

# CHANGING THE NATURE OF TRANSBOUNDARY WATER AGREEMENTS: THE ISRAELI-PALESTINIAN CASE

by  
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*Revised after response to reviewer comments*  
**06 April 2015**

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## **Abstract:**

This abridged version of the Proposal for a water agreement between Israel and Palestine was originally developed for Friends of the Earth Middle East, which is now known as EcoPeace Middle East. It presents the design for an agreement between Israelis and Palestinians to share water in a physically realistic, ecologically sustainable and socially equitable manner. Existing arrangements are, at best, inadequate and, in some cases, counterproductive. The Proposal relies upon ongoing monitoring and mediation to achieve equitable and sustainable use. It presents why and how an agreement on water can be reached now, before resolving the full range of issues required in a Final Status Agreement between Israel and Palestine.

**Keywords:** Israel, Palestine, Transboundary water, International Water Agreements, Water Governance

## **Preliminary Notes:**

1. An earlier version of this paper appeared in *Water International* in 2013 (<http://dx.doi.org/10.1080/02508060.2013.810038>).
2. The work underlying this paper and its original publication were supported by Friends of the Earth Middle East (FoEME), and the full draft agreement was originally referred to as *The FoEME Proposal*. The organization has now severed its links with Friends of the Earth International, and has reverted to its earlier name of EcoPeace Middle East. Accordingly the draft agreement is now called the *EcoPeace Proposal*.

Treaties and institutional arrangements cannot remain static. Factors like water requirements, use patterns and efficiency of management change with time, as do water management paradigms, practices and processes. . . . It may not be an easy task to formulate dynamic treaties, but one that must be considered very seriously in the coming years.

Varis, Biswas and Tortajada, 2008, xi

Although resolution of issues related to fresh water shared by Israel and Palestine will not alone bring about peace between the two peoples, in the absence of a just resolution of water issues, no peace can be complete. Further, in the absence of sustainable use of water by both peoples, overall social and economic development will be threatened, and so too will stability and peace for the region.

This document is an abridgment of a much longer one (Brooks and Trottier 2012) that was prepared for EcoPeace Middle East (at the time FoEME) and that, in its longer form, is called the EcoPeace Proposal. These documents show how a sustainable, equitable, and efficient water agreement can be created for sharing water between Israel and Palestine, and, further, why such an agreement can be reached right now, in advance of agreement on other "final status" issues. The first version of the EcoPeace Proposal (Brooks and Trottier 2010a) was launched in November 2010 at a workshop attended by 250 people in East Jerusalem. The revised version (Brooks and Trottier 2012) responds to both positive and negative comments received at the workshop, and incorporates additional research to define the failings of the existing water arrangements and demonstrate how the EcoPeace Proposal would avoid or correct those failings.

Underlying the EcoPeace Proposal is an assumption that, sooner rather than later, the land lying between the Jordan River on the east and the Mediterranean Sea on the West will be divided between two sovereign states, Israel and Palestine. For that reason, we refer, perhaps prematurely, to Israel and Palestine. If the reader prefers to substitute the Palestinian Authority (PA) or the West Bank, as appropriate, it will not affect the conclusions of this document.

## **INTRODUCTION**

The bodies of water that are essential to both Israel and Palestine are so interconnected that any simple division of them into *our water* and *your water* is impossible. Some agreement for joint management of the shared water is essential. As shown below, equity and stability both require an approach that steps away from treating water mainly from technical and economic perspectives — what Linton (2010) calls "modern water"— and begins to look at water from social and political perspectives. Water policy must, of course, recognize hydrological and other physical limitations, but those limitations are insufficient to indicate how water is, and could be, used to satisfy changing human needs and desires. This document responds to that shortcoming with its proposal for a water sharing agreement for Israel and Palestine, one that not only provides for equity and sustainability but also recognizes the context of 65 years of conflict. It also

responds to numerous critiques of Israeli water dominance in the region, as described by recent articles (Selby 2013; Zeitoun et al. 2013).

If our work can lead to an agreement on water between Israel and Palestine, it will join a long list of other water agreements around the world. Contrary to a commonly held impression, history demonstrates that riparian states around the world prefer to cooperate over trans-boundary water bodies rather than fight over them (Wolf 1998, 2007; Gleick 2000b; Kliot et al. 2001; Jägerskog 2003; Katz 2011a; Wouters 2013). Further, as Weinthal and his colleagues note (2011, 149), joint water resource management has “a singularly important role to play both in facilitating the rebuilding of trust following conflict and in preventing a return to conflict.”

The next section of this abridged version of the EcoPeace Proposal provides a brief discussion of water quantity and quality issues in Israel and Palestine; it also identifies which bodies of water in that region are shared and therefore require some form of joint management. The third and fourth sections review, respectively, the failures of existing water arrangements as they emerged from the Oslo agreements and the shortcomings of existing approaches to shared water management. The fifth section identifies key considerations for shared water management in Israel and Palestine, describes institutions that can implement an approach based on those considerations, and presents the main criticisms that have been made about the EcoPeace Proposal as well as our responses to those criticisms. The final section focuses on moving water from last to first in the peace process.

## **WATER SOURCES AND WATER USES — NOW AND IN THE FUTURE**

Fresh water supplies are limited throughout the Middle East and North Africa (MENA), and in almost every country they are being depleted and degraded. Water withdrawals in Israel/Palestine are roughly 15 per cent higher than the average annual rate of recharge. (See Table 1.) Indeed, the overdraft is likely larger than 15 per cent, because estimates of renewable supply typically ignore the large volume of water that needs to be left in situ to provide “environmental services” that support ecosystems, provide for fisheries, flush away wastes, etc. (Gafny et al. 2010; Katz 2011b; Safrieli 2011). To make the situation worse, it is likely that climate change will lead to lower rainfall, prolonged droughts, and heavier storms in the whole belt south and east of the Mediterranean Sea. Two recent scenario analyses (Chenoweth 2011; Feitelson, Tamimi et al. 2011) find that, outside the Gaza Strip and provided that population growth is restrained, water resources in Israel and Palestine could be adequate to permit social and economic development. However, neither analysis is optimistic reducing withdrawals sufficiently to provide ecosystem services.

*TABLE 1 ABOUT HERE*

### ***What water is shared and what is not***

Any agreement for joint management of water must be clear about exactly which bodies of water are shared. Those that are shared will be subject to any Israeli-Palestinian

water agreement for joint management; those that are not shared will be managed independently by one or the other of the two governments.

The main water bodies west of the Jordan River are shown in Figure 1. All of the dozen cross-border streams that flow to the Mediterranean are shared water, as are the three that flow to the Dead Sea or the Jordan River. The Western and Northern basins of the Mountain Aquifer are also shared water, but the Eastern Basin is deemed Palestinian, even though a few of its springs emerge in Israel. The Coastal Aquifer is not shared, according to most hydrological analyses, because it is made up of a series of largely disconnected permeable lenses of sandstone with only limited lateral movement between them. In summary, roughly two-thirds of fresh water resources can be considered as "shared water."

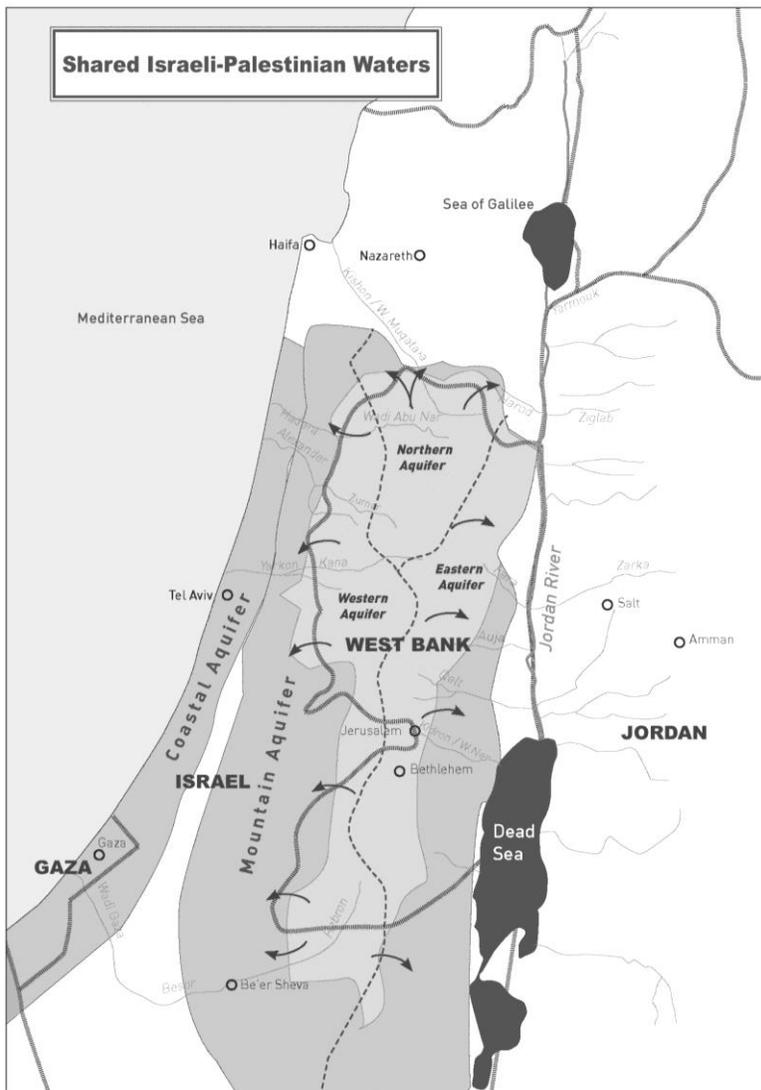


Figure 1. Generalized map of shared waters of Israel, Palestine and Jordan (Source: adapted by the authors from EcoPeace)

Special rules are needed for sharing the Jordan River because the Israel-Jordan Peace Treaty ignores Palestinian water rights. There is little interest in re-opening that Treaty, but fortunately it does “work” in a physical sense because the depth of the rift valley, including the Dead Sea, provides a barrier against east-west hydrological connections between Jordan on the east and Israel and Palestine on the west. We recognize that Jordan is one of the most water-stressed states on earth (Scott et al. 2003; Alkhaddar 2005). Therefore, its allocation cannot be reduced, and the Treaty’s allocation to Israel alone should be treated as if it were apportioned jointly to Israel and Palestine.

***Water quantity: exceeding sustainable limits***

Until recently, Israel was pushing to, and often beyond, the limits of the sustainable water resources available to it.<sup>1</sup> Although desalination has provided some relief from concerns for drinking water supplies, it comes with a high dollar and energy cost, as well as new environmental problems. Ironically, desalinated water is too pure for irrigation, which remains, by far, the largest use of water throughout MENA, even in Israel where agriculture is a minor element in the economy. Palestinians, too, push against and exceed the limits of sustainable water resources, particularly in the Gaza Strip (Nasser 2003; Klawitter 2007). However, in contrast to Israel, agriculture remains an important part of the Palestinian economy.

Though the largest deficits in supply involve agriculture, some Palestinians, particularly in the Gaza Strip, but also in scattered areas of the West Bank (such as Jenin and Hebron), do not have access to necessary minimum quantities or qualities of fresh water (Hadi 2003; Zeitoun 2008; Tagar and J-D E., 2008), generally set as about 100 litres per person-day. In contrast, all Israelis, with the exception of some Bedouin villages, are adequately supplied with fresh water for household use.

***Water quality: declining everywhere, and rapidly***

Declining water quality is a major problem throughout the region. Much of Palestinian household and industrial waste water, as well as some from Israeli sources, is released without treatment into the environment. Heavy run-off containing fertilizers and pesticides is common from fields across the region. Less than one-third of the West Bank’s Palestinian population has sewage systems connected to wastewater treatment plants; the remainder of the population relies on septic tanks and cesspits, which are commonly poorly maintained (Al-Sa’ed 2010).

Israeli settlements in the West Bank produce nearly 18 MCM of waste water per year, of which one-third is untreated or inadequately treated. Jerusalem has a modern wastewater treatment plant for the western part of the city, but more than 11 MCM of waste water from the eastern portion and from Palestinian suburbs flow untreated into the West Bank. In addition, the West Bank is dotted with hundreds of illegal solid waste dump sites producing leachate that further contaminates ground water. As a result, nearly all the streams that rise in the West Bank and flow into Israel are badly polluted (Asaf et al. 2009).

Though generally maintaining good water quality, all three basins of the Mountain Aquifer are increasingly threatened by seepage from solid waste dumps and from sewage channels (Tagar et al. 2005; Tagar and Qumsieh 2006; Tagar, and J-D E. 2008). Water quality in the lower Jordan River was once good, but nearly all the good quality springs have now been diverted for local uses, and the river is seriously degraded by sewage, saline springs, and runoff from agricultural fields (FoEME 2010).

For many years, the relatively shallow Coastal Aquifer has been subject to pollution from runoff of agricultural chemicals, seepage from fish ponds, and seawater infiltration that results from pumping at rates greater than recharge. About 15 per cent of the water pumped from the Coastal Aquifer does not meet drinking water standards for chloride and nitrate concentrations. The situation is even worse for those portions of the Coastal Aquifer that underlie the Gaza Strip (Bruins et al. 1991; Shomar 2006).

## **FAILURES OF THE EXISTING OSLO ARRANGEMENTS**

The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, known as Oslo II, was the first to be explicit about “Palestinian water rights in the West Bank” (1995, Annex III, Appendix I), but did not define them. Oslo II did establish a framework for the management of shared water resources via Article 40. Key provisions of Article 40 pertain to the establishment of a Joint Water Committee (JWC) and a Palestinian Water Authority (PWA); allocation of water between Israel and Palestine, with focus on the Mountain Aquifer; and mutual obligations to treat or reuse waste water.

Though they represent an advance compared with earlier condition, the Oslo agreements on water fall short of those put forward in the 1997 United Nations Watercourses Convention ([www.unwatercoursesconvention.org/](http://www.unwatercoursesconvention.org/)), which has now come into force, and which gives priority to Reasonable Use, Cooperation, and Non-significant Harm as the three basic elements to any form of transboundary agreement.

To compound the problem, Oslo II was intended to be an *interim* agreement governing relations between the parties during a transitional period of not more than five years beginning in May 1994. Though the termination date is long past, both Israel and the PA continue to operate as if the water portions of the agreement were in force.

### ***Disputes about the extent of failures and responsibility for them***

With the passage of time, the limitations of Article 40 have become increasingly clear. Three major areas of dispute are indications of systemic failure:

- The first dispute is about whether the Palestinian population in the West Bank has adequate water supply. Israel claims that it has fulfilled its obligations under Article 40 and that the Palestinians have sufficient access to water (Gvirtzman 2012). Israel blames Palestinian under-exploitation of the Eastern Basin of the Mountain Aquifer on administrative problems in the PA, and adds that the Palestinians could increase their water supplies by treating sewage for reuse, as

Israel does. Palestinian analysts retort that Israel obstructs development of Palestinian water infrastructure.

The World Bank puts responsibility on both sides. It notes that little more than half of what Oslo II documents designated as "immediate needs" for the West Bank has been satisfied, and goes on to blame the current situation on constraints "stemming from Israeli occupation, weakness in Palestinian planning and technical services, and lack of donor support or poorly articulated donor coordination" (2009, 35, 38).

- The second dispute is about whether the Palestinians do enough sewage treatment on the West Bank to prevent polluted water from flowing into Israel. Israel claims that the JWC approves treatment projects, but that the Palestinians do not follow through. The World Bank did identify gaps in Palestinian institutions as one cause of delay, but also blamed the long bureaucratic approval process for water and sanitation projects, which can take up to three years (World Bank 2009, 54, 58). As a result of the delays and uncertainty, donors have become hesitant to commit funding (Schalimtzek and Fischhendler 2009).
- The third dispute is about the extent of over-extraction from shared water sources. One of the main aims of the 1995 water agreement was to use "the water resources in a manner which will ensure sustainable use in the future, in quantity and quality" (Art. 40(3)c). Article 40 aimed to accomplish this by estimating the shared Mountain Aquifer's potential and then setting an annual baseline withdrawal rate as 483 MCM for Israel and 182 MCM for Palestine. Instead, the period since 1995 has been marked by regular Israeli over-extraction in the Western Basin of the Mountain Aquifer, in violation of Oslo II (World Bank 2009, 12). Israel has evaded its quota by drilling from inside the Green Line, where the JWC has no mandate.

### ***Bureaucratic obstacles to progress***

The structure of the JWC lies at the heart of the foregoing problems. At the outset, Article 40 established the JWC "to deal with all water and sewage related issues in the West Bank" (Annex III, Art. 40 ¶ 12). This wording excludes the Palestinians from shared management of those parts of the Mountain Aquifer that extend into Israel (Selby 2013). It also excludes Palestinian agencies from any role with respect to the Jordan River. Further, Oslo II mandates the JWC to serve as a vehicle for cooperation through data sharing, joint fact finding, and the resolution of water-related disputes, but does not indicate procedures for achieving these aims. During and after the second intifada, when most of the other joint bodies established by Oslo II disappeared, the JWC admirably continued to meet, but the frequency of its meetings fell to just a few times a year (World Bank 2009).

Further, the JWC is not the only organization with jurisdiction over infrastructure and resource development in the West Bank. The Israeli Civil Administration (CA)<sup>2</sup> also plays a role, and reinforces the asymmetry of power in decisions about water

infrastructure. According to the World Bank (2009, 54), the CA "is seen by donors as a major constraint. One donor commented: 'First thing we request is a letter from PWA approving the project. Then we go to the JWC. But then we have to go to the CA — and there delays of two or three years are normal.'" For Palestinians, the costs in time and money of seeking CA approval for water infrastructure projects *after* they have already received approval from the JWC deter many from "playing the game." Instead, they drill "pirate" wells, dig cisterns, and lay pipes, many of which are subsequently demolished by the CA. No less critically, the process envisioned by Oslo II has failed to build trust between Israel and Palestine.

## **DEFICIENCIES OF CONVENTIONAL APPROACHES TO TRANSBOUNDARY WATER MANAGEMENT**

Most transboundary agreements treat water as if it were a pie to be divided among the riparian states. This traditional quantitative allocation approach is currently reflected in proposals put forward by both the Israeli and the Palestinian negotiating teams (Lautze et al. 2005; Lautze and Kirshen 2009). However, though quantitative approaches to sharing water can resolve some short-term issues, they have three long-term defects — securitization, rigidity, and ecological fiction.

- An issue becomes "securitized" when it is portrayed as an essential component of national security. It then leaves the realm of what is negotiable and can be the subject of compromise (Trottier 1999; Zeitoun 2007; Trottier 2008). Once quantitative allocations have been fixed or asserted, changing them is perceived as a threat to national security.
- Quantification also leads to rigidity. As a result of climate change, renewable water resources are likely to decrease in the Middle East, with particularly severe effects on agriculture (Freimuth et al. 2007; FAO 2008; Sowers and Weinthal 2010). Quantitative allocations that are possible today may be impossible in a few years simply because of climate change. Further, demographic change and economic development will affect demand for water in unforeseeable ways.
- Fixed allocations also incorporate the ecological fiction that water can be treated as unchanging in space and time. In fact, water is used over and over again between the time it falls as precipitation and the time it evaporates back into the atmosphere or "disappears" into the sea or a deep aquifer. With each use, it comes under the management of a different institution, which can range from an informal group of a few Palestinian farmers to the centralized organization of Mekorot, the Israeli national water company. All these institutions need to be involved in implementing any agreement on sharing water. Otherwise, the agreement will fail to regulate effectively human interaction with the mobile resource that is water.

## **DESIGNING A NEW WATER FUTURE FOR ISRAELIS AND PALESTINIANS**

Joint management of water is never easy, but it is particularly difficult for Israelis and Palestinians because such a high proportion of their water resources are hydro-geologically interconnected and because they have experienced so many years of conflict. They have also experienced different rates and patterns of economic development. Particularly since 1967, Israel's gross domestic product per capita has greatly exceeded that of the West Bank and Gaza Strip. As one result, per capita water use in Israel is now significantly higher than in Palestine.

At the same time, Palestinians continue to depend much more on agriculture than do Israelis, both in terms of local livelihood and as a share of GDP. Hence, the value of additional water is significantly greater to Palestinian farms than to Israeli farms (Lonergan and Brooks 1995). As farming technology improves and the economy diversifies, the total amount of water used for agriculture in Palestine can be expected to decline. Such a decline should be seen as an indication of progress. Only a few MENA nations now derive even one-fifth of their GDP from agriculture; those that do are among the poorest in the region (Beaumont 2002).

Israel has had a highly centralized, command-and-control water management system at least since 1959, when it passed its Law on Water, which effectively nationalized all its water. The Oslo agreements and the ensuing Palestinian Water Law created the PWA as a regulatory body entrusted with implementing the provisions of the agreement concerning water (Trottier 1999, 2007). Meanwhile, over 70 per cent of the water actually used by Palestinians was, and mostly still is, managed by local community- or farmer-based institutions. In effect, and with the support of some Palestinian officials, the Oslo agreements attempted to project Israeli-like water institutions onto the Palestinians (World Bank 2009). Few Palestinians even knew about this component of the agreements, and they continue to abide by the existing grassroots institutions, which they perceive as effective and fair (Trottier 1999; 2008).

Further, joint management of water shared by Israelis and Palestinians must accommodate the bio-physical characteristics of lives and activities in a semi-arid region of the globe. Sharp seasonal and spatial variations in rainfall are common in MENA. However, what really bedevils water planning and management in semi-arid areas is year to year variation (Rogers and Lydon 1994). Israel and Palestine are subject to frequent droughts, periodic "good" years of above-average rainfall, and occasional intense storms and flooding. The result is that planning and management must focus on extremes and risk minimization, not on averages and maximum utilization.

## **A NEW APPROACH TO SHARING WATER**

The essence of the EcoPeace Proposal is the use of continuous monitoring and ongoing mediation as the main management tools to achieve equity, efficiency and sustainability. These tools provide the basis for decisions to adjust withdrawals from

each well or reservoir, or to modify use of water from a spring; they also encourage interaction between state and non-state actors. For example, ongoing mediation means that rulings or regulations can be appealed by any actor involved, whether scientist, officer of a non-governmental organization, or member of an institution that manages water. Social and economic developments over time can be accommodated and can be integrated with geologic, hydraulic, and engineering constraints.

Israelis and Palestinians are mutually interdependent riparians. They must have the right to access and use water from the shared supplies. They must also accept the parallel responsibility to maintain the quality and quantity of flow in all shared water sources, within the limits set (and perhaps changed) by natural conditions. Equality in all rights and responsibilities does not mean that each party can expect to receive an equal volume of water. It does mean that each party will have equal standing within each of the institutions for joint management of shared water bodies.

Finally, in order to stay within sustainable limits of their water resources, the main focus of water management for both Israelis and Palestinians must shift from supply management to demand management (Brooks 2006; Tal 2006),<sup>3</sup> something that is rare throughout MENA (Brooks et al. 2007). Water managers must spend at least as much effort finding ways to reduce demand for water as they now spend finding new sources of supply.

***New Institutions for Israel and Palestine: The Heart of the EcoPeace Proposal***

Figure 2 shows the key elements of the institutional structure for implementation of the EcoPeace Proposal; Figure 3 shows the flows of activities and information among them.

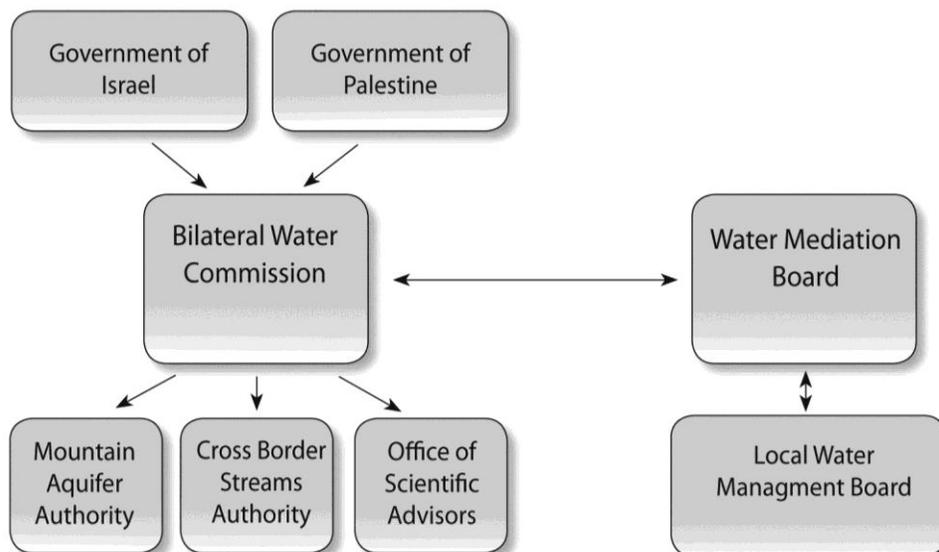


Figure 2. Organization chart for institutions in the EcoPeace Proposal (Source: the authors)

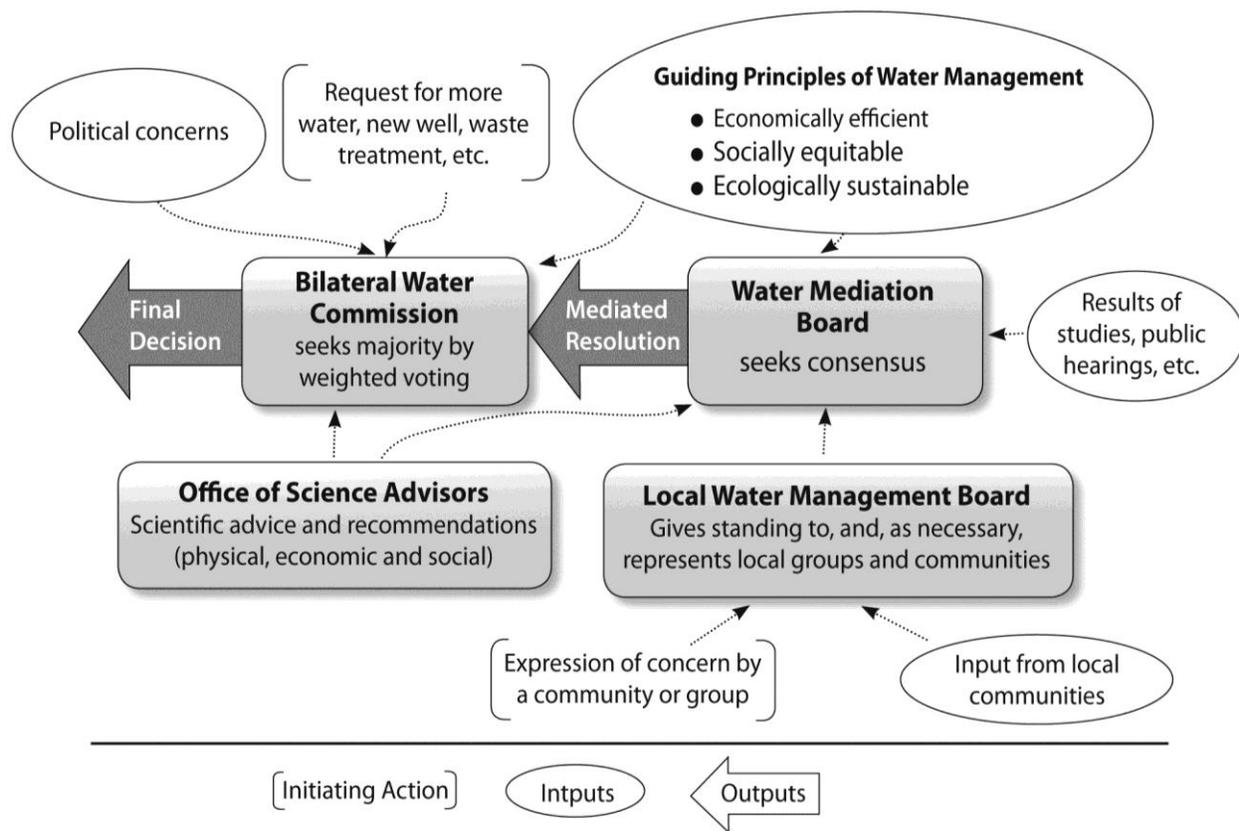


Figure 3. Flow chart of activities and decisions in the EcoPeace Proposal (Source: the authors)

Two senior bodies guide the decision-making process: a Bilateral Water Commission (BWC) and a Water Mediation Board (WMB). Each of these is composed of an equal number of Israeli and Palestinian representatives plus one member from outside the region, agreed to by both sides. If voting is necessary, the rules require majority (but not unanimous) support from each side, so that neither side can dominate the other.

The BWC replaces today's JWC and eliminates the need for any further approvals by the CA. It will have responsibility for all shared water (not just Palestinian water, as with today's JWC). The BWC makes key decisions on rates of extraction and delivery of water and on the removal and treatment of waste water. Its decisions are based on advice from a subsidiary body, the Office of Science Advisors, made up of staff appointed or seconded by the two governments. Should the BWC find itself unable to accept a recommendation of the Science Advisors, or should any group or community wish to oppose a decision, the WMB can take action. The WMB has a wide range of tools for resolving issues, ranging from scientific investigations to public forums. The WMB also receives advice from another subsidiary body, the Local Water Management Board, which represents local bodies in actions before the WMB. This back-and-forth

process continues until the BWC receives a recommendation that it can accept. An in-depth discussion of the manner by which the WMB will promote better integration of science and democracy appears elsewhere (Trottier and Brooks 2013). It is conceived more broadly than but does resemble the fact finding commission suggested in the 1997 UN Watercourses Convention.

It will be important for the BWC to encourage political alliances across sectoral as well as national lines. Israeli and Palestinian farmers may be glad to cooperate on allocation issues, while most environmental groups will agree on the desirability of increased water prices for consumption above basic needs. It will be much more difficult to get farmers to agree with environmentalists, as they see very different futures for many hectares of land and many cubic metres of water.

### ***Criticisms and Responses***

The EcoPeace Proposal is based on recognition that any concept of sovereignty in water resources is fundamentally flawed. States cannot have sovereignty, at least not as that term is generally understood, over a resource that moves across or under state borders, and from surface to underground water bodies or vice versa, and from one physical state to another. Even though the hydrological cycle is widely understood, its implications for water management are not—and from that gap arise many of the disagreements about the Proposal, as indicated in this section.

Perhaps the most common criticism of the EcoPeace Proposal is that it is not fully formed. Although we agree that further work is needed to convert the concepts and the institutions outlined above into real processes and real agencies, most of these have been tried elsewhere. Only the WMB introduces more than a modest amount of innovation. From a practical perspective, the criticism can be partly answered by suggesting a staged approach to implementation of the EcoPeace Proposal. An Israeli-Palestinian team has carried out considerable study of a joint management scheme for the Mountain Aquifer (Feitelson and Haddad 1998; 2000), and it might be appropriate to build that agency before moving to implement the full binational structure. Al-Sa'ed (2010) argues for a similar step-by-step proposal for wastewater treatment.

Another criticism claims that the Proposal requires reductions in Israeli withdrawals of water that would be “quite unprecedented” (Lautze and Kirshen 2009, 201). It is true that nations have seldom voluntarily reduced their withdrawals after establishing “prior use” of that water. However, much of the Israeli increase in water use since 1967 comes from Palestinian sources under conditions of occupation. (This statement does not apply to desalinated water and most reclaimed waste water, as the plants are located in pre-1967 Israel.) If the Israelis do have to give up some quantity of water, they can expect in return to have a much better quality of water flowing to them across the border. The burden of any cutbacks in water use would almost surely fall mainly on the agricultural sector (Lonergan and Brooks 1995; Lithwick 2000; Jagerskog 2003; Lautze and Kirshen 2009), which, as noted above, is a diminishing part of the Israeli

economy. Israel has a sophisticated economy that can accommodate the ensuing trade-offs and, if necessary, provide temporary subsidies to adversely affected farmers.

Professor Hillel Shuval (2011) argues that the EcoPeace Proposal takes reallocation of the shared resources out of the hands of the two national governments and, in effect, deprives both Israel and Palestine of elements of sovereignty. Although Professor Shuval's arguments may be literally true, they imply that Israel and Palestine can each "have its cake and eat it too." It is just not possible to make an agreement about joint management of internationally shared water without surrendering some degree of national sovereignty. We agree that reallocation of water is a sensitive political and legal issue, but the very concept of joint management becomes meaningless if it starts from a premise that all existing laws must remain in place.

## **MOVING WATER FROM LAST TO FIRST IN THE PEACE PROCESS**

Since the start of the Oslo process in 1993, solving the water issue has been held hostage to lack of progress on the other core issues of the peace process. The stalemate is remarkable, given that almost all analysts agree that water issues are solvable and will result in the Palestinians receiving a larger proportion of shared Israeli-Palestinian water (Hadi 2003; Shuval 2007; Shuval and Dweik 2007).

Certainly, resolving water issues at this time should be less contentious than doing so as part of a final status agreement that must also deal with final borders, refugees, Jewish settlements, and the status of Jerusalem. At the local level, EcoPeace's 15 years of experience with water cooperation between Jordan Valley communities on opposite sides of a border has yielded notable examples of confidence building. Its Good Water Neighbors Project demonstrates that the more frequent and intensive the cooperation, the greater the mutual understanding — and the greater the understanding, the more acceptable the results (Sagive et al. 2012).

Further, as indicated by many studies, internationally shared water has more often been a stimulus to cooperation than a source of conflict. Aaron Wolf (1999; 2010) reports that most international negotiations over water during the past century have proceeded on the basis of each side recognizing the "needs" of the other side(s), rather than on a priori principles or rights. Equally important is the pattern in transboundary water agreements for some concept of fairness to take precedence over economic efficiency (Syme et al. 1999; Wolf 2000; Blomquist and Ingram 2003).

But, even if EcoPeace has developed an attractive proposal, why should the Israeli government want to consider it? And why now, when Israel holds almost all the trump cards? Fortunately, there are good ecological, economic, and political reasons for the Israeli government to listen now.

Regardless of where the border is eventually drawn, ecosystems in both Israel and Palestine are suffering from inadequate attention to water quality in both surface and

ground water. Study after study has shown that the costs of avoiding ecological losses are small compared with those of restoring them afterwards. For example, Israel will need to spend less money on interim measures to stem the flow of untreated waste water flowing across the border if an agreement on sharing fresh water leads to greater donor support for Palestinian investments in sewage treatment at source. Even the Jordan River, which today carries little more than untreated and inadequately treated sewage, might be restored to ecological health by returning some fresh water to its course, with follow-on benefits from religious visits and tourism (Gafny et al. 2010; Baltutis 2011; Hylton et al. 2012; Safier et al. 2011).

The Palestinian economy and, especially, Palestinian agriculture, have been constrained since the 1967 war by limited access to fresh water (Lonergan and Brooks 1995; Alatout 2000; Hadi 2003; Zeitoun 2007; Baltutis 2011). According to a recent World Bank report (2009), over 110,000 jobs could be created if more water could be provided to the Palestinian agricultural sector. Economic benefits would flow to the Israeli economy from transportation, processing, and export of Palestinian agricultural products. Secondary benefits can be expected to accrue when Palestinians spend some of the added income in Israel.

Shared political gains are evident from the many places where cooperation with water has helped to resolve conflicts between nations. To select one example, Jordan's former Minister of Water and Irrigation, Munther Haddadin, has written about the mutual benefits resulting from the Israel-Jordan Peace Treaty's water accord (2011, 184-85).

The main lesson learned during and after the conflict is that water can promote cooperation between adversaries as well as between allies. . . . [Israel and Jordan] realize that conflict would not bring about more water for them but would create a zero-sum game. Conversely, cooperation can yield a positive result from which all parties can benefit.

EcoPeace has long maintained that water issues *need not* wait. We now assert that they *cannot* wait and that they *should not* wait. They cannot wait because under the existing situation neither side is making the best use of its aquatic resources, with adverse results that range from economically costly to ecologically destructive. They should not wait because an agreement to share water peacefully will be a model to show that agreements can be reached between Israelis and Palestinians. Though looking toward a Final Status Agreement, the EcoPeace Proposal is designed in a way that allows it to be adopted prior to that Agreement. Only minor adjustments would be required when final borders are established.

When Israel passed its 1959 Law on Water, many people maintained that it had created the world's first modern water law. If Israeli and Palestinian negotiators adopt the EcoPeace Proposal for joint management of shared water, we believe they will have created the world's first post-modern water agreement. Though specifically applied to water shared by Israelis and Palestinians, the general goals, the emphasis on ongoing monitoring and mediation, and the type of institutional structure are relevant to any place in the world where transboundary water divides rather than unites two or more peoples.

## **ACKNOWLEDGMENTS**

The authors are grateful to the staffs of Ecopeace in Tel Aviv and in Bethlehem for help in the preparation of this article.

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Table 1. Water withdrawals in Israel and Palestine (MCM\*/year) in about 2005

Water Source	Israel	Palestine	Total Withdrawn	Average Annual Recharge **
Jordan River Basin	700	0	700	565
Mountain Aquifer	485	115	600	550-620
<i>Western Basin</i>	340	62	402	320-360 [12%]***
<i>Northern Basin</i>	105	30	135	131-144 [10%]
<i>Eastern Basin</i>	40 (in settlements)	23	63	95-110 [28%]
Coastal Aquifer	430	125	555	330
<i>Israel</i>	420	5	425	250-270
<i>Gaza Strip</i>	10	120	130	60
Desalination	300		300	not applicable
Reused Waste Water	220	0	220	220
<b>Total</b>	<b>2135</b>	<b>240</b>	<b>2375</b>	<b>2300</b>

Source: modified from Lautze and Kirshen (2009), which used various sources

\* Million cubic metres

\*\* In contrast to other columns, the figures in this column are based on recent estimates of average yearly recharge or "sustainable yield." Source: FoEME personal communication.

\*\*\* Square brackets show the proportion of saline water in each basin.

<sup>1</sup> *Final Report, National Investigation Committee on the Crises in Water Management in Israel* (March, 2010), <http://elyon1.court.gov.il/heb/mayim/doc/sofi.pdf>.

See also *Israel Water Sector Master Plan to 2050*,

<http://www.water.gov.il/Hebrew/ProfessionalInfoAndData/2012/05-Israel-Water-Sector-Master-Plan-2050.pdf> (especially page 21).

<sup>2</sup> The Civil Administration is the Israeli governing body that operates in the West Bank. It was established by the government of Israel in 1981 in order to carry out practical bureaucratic functions within the territories occupied in 1967. Under the Oslo agreements, the West Bank was divided into three temporary administrative divisions until a final status agreement is signed. The areas are not contiguous, but rather determined depending on the distribution of Israeli settler and Palestinian populations as well as on Israel's military requirements. Although some powers have been devolved to the PA in Areas A and B, the CA remains the ultimate authority throughout the West Bank.

<sup>3</sup> See also the *Final Report of the National Investigation Committee on the Crises in Water Management in Israel* (March, 2010), <http://elyon1.court.gov.il/heb/mayim/doc/sofi.pdf> and the Green NGO Alternative Master Plan (2011), <http://www.teva.org.il/?CategoryID=869&ArticleID=5084>.