Red Sea is vulnerable to the consequences of increasingly intense human activity. Aquifers of 'ancient,' fossil water offer partial and only temporary relief. Water use is already severely restricted in Jordan and the Palestinian territories, and is contentious in Israel.

These conditions are a challenge not just to national water management agencies, but also to the whole region. When European colonialism left behind Middle Eastern states, each state made its claim and developed those water sources it was able to control. Water, however, notoriously flows across boundaries, and national borders rarely reflect hydrological systems. Water flows underground as well as above ground, increasing the challenge to its management. It is used to mark borders, and all the adjacent countries share an interest in the Jordan River, the Dead Sea, the Red Sea, and the Mediterranean. Under these conditions, as in similar cases elsewhere, separate interests in managing this essential resource are a

source of tension, friction,¹ and an opportunity for cooperation (K. Assaf, 2006: 237; L. Assaf, 2006; Wolf, 1995, 1996, 2000).

Regional negotiations on water go back as far as the Johnston Plan developed in the 1950s (Allan, 2001: 78; Lowi, 1993). Informal arrangements between Jordan and Israel stem back to then, becoming formalized with the Jordanian-Israeli Peace negotiations (Lowi, 1993).² Water has been a focus of Palestinian-Israeli negotiations, and of broader international interests in the region. This long history of diplomatic initiatives has been the context in which the long shelf of studies on water in the Middle East has been written.

Given the regional character and framing of the water crisis, it follows that an appropriate scale of response may significantly benefit from being situated regionally, building on earlier diplomatic efforts, bi-lateral successes, and transboundary civil society activities. This would entail, at the very least, Israelis, Palestinians, and Jordanians working together with others from the region and internationally in formulating an integrated, regional, concerted, flexible, and thus adaptive vision of water for the Jordan Basin. This article will draw on our experience with AVOW, a group of regional and international practitioners and academics working towards the development of such a vision.

ORGANIZING AN INTEGRATED REGIONAL RESPONSE

The AVOW project (Adaptive Visions of Water in the Middle East) was organized in 2006, following a conference on “Integrated Water Resources Management and Security in the Middle East”³, to promote an integrated regional perspective in response to the national and regional water challenges.⁴ The immediate context was concern over the proposal for the World Bank to finance a multi-billion dollar, decades long construction project to convey water from the Red Sea to the Dead Sea, and to use the drop in elevation to

¹ The concept of ‘friction’ as it has been proposed by Tsing (2005) is interesting here, denoting “difference within common cause” (246) and “collaboration with friction at its heart” (247).

² Eric Abitbol conducted personal interviews with Eliyahu Rosenthal, Department of Geophysics and Planetary Sciences, Tel Aviv University (consultant to the Water Commissioner of Israel), Jerusalem, 22 December 2003; Munther J. Haddadin, consultant, former chairman of the Jordan Valley Water Authority and Minister of Water, Jordan, Amman, 7 October 2004. Both of these men were personally involved in early, transboundary meetings and negotiations on behalf of their respective government authorities.

³ NATO Advanced Study Institute on Integrated Water Resources Management and Security in the Middle East, Kibbutz Ketura, Israel, 6-17 February 2006.

⁴ See AVOW website: www.yorku.ca/avow/.

produce energy and desalinate water carried in the conveyance (Al-Alem, 2002; Arkin, 2000; Asmar, 2002, 2003; Benveniste, 2004; Bromberg, 2004a, 2004b; Gavrieli and Bein, 2004; Gavrieli, et al., 2005; Gertman, 2002; Lipchin, 2004; Moshen, 1998, 2007; Murakami and Wolf 1995; Murakami 1995a; Murakami, 1995b; Nissenbaum, 1993; Oren, 2004; Yechieli, 1998; Zilberman, 1984. See also Loeb, 1998; Weshah, 2000). This is the most recent of many proposals stemming back to the mid-1800s to build a canal from either the Red Sea or the Mediterranean to the Dead Sea (Gavrieli, et al., 2005: 8; Asmar, 2003: 331-3).

As of 2006, the World Bank has been developing plans for a “feasibility study,” at the request of Israel, Jordan, and the Palestinian Authority. What was known of plans for the “feasibility study” early on neither integrated the proposed “water conveyance” into a larger water strategy for the region, nor recommended that other responses reflecting a regional concern about water receive equivalent attention.⁵ Building on the interest in investigating alternatives to the Red-Dead Canal expressed at the conference on integrated water management in the Middle East, two researchers at York University (Canada), with the support of the Centre for International and Security Studies and the Institute for Research and Innovation in Sustainability, approached regional partners.

The AVOW initiative was formed as a result of these discussions, with a steering committee, an advisory committee, and institutional partners from Israel, Palestine, Jordan, and internationally. The steering and advisory committees were composed of university based researchers, civil society researchers, and independent experts. The institutional partners were the Arab Scientific Institute for Research and Transfer of Technology (ASIR), the Arava Institute for Environmental Studies (AIES), the Israel-Palestine Center for Research and Information (IPCRI), Peacemedia-paixmedia, the Water and Environment Development (WEDO), and the Centre for International and Security Studies (YCISS) and the Institute for Research and Innovation in Sustainability (IRIS) at York University.

Within the group, discussion soon moved from initial concern over the development of alternatives to the Red Sea-Dead Sea water conveyance to a focus on the broad range of possible responses to the challenge of sustainable water in the region. At the same time, other regional water initiatives have also been taking

⁵See

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/MENAEXT/0,,contentMDK:20664264~pagePK:146736~piPK:146830~theSitePK:256299,00.html>

place throughout the region. Notably, Friends of the Earth Middle East (FOEME), which has various regional environmental initiatives, has been actively promoting restoration of the Jordan River as an alternative to the Red Sea-Dead Sea conveyance.⁶

Regional civil society organizations have expressed skepticism about the water conveyance proposal, including notably, at public consultations on the project hosted by the World Bank in the region in 2007.⁷ A subsequent 2007 conference on the Dead Sea⁸ provided a forum for Israeli, Jordanian, Palestinian, and international experts to share information and examine multiple proposals.⁹

After working on AVOW for over a year, we reached a number of conclusions about the potential for responding to the regional concern about water. While various technical solutions figure in what follows, the emphasis is on stakeholders, their involvement, and the process of articulating and implementing responses (Adger, et al., 2006; Pahl-Wostl, et al., 2007; Rogers, 2006; Turton, 1999). There are many groups active in water issues and, as noted above, the shelf of studies (and proposals) is a long one. The themes that run through the following sketch of an integrated, adaptive, regional response to concern over water are: the importance of openness to a wide range of solutions, strategic integration of possible

⁶ See Friends of the Earth Middle East website: www.foeme.org, Friends of the Earth Middle East 2002, 2005).

⁷ See

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/MENAEXT/0,,contentMDK:21575756~pagePK:146736~piPK:146830~theSitePK:256299,00.html>

⁸ Hosted by the Arava Institute for Environment Studies and the Dead Sea Institute for Research and Development, a NATO Advanced Research Workshop on “Transboundary Natural Resources Governance in Regions of Extreme Conditions”, November 19-21, 2007, Ein Gedi, Dead Sea, Israel.

⁹ For a discussion of communities of practice, learning communities, and ‘communities of the like-minded’, see Adler 2005. “[B]ecause individual cognition evolves together with inter-subjective understandings, communities of the like-minded which are the physical and practical instantiations of inter-subjective understandings, constitute an ontological bridge between individuals and their ideas, on one side, and social structures and social systems, on the other.” (5-6); “It is within communities of practice that collective meanings emerge, discourses become established, identities are fixed, learning takes place, new political agendas arise, and the institutions and practices of global governance grow. In fact, state and other non-state actors do or practice what communities of practice first bring to collective consciousness and attention. Because people do what they do partly because of the ‘communities of practice’ they happen to form and sustain, when communities of practice expand across institutional and national boundaries, their own intersubjective knowledge and identity help structure an ever-larger share of people’s intentional acts at the regional or global level, thereby sustaining practices that are institutionalized across time and space. Normative ideas diffuse the same way. Hence, explaining the evolution of practices and institutions requires identifying how, in and through communities of practice, ideas become attached to physical objects, are diffused across national borders, and, after having been subjected to authoritative cultural and political selection, become discursively and institutionally established” (15-6).

responses, and promoting social mobilization and cross-scale trust among political institutions, experts, civil society organizations, and local communities.

ELEMENTS OF AN INTEGRATED REGIONAL RESPONSE

We see an adaptive, regional response to the regional water challenge as having a number of elements. The regional response will 1) be cross- and trans-boundary, 2) be based on the application of diverse technologies, 3) draw upon both regional and international expertise, 4) be partially shaped by political efforts to foster regional cooperation and by international development agencies, 5) be partially shaped by existing structures that foster regional cooperation, 6) will develop in active consultation and with the engagement of civil society groups, and 7) will involve significant local community engagement.

1) The regional response will be cross-boundary and trans-boundary.

By cross-boundary we mean that a response will recognize and respond to challenges arising from the Westphalian significance of state-centric political boundaries, institutions, and inter-state (including PA) dynamics. In the conflictual Middle East, political boundaries matter. It is simply impossible to ignore them or to ignore the significant political struggles in the region. Therefore, the regional response will have to account for national agendas and priorities, national institutions, the significance of national security perspectives on development planning related to water, and currents of mutual suspicion constitutive of the Middle East conflict (Alatout, 2000; Amery and Wolf, 2000; Beaumont, 1997, 2005; Beschoner, 1992; Brooks, 2007; Brooks and Mehmet, 2000; Bulloch and Darwish, 1993; Dolatyar and Gray, 1999; Feitelson, 2000; Fischhendler, 2004; Fisher, 2005; Fisher and Huber-Lee, 2006; Frederickson, 2003; Kliot, 1994; Lonergan, 1997; Lonergan and Brooks, 1994; Lowi, 1993; Postel and Wolf, 2001; Scheumann and Schiffler, 1998; Selby, 2003; Seliktar, 1997, 2005; Sofer, 1999; Starr and Stoll, 1988; Trotter, 2004).

While cross-boundary activities are essential to Middle Eastern problem-solving, a nascent form of regionalism which transcends the states is emerging in the 'framing' of challenges, in practice and in international law (Tal, 2007). Kally (1986: 34-5) argues that the Jordan River, beyond a hydrological border, should be appreciated as a component of a wider, regional hydrological system which includes the Yarmuk River, the Dead Sea, Wadi Arava, the Gulf of Aqaba, the Red Sea, and arguably also the Mediterranean Sea, given the region's growing reliance on seawater desalination (Biswas, 1997; Friends of the Earth Middle East, 2002, 2005; Nieuwerburgh, 2006).

The efforts of transboundary communitarian bodies (TCBs) (Etzioni, 2004) to prioritize regional agendas, particularly the environment (from water to birds), alongside (even occasionally over) national ones suggests the need to reconsider both the motivation and the shape of interventions in making water policy. Thus, the transboundary character of the response will reflect the efforts of TCBs, including professional networks, social movements, and civil society organizations, which Dallmayr argued (1999) in increasingly coordinated fashion¹⁰ have been defining regional political priorities and identities.

By working together on such issues, Israelis, Palestinians, Jordanians, and internationals are creating a transboundary frame of reference to the ecological crisis, promoting the idea that state-boundaries are also constraints and may be set aside, even temporarily, to allow the political imagination to breathe with creativity and innovation (Murphy, 1999). In this sense, we can begin speaking, perhaps hesitantly, of a “community-region,” comprised of people from across the Jordan River basin who are engaged in a collective process of negotiating and articulating the values, anticipated norms, and practices of water development for the region (Adler, 2005: 188).

Work on water in the region thus far suggests that an adaptive response will be comprised of interventions at multiple scales, from individual and local, through national to regional, with global dimensions. New political groupings, institutions, dynamics, and value systems may emerge as an ongoing, transforming result and effect of a transboundary deliberative approach. Thus, while national boundaries remain real and important, a transboundary frame and discourse emerges through the negotiation and articulation of a regional vision, and the steps taken towards its implementation. Nevertheless, implementation of the vision in the context of the Jordan River basin will likely rely on state, state-based, and/or state-like institutions (Etzioni, 2004).

These are significant challenges at a time of immense tension (e.g., continuing conflict between Hamas and Israel after the withdrawal from Gaza) and some promise of rekindled peacebuilding (following the 2007 Annapolis peace summit). Thus, a regional response will be rooted in cross-boundary, transboundary, and

¹⁰ In 1996, Vaclav Havel delivered a convocation address to Harvard University where he was receiving an honorary doctorate, and spoke of people’s contemporary ability to mount a defense to the onslaught of globalization through “worldwide communication, but also a *coordinated* means for defending themselves against many common dangers...” Vaclav Havel, *Just Commentary*, No.28, July 1996: 1-2 in Dallmayr, 1999: 326. Emphasis added.

cross-scale relationship-building and trust-building (Adger, Brown, and Tompkins, 2006; Brooks, 2007: 57), as much as it will be defined by ensuring the human need to water is adequately and sustainably met (Talozi, 2007: 95; Falkenmark et al., 1989). Given that Jordan, the PA, and Israel are dependent on the same water systems, national planning, without coordination, in the long term (and maybe in the short term) will not work (Gray and Hilal, 2007).¹¹

2) The regional response will be based on the application of diverse technologies.

There is not a single “technological fix” that will be the solution. “Low tech” and “high tech” projects have been proposed and it can safely be assumed that an adaptive response will bring together several approaches to form a flexible strategy.

In concrete terms, water policy options cover a wide range of technologies. These options fall into the two broad categories of reducing demand (Arlosoroff, 2006; Brooks and Wolfe, 2006; Magiera, Taha, and Nolte, 2006; Scott, 2003, Turton, 1999) and increasing supply. Increasing supply is in the short run politically easier because it minimizes pressures for potential cuts in existing water use. Demand reduction in the short run likely imposes restriction, but in the long run conserves resources and allocates them according to articulated national, scalar, and sectoral priorities. Both approaches can be combined in an integrated strategy. The range of water options discussed below has been identified in a number of publications. (Abitbol, 2006; Allan, 2001: 87-108; Beyth, 2007; Brooks 2007; Brooks and Wolf 2006; Mohsen 2007; Schoenfeld, et al., 2007; Scott, 2003; World Bank, 2007; Wolf, 1996: 9f). Sometimes there is only a concern with means of increasing supply; other lists have both supply and demand options. Lists of water options commonly include the following:

Reducing demand through changing consumption practices: among sectors accustomed to abundant water for personal use, both voluntary and mandatory restraint would free up water for other uses. For example, the economically important sector of tourism can promote new standards of appropriate water use. Such an approach may also include a public education campaign to promote public participation in conserving water.

¹¹ Noteworthy, the concept of “good neighbourliness” is contained in the 1997 UN Convention on the Non-Navigational Use of International Watercourses, “calling on countries to take all appropriate measures to prevent the causing of significant harm to other states by any misuse of transboundary water resources” (Tal, 2007: 219). The Ballagio Draft Treaty (1989) further emphasizes “consensual allocation” (Tal, 2007: 220).

Reducing demand by decreasing losses in urban and industrial water delivery and in agriculture: for example, Mohsen (2007: 31) writes that ‘unaccounted-for-water’ exceeds 50% in the Jordanian urban and industrial networks, and estimated agricultural water losses are about 45%. Similar figures are reported in the West Bank and Gaza Strip (Gray and Hilal, 2007: 105, 110) and throughout the MENA region (World Bank, 2007: 51-2). Going back almost two decades, commenting on a condition that persists, Salameh noted that “[i]nvestment in leakage detection and maintenance is a more economical way to increase the efficiency of water supply” than “[t]he traditional policy of developing new resources to satisfy needs...” (1990: 77).

Reducing demand through crop shifting and other agricultural interventions: this might involve selecting crops for the region that respect the semi-arid geo-climate, balancing the values of food security (Salameh 1990), traditional crop selection, the promotion of crops with high export potential, and considerations of climate change (S. Assaf, 2004; Lipchin, 2006: 27; Mohsen, 2007: 36; Solowey, 2003; World Bank, 2007: 61-9). Lipchin (2006: 12) reminds that “[p]ast experience suggests that [Israeli agriculture] is a nimble sector that has frequently changed its crop profiles in order to exploit market opportunities or to respond to the agronomic constraints posed by different water qualities.” With agriculture being the highest sectoral consumer of water in the Middle East, water stress exists in part due to extensive agricultural use of sometimes potable water which could otherwise meet domestic requirements.

Controlling water use through pricing mechanisms: while ensuring that the basic human right to water is met, price mechanisms may be manipulated to ensure both the minimization of wastewater and the promotion of innovation in the water sector, with specific sectoral considerations and accommodations (Allan, 2001: 111-58, Brooks, 2007: 47-9).

Reducing demand by including water for nature in the planning and allocation of water resources: the amount of water required by the natural water cycle needs further investigation, (Allan, 2001: 201-08), bearing in mind the complementarity and mutual constitution of human-ecological and also economic systems, and the difficulty of making nature’s need for water visible to policy makers and the public (Achiron-Frumkin and Frumkin, 2006). For instance, an evaluation of water for nature as compared with water for industrial activity in the Dead Sea region will require consideration. There is an overall need to

investigate the possible ways in which the needs and integrity of human and ecological systems can be respected and integrated, while accommodating the priorities of sustainable development.¹²

Increasing supply through water re-use and shifting quality use in industry and agriculture: continued efforts are to be made to ensuring that water is used multiple times, from domestic use, through industrial and agricultural use, and that the quality of water used is properly matched with its use, thereby increasing the quantity of water available in the overall system and decreasing costs related to water purification. For example, Gray and Hilal (2007: 102) report that nearly 80% of wastewater in Gaza receives no form of treatment, amounting to significant water loss.

Increasing supply through rainwater harvesting: there is potential for increased water harvesting drawing on traditional methods, including cisterns, particularly in the relatively less arid northern Jordan Valley (Gray and Hilal, 2007: 106; Brooks, 2007: 49, 55).

Increasing supply through seawater desalination: the development of desalination on both the Mediterranean and Red Sea coasts is already being undertaken. Israel has opened two desalination plants, with another under construction and more planned (Kroneneberg, 2004; Dreizin, 2004). There are plans for a desalination plant in Aqaba (Mohsen, 1998, 2007) and proposals for one in Gaza (Al-Jamal, 2001). Desalination efforts must be approached and developed respectful of ecological sustainability and integrity, given the growing reliance on seawater desalination for the alleviation of water stress in the region (and internationally). Current principal concerns include the impacts of ecotoxic effluent brine and air pollution generated by desalination processes as well as the energy required for desalination (Lattemann and Höpner, 2008). Alternative forms of energy need to be pursued to power seawater desalination processes sustainably and affordably.

Increasing supply by desalinating water carried to the Jordan River or Dead Sea: in addition to the Red Sea-Dead Sea conveyance under active consideration, there are proposals for alternative canal routes to the Dead Sea and Sea of Galilee. These proposals would bring water from the Mediterranean to the Dead Sea, either directly via Gaza and/or southern Israel, or via a northern route to connect to the Jordan River near the Sea of Galilee (Allan, 2001: 99-103).

¹² In Israel, 'nature' has been allocated a right to water. Interview with Richard Laster, Environmental Lawyer,

Increasing supply by importing water from Turkey and elsewhere: Turkey is the nearest country with abundant water resources. Proposals have been made to bring water south via a canal, tankers, or a pipeline (de Châtel, 2007: 155-8). Others have noted suggestions that water could be imported from the Iraqi Euphrates to Jordan (Salameh, 1990: 76), the Egyptian Nile to Gaza and the Israeli Negev (Kally, 1986: 21-9) and Lebanese Litani to Israel, the West Bank, or Jordan (Kally, 1986: 39-43). The conflict, environmental, and economic considerations of these various options need investigation.

Increasing supply by importing 'virtual water,' food, and also manufactured products: these are important but oft-neglected sources of potentially significant quantities of water. The virtual water option refers primarily to food products, but it applies also to manufactured goods. Importing these products will need to be balanced with the implications of transportation on climate change (Allan, 2001; Nassar, 2006; Shuval, 2004).

3) The regional response will be partially shaped by both regional and international water experts.

Israel, Jordan, and the Palestinian Authority each have ministries concerned with water governance. Water experts are additionally found in universities, the private sector, and a range of nongovernmental organizations. Local experts have often been trained elsewhere and they participate in the global network of water experts. Water is an emergent global challenge for all regions of the planet and all countries. The challenge of water in the Middle East may be uniquely difficult, but it is not unique. Thus, there is solid ground for the development of experience-sharing opportunities and expert consultation, to develop an adaptive Middle Eastern response capacity.

Continuing international interest specifically on Middle East water issues dates back at least to British policies on Mandatory Palestine and debates over the absorptive capacity of the area. After the creation of the State of Israel, the Johnston mission under U.S. auspices conducted studies and drew up detailed policy proposals focused on the Sea of Galilee and the Jordan River (Allan, 2001: 78; Lowi, 1993). International interest in regional water became more extensive since the Oslo Accords.

From the early 1990s, water has been perceived as a basis for cooperative action. The United Nations University, in association with the International Water Resources Association; and the United Nations Environment Program, organized a Middle East Water Forum in 1993, which led to research and publications. The global network of water experts developing research, policy, and technical tools are resources on which the region can draw. As well, the comparative study of transboundary water governance mechanisms established elsewhere can provide models for technical and legal arrangements that could be adapted to the Middle East. Valuable sources of experience include:

1. World Water Week in Stockholm: "...annual global meeting place for capacity-building, partnership-building and follow-up on the implementation of international processes and programmes in water and development."¹⁴ World Water Week in Stockholm pursues a multi-sectoral and cross-scale methodology, bringing together scientists, policy-makers, civil society organizations, and communities, as well as the business sector in dialogue, experience-sharing, and strategy development.
2. World Water Council: "...to promote awareness, build political commitment and trigger action on critical water issues at all levels, including the highest decision-making level, to facilitate the efficient management and use of water in all its dimensions and on an environmentally sustainable basis."¹⁵ The World Water Council has noted the body of human rights documentation advancing water as a human right.¹⁶ It has also highlighted that governments around the world have a responsibility to respect, protect, and fulfill human rights obligations, including the still-contested right to water.
3. UNESCO – Potential Conflict to Co-operation Potential (PCCP): "...facilitates multi-level and interdisciplinary dialogues in order to foster peace, co-operation and development related to the management of shared water resources." Given the extensive discourse on water as a source of conflict, an alternative discourse argues that 'water conflicts' can be prevented through cross-scale and multi-sectoral collaborations which incorporate systemic feedback and learning opportunities. The PCCP approach considers the water-related and broader societal effects of Track II water development processes.
4. Nile Basin Initiative: "...a partnership initiated and led by the riparian states of the Nile River through the Council of Ministers of Water Affairs of the Nile Basin states (Nile Council of Ministers, or Nile-COM). The NBI seeks to develop the river in a cooperative manner, share substantial socioeconomic benefits, and promote regional peace and security."¹⁸ The NBI demonstrates that states can promote regional peacebuilding through the creation of transboundary, cross-scale, and multi-sectoral structures for water management and politics.
5. Canadian Water Network/Réseau Canadien de l'eau: "...develops and supports diverse, multidisciplinary projects that address critical water issues... and emphasizes the importance of addressing the socio-economic aspects of water management in conjunction with a scientific approach to the research themes."¹⁹ The Canadian Water Network is a Canadian Centre of

¹⁴ See <http://www.worldwaterweek.org/>

¹⁵ See <http://www.worldwatercouncil.org/>

¹⁶ See <http://www.worldwatercouncil.org/index.php?id=1764#c9476>. Accessed on January 25, 2008.

¹⁸ See <http://www.nilebasin.org/>

¹⁹ See <http://www.cwn-rce.ca/>

Excellence in the water sector, receiving Canadian government support to advance its mission of promoting both sound science and stakeholder involvement in Canadian water management.

Scholars from outside the region have continued to be major contributors to the expert knowledge of water in the Middle East.²⁰ This international interest is closely related to political efforts to foster regional cooperation and to the presence of international development agencies.

4) The regional response will be partially shaped by political efforts to foster regional cooperation and by international development agencies.

Shortly after the 1993 signing of the Oslo Accords, the international community showed its support for the peace process by pledging over US\$2 billion dollars for projects in the West Bank and Gaza, the beginnings of what was to become in per capita terms, one of the largest donors efforts ever (Brynen, 1996: 46; Selby, 2006: 322). Water was a priority sector, receiving over 10% of all aid money (Rouyer, 2000: 229; Selby, 2006: 323). Promoting regional cooperation on water was consistent with the emerging international interest in environmental security and human security (Brauch and Oswald-Spring, 2007; Oswald-Spring, 2007; Brauch, 2006).

In addition to direct aid for the peace process, aid agencies with a broader scope and continuing presence have been contributing to the development of regional water policy. Some major international agencies active in the region:

- The World Bank contains a Middle East and North Africa (MENA) Group. Water issues are highly visible in this region, with both water supply and water resources listed as World Bank MENA “development topics.” In 2005, the World Bank established the MENA Region Water Resources and Wastewater Network, which published a policy document in 2007, “Making the Most of Scarcity” (World Bank 2007). The World Bank has also been the proposed funding avenue for the Red Sea-Dead Sea water conveyan
- The United States Agency for International Development (USAID) program in Jordan includes support for a “Water Resources Management” program, running from 2004 to 2009.²¹ USAID has supported an “Emergency Water and Sanitation” program in the Palestinian Authority.²²

²⁰ It is not unusual to find academic conferences outside the region with panels on Middle East water issues e.g., the ten papers presented on “Middle Eastern Water Resources in Times of Crisis” at the Geographical Society of America meetings in Colorado in October 2007.

²¹ Budgeted for 2007: \$45 million; 2006: 58 million. See http://www.usaid.gov/policy/budget/cbj2007/ane/pdf/jo_278-008.pdf

²² See http://www.usaid.gov/locations/asia_near_east/countries/wbgaza/westbank-gaza.html

- The Canadian International Development and Resource Research Centre (IDRC), supported by other donors, has fostered a MENA wide “Water Demand Initiative” (WaDiMENA). This IDRC program works with relevant ministries and supports specific water projects in Jordan, and has initiated projects in the Palestinian Authority.
- The German Agency for Technical Cooperation (GTZ) has been active in Jordan since the 1960s, (with a current focus on sustainable use of water resources) and in the Palestinian Authority since the 1980s (with a current focus on water, sanitation, and waste). In Jordan, GTZ has actively facilitated the development of a recent national Water Plan.²³

In addition to these initiatives the governmental development agencies of the United Kingdom, Norway, Japan, Canada, Germany, Sweden, and others have made important contributions to the water development sector in the region. The European Union, through the Euro-Mediterranean Partnership, has supported meetings and programs of partnership countries in the Middle East: Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, Syria, Tunisia, and Turkey (K. Assaf, 2006: 239-40).²⁴ Numerous international and private foundations, and other financing bodies including the Ford Foundation and the MacArthur Foundation, have played a role in supporting investigations and programming in the field of water development in the region.

The high level of international interest is an asset and a challenge. International interest brings expertise, financial resources and a diversity of approaches into the region. On the other hand, it is now common knowledge in the development community that donors come with their own backgrounds and ideas (Nelson, 1995; Park, 2005; Rich, 1994; Yamout, 2007). International development agencies and donors have contributed to shaping the discourse of water politics, supporting particular approaches and country priorities, shaping the agendas of negotiations and conferences, inviting (and excluding) participants and countries. They have their own ideas and priorities about projects, making it easier to get financing for some and harder to get financing for others. Maintaining local control of the agenda rather than shaping projects around donor priorities is a widely acknowledged challenge. If there is a clear local message about how to proceed with regional water planning, this challenge is more likely to be met.

5) The regional response will be partially shaped by existing structures intended to foster regional cooperation

²³ See <http://www.gtz.de/en/themen/umwelt-infrastruktur/wasser/3791.htm>

²⁴ See <http://www.emwis.net/overview>

While water development has predominantly been prioritized and implemented through a national lens since the creation of Israel and Jordan, over the last fifteen years efforts have been made to promote regional water cooperation and development (Schoenfeld et al., 2007: 9-17). Early informal contacts were supplemented by regional multilateral and bilateral working groups established as part of the peace process, which led to formal structures. Building on earlier informal efforts, this has evolved to include a growing regional culture in the academic and environmental fields, as well as regional institution building.

Following the Madrid peace conference, multilateral working groups, including one on water resources, were formed in January 1992 at Madrid to advance the Middle East peace process. The Multilateral Working Group on Water Resources established EXACT, bringing together water-management experts from Israeli, Jordanian, and Palestinian agencies,²⁵ with a mandate through the Water Data Banks Project to produce a common source of regional water data.

Under Clause II of Article 40 of the Oslo II agreement, Israel and the Palestinian Authority agreed to establish a Joint Water Committee (JWC). At an institutional level, this bilateral institution reflects a recognition of full Palestinian stakeholder status with regards to regional water resources. Innovatively, the Oslo II agreement also established JSETs (Joint Supervision and Enforcement Teams) with the “authorities to rectify a host of environmental infractions” (Tal, 2007: 225).

In practice, the experience of the Israeli-Palestinian JWC highlights both constraints and opportunities. Cross-border bodies and institutions reflect and reaffirm the political relationships, hierarchies, and tensions of the wider conflict in which they are situated. One expert concludes that the JWC formalised Palestinian cooperation with Israeli control of supply, led to overexploitation of Palestinian water resources, and was complicit in the development of bad water governance practices in the Palestinian Authority (Selby, 2006). On the other hand, a senior official in the Palestinian Water Authority, while writing about the failures and frustrations of the JWC, argues that the only way forward is enhanced cooperation (Jarrar, 2006). Similarly, another expert stresses the local consensus on hydrological interdependence, the continuing commitment of members of the JWC to work together, and its practical activity to protect water supply during the Second Intifada, notably a joint declaration on the protection of water infrastructure (Jagerskog, 2007). Thus, the JWC may provide a nascent institutional base for further

²⁵ See <http://www.exact-me.org/index.htm>

regional water institution-building meant to coordinate (at least some aspects of) regional water management and to resolve water-related disputes, should they arise.

The Jordanian-Israeli peace treaty of 1994 contains Annex II on water. The treaty established another separate, bilateral Jordan-Israel Joint Water Committee to implement the agreements on water, including allocations and water quality. As frequently noted elsewhere, the joint committee has maintained a flexible, creative, and forward looking practice, with both national (Hussein, 2005) and regional considerations on the agenda (Tal, 2007: 221-2; Brooks, 2007: 60). For example, according to the terms of the treaty, Jordan found a solution for storage of Yarmuk winter floodwaters, in the Israeli Sea of Galilee (Kally, 1986: 30). Simultaneously, Israel has maintained access to wells from which it had been pumping in the Arava Valley that were clearly within sovereign Jordanian territory. After decades of armed conflict, Israel and Jordan were able to transform their inter-state relations and practice cooperative institution-building. The JWC, one such institution, will likely provide the framework for broader, regional, cooperative institution building, even if the JWC is eventually supplanted by another institution that would build on the JWC's strengths and learn from its shortcomings.

These regional structures are established institutional frameworks, supported by the international community, where efforts can be made to advance shared regional water knowledge and shared initiatives. To improve upon existing regional institutions, Tal (2007: 227-8) suggests looking to the independent character of the institutional structure of the Canada-US International Joint Commission (IJC), one of the key factors of its success. Brooks (2007) notes it is also likely that new innovative institutions will be created to adapt to the challenges of multi-lateral, cross-scale water governance challenges as they arise (Yellin-Dror et al., 2004; Libiszewski, 1997; Jägerskog, 2007; Farber, 2005).

Within and along side these formal structures, regional experts have had opportunities to meet together, become familiar with each other's work, work together, and develop professional and personal relationships. Of significant interest, the series of publications by Haddad and Feitelson (1995, 1997) and Feitelson and Haddad (1994, 1998) show that it is possible for university based experts to produce joint analyses. These studies are indicative of the kind of work that can be done in generating a joint knowledge base within the region. Beyond the contacts that are formalized by bilateral agreements or multilateral working groups, a multi-disciplinary network of regional water experts, with a growing shared understanding of water issues, has been cultivated by regional civil society groups. Based on surveys and

focus group meetings throughout the Dead Sea region, Lipchin (2006: 25-6) concluded that the vast majority of Israelis (95%), Palestinians (79.8%), and Jordanians (72%) favoured cooperating with their neighbours to address one major regional water issue, the continuing decline of the Dead Sea.

6) The regional response will be developed in active consultation and with the engagement of regional civil society groups

Civil society formation has followed different paths in Israel, the Palestinian Authority, and Jordan. Non-government organizations multiplied in Israel in the 1990s, addressing a wide range of social issues, including the environment. Israeli civil society organizations have consistently challenged what they consider to be unwise government policy and practices and have proposed alternatives. They have cultivated a network of experts, drawing mostly on university researchers and lawyers, and have had significant impact on several issues. Palestinian non-governmental organizations developed before the Oslo Accords, providing direct services to the population and expertise to the Palestinian national movement. They continue to contribute both direct services and expertise, with significant involvement in both the water and peacebuilding sectors (World Bank, 2006). The Jordanian government has promoted and supported non-governmental organizations (see e.g., Talal, 2004). Recent initiatives have focused on “community-based organizations” and on the study and promotion of civil society.²⁸

Throughout the region, the non-governmental sector is recognized as an increasingly important sector of society. In each society there are many NGOs with environmental interests. Civil society interest in water issues implies: 1) political planning on water will necessarily involve engagement with civil society; and 2) cultivating a regional perspective in national environmental organizations will make regional cooperation more likely. While the domain of water issues planning has historically been dominated by scientists, technical experts, and state-based institutions, civil society groups in the region continue to expand their capacity and legitimacy to inform and support the regional water issues agenda.²⁹

Three regional civil society organizations deal specifically with environmental issues, including water. The Environmental program within the Israel/Palestine Center for Research and Information (IPCRI) has

²⁸ The work of the Jordan River Foundation has been significant in this respect. See <http://www.jordanriver.jo/> and the discussion there of the Qudorat initiative.

²⁹ The expanding civil society practice of intervening in environmental framing, advocacy, and governance is discussed in Lipschutz, 2000: 17.

developed a network of contacts with water experts, civil society, and government agencies in the region.³⁰ IPCRI has organized widely based, well attended conferences on regional water issues and published papers based on conference presentations, significantly contributing to the knowledge base with a regional perspective (Twite and Isaac, 1994; Twite and Menczel, 1995, 1996; Shuval and Dweik, 2006). The Arava Institute for Environmental Studies (AIES) has particularly strong connections to environmental civil society groups in Israel and fosters a regional perspective.³¹ AIES has a particularly interesting regional and international alumni network. Friends of the Earth-Middle East (FOEME) has three coordinators – Israeli, Palestinian, and Jordanian. It fosters common water perspectives and actions, and advocates specific regional water policy initiatives (e.g., Friends of the Earth Middle East, 2005). All three organizations have an active interest in research and policy on regional water issues. They have made a highly significant joint cumulative contribution to the literature on water in the region and the debates about policy.

7) The regional response will involve the engagement of local communities, through community-based organizations, grassroots civil society groups, municipal bodies, subnational political associations, and others.

In Jordan, water planning is highly centralized and guided by expert opinion. In Israel, while centralized in the water commissioner's office, water planning is conducted in consultation with the main sectors invested in prioritizing water allocation. The Palestinian water authority is struggling to juggle the various internal pressures for an increased share of relatively meager resources. Throughout the region, there is little broad-based community-level engagement in water management and water development processes.

Local communities have valuable knowledge but they are often marginalized when national or regional political processes are at play, as in the case of water development. Yet, the magnitude of social, economic, and cultural implications of such development for local communities cannot be under-estimated. For example, crop shifting would have significant implications for the people and communities of the Jordan Valley. Slowly recognizing such implications, the Jordanian Ministry of Water and Irrigation has developed Jordan's water strategy to guide water development until 2020. The Ministry "calls for the introduction and enhancement of the participation of stakeholders, and calls for the legislation for their involvement wherever necessary" (Talozi, 2007: 95).

³⁰ See www.ipcri.org

What is planned from above, by experts, policy-makers, international development experts, and even unrepresentative civil society organizations, cannot be assumed to match local community desires or capabilities. Local communities need to be involved in a process that both acknowledges their cultures, respects their identities, and brings to light their values, beliefs, assumptions, and priorities (Lipchin, 2006: 2-3). Thus, an elaborate process of engagement must be designed and implemented which elicits their insights, informs the process of development, and improves the likelihood of its successful implementation (WMIA 2002-2003). Otherwise, energies invested in drafting extensive plans may be for naught.

TOWARDS AN EFFECTIVE AND ADAPTIVE REGIONAL RESPONSE

Based on the elements of a regional response outlined above, it is possible to identify next steps in responding to the regional water challenge.

Acknowledging what there is to build on

The first step is recognizing the importance of what has already been done. An effective, integrated regional response to the challenge of water can build on a substantial foundation. A considerable number of scientific and planning studies have already been produced. The Haddad/Feitelson volumes model transboundary joint analyses. Within the region and internationally, there are continuing research projects and a flow of new publications. The bibliography at the end of this document lists many studies. The websites of Friends of the Earth Middle East, the World Bank MENA region water network, and IDRC's WaDiMENA are portals to many studies. IPCRI has brought together experts on regional water; papers from its conferences have been available through its website and are now in book form (Shuval and Dweik, 2007). The Arava Institute research projects and conferences on regional water management and on the Dead Sea specifically, sponsored variously by the NATO Science for Peace Program and the European Union, have contributed new insights and fostered continuing regional contacts (Lipchin et al., 2006).

Building on this foundation

³¹ See www.arava.org

It is possible to envisage further steps towards effective, integrated regional water policy with an agenda of knowledge consolidation, additional knowledge production (including both water and policy research), professional and public education, and popular engagement.

Knowledge consolidation

- The now considerable literature on water issues is scattered. Expert synthetic reviews of specific issues in the region (such as the water policy options listed under point 2 above) would provide a baseline for further research. This requires a series of “review of the literature” projects, which it may be advantageous to combine with new research.
- One web portal with a virtual library and links to relevant sites (e.g., World Bank MENA water, WaDiMENA, Friends of the Earth Middle East, IPCRI water page) would make it possible for the now substantial and growing number of interested people to become familiar with the issues and with each other’s work. The site would be useful to experts (regional and international), civil servants, NGOs, and interested members of the public. It is important that, unlike many web resources, the virtual library and links are regularly and professionally updated.

Additional knowledge production: water knowledge and policy studies

- Water Knowledge: Point 2 above lists the diverse range of options that could be used to respond to the regional water challenge, emphasizing the range of possible technologies. A research agenda would go beyond consolidating what is already known about these options. Further research on most of them will be needed to inform the effective development of integrated regional policy.
- In addition to the technological dimension of such studies, it will be necessary to investigate the social, cultural, economic, political, and ecological implications of the options. In so doing, new configurations of knowledge will be created, where knowledge can be understood as “a system of conceptual relationships – both scientific and social” (Lipschutz, 2000: 18). The research agenda will be challenging not only because of its breadth and complexity, but also because of the diverse, situated knowledge, which is of relevance and needs recognition and integration.
- Regional policy studies: In addition to research on options, policy studies will help with strategies of implementation. Different strategies will reflect the priorities of specific constellations of networked power.

Professional and public education

- Professional education and contacts: the paths to expertise in Middle East water issues have been variable. Professionals trained in hydrology, geology, chemistry, biology, agriculture, law, economics, political science, and miscellaneous other social and natural sciences have all been drawn into water studies. Journalists, politicians, civil servants, and civil society activists have become experts as well. Moreover, the discourses of Palestinian, Jordanian, and Israeli politics have been separate paths into water issues; and of course these discourses affect the paths that professionals have taken into regional water studies. This variety suggests a number of initiatives: 1) continued contacts between experts in the different societies of the region; 2) broadening the circle within each society of water professionals who understand water issues regionally; and 3) cultivating human capital: training and involving the next generation of water professionals.

- Continuing regional conferences, an academic journal, university research partnerships, and continuing engagement with development agencies could each promote regional professional expertise. Conferences, including involvement of graduate students, would help cultivate human capital and a broadening professional circle. A professional refereed journal (a Middle East Journal of Water Studies or, more broadly, a Middle East Journal of Environmental Studies, for instance) would inform and assist the work of the expert and policy communities. Joint university research partnerships will also consolidate the knowledge base, provide additional research, and broaden the conversation. In all of this work there are continuing opportunities for the World Bank MENA project, USAID, IDRC, GTZ, and other similar agencies, and for partnerships between Middle Eastern universities and universities outside the region.
- Public Education. Here, partnerships of experts, governments, and civil society are important. In some ways, the water community in the Middle East is in the same position as the climatologists who argued for the IPCC (Intergovernmental Panel on Climate Change) and for recognition of the enormous significance of climate change.³⁴ The experts understand (and continue to develop their knowledge about) the magnitude of the problem and the magnitude and direction of required societal responses. If the response is going to be adequate, the experts have to play a role in shaping public education and making a contribution to envisioning water sustainability (Lipchin, 2006: 27-8). Civil society groups often have the experience to shape contextual, relevant, and effective public education materials and campaigns. Finally, governments have the capacity to enable, support, and participate in the process; by creating a favourable political environment, incorporating materials into school curricula, providing financial resources for implementation, etc. Experts, governments, and civil society can each help to educate the public and involve it in the transition to water sustainability.

Popular engagement

- The engagement of local communities is a challenging, painstaking, and necessary priority. Experts in popular engagement emphasize the importance of elicitive strategies that are informed by local cultural values and political conditions (Lederach, 1995). Similarly they stress the development of priorities and practices which are not divorced from realities on the ground. Thus, a complex, multi-faceted process of engagement might include: public education as defined above, popular spaces of dialogue across the region,³⁵ a consultation on priorities, and a feedback process for sharing drafts of a vision document at various stages of development.³⁶

Throughout this piece we have brought together various lessons from the experience of working with AVOW. Our knowledge of water as a regional issue has been deepened. We have come to see how

³⁴ Interestingly, the IPCC became the co-recipients of the Nobel Peace Prize in 2007, for their research and advocacy work on climate change. This suggests that 'epistemic communities' like the IPCC make a significant contribution to shaping the public agenda.

³⁵ The University of the Streets Café Program (<http://instdev.concordia.ca/ourprograms/universityofthestreetscafe/>) and the Public Conversation Project (<http://www.publicconversations.org/pcp/index.php>) are particularly relevant here.

³⁶ The work and resources of the Canadian Policy Research Networks is particularly helpful for the design of complex, multisectoral engagement processes. <http://www.cprn.org/> In particular, see Amanda Sheedy et. al.

AVOW develops earlier efforts to promote regional water policy by advocating coordination of a broad range of possible actions in a collaborative, inclusive project.

In the present context, promoting a regional water policy involves weaving together and putting into perspective state policies, international treaty obligations, growing international and regional water expertise, civil society activism and community engagement, international aid agencies, and a diverse range of possible actions. Deciding on policies in a timely manner involves consolidating what has been learned from earlier policy research, producing the additional research needed, and recognizing the value of proceeding on this critical issue through public education and engagement.

The experience with AVOW has also deepened our respect for the wide network of people – political leaders, civil servants, experts, and civil society actors - who have put so much thought and care into the challenge of water in the region. Our reflections in this piece are offered as a contribution to their work.

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