Core Issues of the Palestinian-Israeli Water Dispute

Prepared by Jad Isaac

Applied Research Institute - Jerusalem (ARIJ)

Table of Contents

Israel controls the greater part of the Jordan River basin and the West Bank's aquifers. Palestinian consumption is severely restricted by the military authorities, causing serious water deficiencies in most Palestinian homes. Questions of rights to water resources have thus far been insufficiently addressed in both the multilateral negotiating fora and the Israeli-Palestinian bilateral agreements, the DOP and Cairo Agreement. Yet any attempt to bypass the allocation dispute will lead, at best, to an unstable final settlement. This paper outlines a set of much-needed measures. Firstly, Israel should instigate a number of confidence building measures: a recognition of Palestinian water rights, and an increase in water supply to Gaza and the West Bank. Secondly, Israel and Palestine should adopt a Water Charter: this could act as a springboard for the agreement of an integrated water program in which allocation, conservation, enhancement and quality are considered as a totality.

Introduction

Much has recently been written on the subject of the Middle East water crisis, a great deal of it highly apocalyptic in tone. Clearly, water is a highly politicized issue in the Middle East, and the many alarm bells are ringing because of this inseparability of water and politics. Water is a key area of dispute: nevertheless many claims concerning the water crisis are hyperbolic and misleading. A recently published book, *Water Wars:*

Coming Conflicts in the Middle East, portraying Saddam Hussein and Colonel Qaddafi on the cover, proclaims that water, not oil, is the chief threat to regional peace (Bulloch and Darwish 1993); and Meir Ben-Meir, formerly Director General of Israel's Ministry of Agriculture, predicts that "the next war in the Middle East will be struggled over water" (quoted in Lindholm 1992). Such claims are unconstructive hydrofictions. Yes, water is a critical area of dispute in the Arab-Israeli conflict; but given the current climate of peacemaking, and given the general war-weariness among states and populations, such predictions are excitable pieces of subjectivism. A little more calm objectivity is needed. It is essential both that we deal with the correct facts and that we prioritize the appropriate issues.

Much of the subject is shrouded in a fog of misinformation. Erroneous data and misleading claims often lead to mistaken understandings of the conflict's roots. In such instances, factual errors serve to suggest that all parties (Israelis, Palestinians and Jordanians) suffer from a general shortage of water affecting the region. In reality, the water crisis is not chiefly one of insufficient supply, but of uneven and unequitable distribution. There needs to be an increased awareness that Israel and Palestine are arid areas, where water is naturally a scarce resource, and where water consumption should be appropriate to these facts of nature. While supply enhancement may become salient at some future point, allocation of existing supply is the issue that should be prioritized.

It is upon the issue of water maldistribution that this paper will therefore focus. While some consideration will be paid to water supply and consumption in the Middle East as a whole, the emphasis will be upon the Palestinian-Israeli dispute, which is perceived to be the central element in the conflict. Palestine will here be defined as the West Bank, including East Jerusalem, and the Gaza Strip.

Water supply

Central to the riparian dispute between Israel and Palestine is the Jordan drainage basin, which constitutes the region's chief water resource. The headwaters of the River Jordan, located in northern Israel, the occupied Golan Heights and southern Lebanon (including Israel's self-proclaimed "security zone"), feed Lake Tiberias; Syrian and Jordanian waters (most importantly the Yarmouk River), meanwhile, and West Bank and Israeli springs feed the Jordan River below Lake Tiberias. As a whole, these elements constitute the Jordan international drainage basin, a naturally-defined area that cannot be artificially sub-sectioned. A second area of dispute is the control of aquifers which flow west from the heights of the West Bank towards the Mediterranean. Underground water resources are the most important in this second area of dispute: surface waters contribute only 30% of total supply in Israel and Palestine (Zarour and Isaac 1991). See Figure 1.

Israel presently controls the major part of both these water resources, the Jordan River basin and the westward-flowing West Bank aquifers. As a result of Israel's occupation of the Golan Heights and its control over southern Lebanon, Israel controls the headwaters of the Jordan River. Through the occupation of the West Bank, and restrictions on Palestinian access to their water resources, Israel controls both the westward-flowing

aquifers and all waters which flow eastward into the Jordan. In addition, Israel is drawing water from the Yarmouk River, and is currently vetoing Jordan's receipt of a World Bank loan for the development of a dam at Makrin, upriver of Israeli influence. By its pre-1967 borders, Israel accounts for only 3% of the Jordan basin area; yet it currently has control of the greater part of its waters. At present, Israel is drawing an annual 70-100 million cubic meters (mcm) from the Yarmouk, and is piping 1.5 mcm per day from Lake Tiberias in its National Water Carrier (Rudge 1992). Consequently, the River Jordan, which, in 1953, had an average flow of 1250 mcm per year at the Allenby Bridge (Main 1953), now records annual flows of just 152-203 mcm (Soffer 1994). Palestinians are currently utilizing less than 0.5% of the Jordan's waters.

Furthermore, Palestinians are prevented from fully utilizing the West Bank's underground

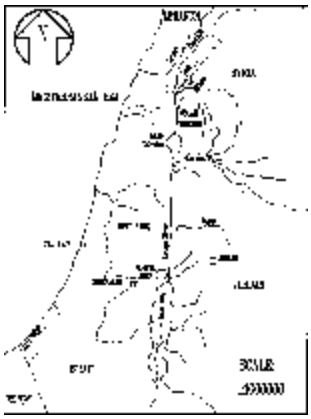

Figure 1: The Jordan International River System.

water resources. Permission for well-drilling must be obtained from the military authorities; permits have been granted for only 23 wells since 1967, only three of these being for agricultural use (The Water Commission 1993). Rigorous water quotas are imposed on Palestinians, supply is often restricted leaving communities without water for considerable periods, and excess pumping is punished by heavy fines.

In addition, Palestinians are forced to pay extortionate rates for their water supply. Whereas settlers pay $0.40 for domestic consumption and a highly subsidized rate of $0.16 for agricultural use, Palestinians pay a standard rate of $1.20 for their piped water (Zarour and Isaac 1991). And 26% of West Bank households have no connection to piped water (Isaac et al 1994). Estimates vary as to what proportion of the West Bank's aquifers are exploited by Israelis, as Table er that was still not being exploited in 1967". This argument is, to say the least, rather spurious. The claim is invalidated by the illegality of the occupation. And it is simply false to say that "Israel has honored prior use rights of Palestinians": the military authorities have expropriated wells belonging to absentee owners, as well as those within the boundaries of confiscated Palestinian land. The sometimes-invoked argument that Israel merely inherited water resources that had been under British Mandate control, meanwhile, is simply untrue. Palestinians, as the indigenous inhabitants of the region, are the party with historical prior use rights.

Israel is also keen to emphasize the economic and social damage it would suffer if its water allocation were reduced, a claim that invokes factor [e] above. The size of Israel's population (factor [f]) is often cited as a corollary to this point. The common implication is that the populations of Israel's co-riparians have only minimal economic and social needs. Meir Ben-Meir states most generously that "Israel will not irrigate cotton and let Palestinian children die from thirst" (quoted in Stutz 1994): implicit in this statement is the assumption that Palestinians only have personal, minimal water needs. On the contrary, Palestinians need water to build industry and agriculture, to build a modern Palestine that is worth building.

As for factor [f], Israel's 4.6 million population must be taken into account, but not to the exclusion of over 2 million Palestinians. The legitimacy of Israeli needs is further compromised by the fact that, of all the Jordan basin States, only Israel has an uneconomic water-guzzling agricultural sector that is not pivotal to the state's economy. Israel's focus on its needs does not stand up to international legitimacy.

The obvious conclusion is that Israel is flagrantly violating international water law. Unfortunately for Israel's co-riparians of the Jordan basin, questions of rights, justice and equity are being ignored. Instead Israel is pursuing its own agenda, centered purely upon a perception of its own "water security".

Israel's approaches to solving the water crisis

Security is perhaps the central concept in Israeli political dialogue - the slogan "national security" is frequently reformulated in terms of "environmental security", "food security", "water security". As de Shalis and Talis (1994) observe, the Israeli political agenda is overburdened with security issues: "Almost any political question in Israel is overridden by even the smallest security consideration". It is this obsession with security that informs many of Israel's approaches towards solving the water crisis. Above all, Israel has felt a need to have military or political control over its water supplies, and has therefore resisted perceiving the problem in terms of water rights, or in the economic terms of supply and demand, surplus and deficit.

Israel's proposed solutions to the riparian dispute have been twofold. Firstly, they have favored large-scale projects which would increase available water in Israel, Palestine and Jordan. Secondly, they have argued that West Bank waters should be under the joint management of Israelis and Palestinians. Both of these approaches are inappropriate.

The development of large-scale water projects has frequently been advocated by those who hold that there is an insufficient supply of water in the Jordan basin and western aquifers of Palestine and Israel. Many fantastic and creative schemes have been proposed for the enhancement of water supply, most notably the following:

- Large-scale desalinization projects, often linked with hydro-electric power generation:
    - Red Sea-Dead Sea conduit

    - Mediterranean-Dead Sea conduit
- Water diversion projects:
    - from Lebanon's Litani River to the Jordan headwaters.
    - from the Nile to Israel or Gaza, with a pipeline going underneath the Suez Canal

- Water conveyance projects:
    - oil tanker conveyance of Turkish or Yugoslavian waters
    - Conveyance of Turkish or Norwegian waters in enormous balloon-like "medusa bags"

Unfortunately, faith in such dream-solutions is often ill-founded. They flounder in the face of astronomical capital expenditure. To cite one example: recent Jordanian-Israeli discussion over the proposed Red Sea-Dead Sea desalinization, pipeline and hydroelectric project has reached an estimated initial cost of $3 billion. Needless to say, this figure ignores the environmental cost of overloading the Dead Sea. In addition, the potential political dangers of transferring water from one international river basin to another must be considered: while an enhanced water supply to the Jordan basin States might decrease riparian tension in Israel, Palestine and Jordan, political tension would no doubt be increased among the riparians of the donated waters. All mega-projects currently under consideration are economically, environmentally and politically unsound.

High rates of population growth may at some time render supply enhancement projects necessary, but there is no such need at present. And if regional consumption does outstrip demand, we should look first at issues of appropriate water utilization, internal supply enhancement and conservation. Above all, there must be a restructuring of Israel's water consumption. The majority of Israel's water consumption is for uneconomic subsidized agriculture. There needs to be a recognition that the Middle East is an arid and semi-arid region, and that water use should be appropriate to this natural fact. Cultivated land should not be extensively irrigated; and water should certainly not be subsidized.

Not only would a shift in Israeli agricultural policy be environmentally sensible; it would also be economically beneficial. As Berck and Lipow (1993) persuasively argue, "Israeli overexploitation of water resources constitutes an economic burden". The high levels of water subsidization give the erroneous impression that extensive irrigation makes economic sense; if the true cost of water were charged consumption patterns would be very different. There has recently been a price increase from $0.12 to $0.16 for agricultural water, and a consequent 10% drop in Israeli agricultural production, a decrease which did not adversely affect Israel's GDP (Berck and Lipow 1993). More moves need to be made in this direction.

Internal supply enhancement projects are economically, politically and environmentally more feasible than the much vaunted mega-projects. They should be developed in both Israel and Palestine. Rooftop rainwater harvesting is currently utilised in 50,000 Palestinian houses, supplying an average 100 cm per house ("Water collecting systems" 1988), implying a total harvest of 5 mcm. This simple measure could potentially provide an additional 17-25 mcm per year in the West Bank alone. The collection of rainwater run-off from agricultural plastic sheeting could enhance water supplies by a further 4 mcm. Such practices would not lead to significant aquifer depletion: 75% of rainfall, it should be noted, is lost through evaporation (IBRD 1993).

These internal supply enhancement practices should be complemented by an increased focus on conservation. According to Palestinian water authorities, as much as 50% of domestic water is lost owing to old, inefficient supply systems. Within agriculture, drip irrigation systems should be developed: this technique requires 20-25% less water than conventional sprinkler methods, and 40-60% less than simple surface methods (Gleick 1993). Thhe lifting of Israeli restrictions on water consumption.

settlers) are extracted annually from the Strip's increasingly depleted and increasingly saline aquifer (Isaac et al 1994). Water quality is appalling, as is suggested by Figure 4, which shows levels of total dissolved solids (TDS) in Gaza's groundwater: by way of comparison, note that TDS levels of over 1200 mg/liter are considered "unacceptable".

Figure 4. Total Dissolved Solids in Gaza's Groundwater (mg/liter).

Gaza's groundwater level is dropping by 15-20 cm per year (Zarour and Isaac 1991). Palestinians voice concern about the waters of Wadi Gaza, which are currently impounded upstream in Israel, but which used to replenish Gaza's aquifer; likewise, and more vitally, Palestinians are concerned over the presence of Israeli wells on the outskirts of Gaza. On top of this, Gaza Palestinians have to contend with the 3500 settlers having access to the only supplies of sweet water in the Strip. The situation in Gaza is highly critical, and needs immediate attention.

The legal status of Israeli riparian practices

International law, it is often noted, is hindered by its ambiguity; nevertheless, it is only through such ambiguity that international law can fulfil its function of conflict resolution. Ambiguity is a necessary weakness of international law.

A further weakness of international law is that it can so easily be rendered impotent when a state ignores, or is not party to, the laws in question. The Geneva Convention, for instance, places restrictions on the powers of a belligerent occupier, and provides safeguards for the protection of the rights of those occupied. The Israeli government, however, claims that it is has not displaced a legitimate sovereign in either the West Bank or Gaza Strip, and hence is not bound by the Geneva Convention: this argument (which, it should be noted, even the Israeli Supreme Court has rejected) legitimates the alteration of legal and administrative structures, and the exploitation and degradation of resources, in the West Bank and Gaza Strip (Scobbie 1994). Such are the limitations of international law.

International water law is particularly limited. While the Helsinki Rules on the Uses of the Waters of International Rivers (1966), the Complementary Rules applicable to International Resources (1986) and the Seoul Rules on International Groundwater (1986) provide a framework for the resolution of riparian disputes, none of these Rules are binding in international law. The Rules are simply articles that have been adopted by the International Law Association.

Furthermore the Rules, by virtue of their necessary ambiguity, can often do little more than legitimate each riparian's claims. The Helsinki Rules, for instance, list a total of eleven relevant factors which should be considered in the resolution of a riparian dispute, a list which is not necessarily comprehensive. Article V (2) of the Helsinki Rules is worth quoting in full:

Relevant factors which are to be considered include, but are not limited to:

- The geography of the basin, including in particular the extent of the drainage area in the territory of each basin State;
- The hydrology of the basin, including in particular the contribution of water by each basin State;
- The climate affecting the basin;
- The past utilization of the waters of the basin, including in particular existing utilization;
- The economic and social needs of each basin State;
- The population dependent on the waters of the basin in each basin State;
- The comparative costs of alternative means of satisfying the economic and social needs of each basin State;
- The availability of other resources;
- The avoidance of unnecessary waste in the utilization of waters of the basin;

- The practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses; and
- The degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State.

Given this list of relevant factors, it is hardly surprising that each riparian is able to invoke principles which substantiate its perceptions of "legitimate national rights". Rights over particular water resources cannot be legitimately grounded in individual relevant factors, however. The relevant factors should be viewed as a totality, and the rights of parties in a riparian dispute should be interpreted, not absolutely, but relatively, in terms of the extent to which the relevant factors are applicable to the various parties.

Such an approach to water rights precludes the possibility of simplistic judgements about the 'ownership' of rights. Nevertheless, this approach does not prevent us from reaching the conclusion that Israel's control of regional water supplies contravenes the Helsinki Rules. This can be clearly demonstrated through a factor by factor analysis of Israel's claims.

Geography and hydrology (factors [a] and [b] above) provide a legitimate basis for Palestinians, not Israel, to claim sovereignty over West Bank waters. And as has already been mentioned, Israeli territory contributes only minimally to the Jordan basin, yet Israel utilizes the greater part of its waters.

Israel argues that current utilization of water must be considered, invoking factor [d]. According to Berck and Lipow (1993), "Prior use establishes water rights. Israel has honored prior use rights of Palestinians' allocated water before the Israeli conquest of the West Bank and Gaza but has appropriated all of the ground water that was still not being exploited in 1967". This argument is, to say the least, rather spurious. The claim is invalidated by the illegality of the occupation. And it is simply false to say that "Israel has honored prior use rights of Palestinians": the military authorities have expropriated wells belonging to absentee owners, as well as those within the boundaries of confiscated Palestinian land. The sometimes-invoked argument that Israel merely inherited water resources that had been under British Mandate control, meanwhile, is simply untrue. Palestinians, as the indigenous inhabitants of the region, are the party with historical prior use rights.

Israel is also keen to emphasize the economic and social damage it would suffer if its water allocation were reduced, a claim that invokes factor [e] above. The size of Israel's population (factor [f]) is often cited as a corollary to this point. The common implication is that the populations of Israel's co-riparians have only minimal economic and social needs. Meir Ben-Meir states most generously that "Israel will not irrigate cotton and let Palestinian children die from thirst" (quoted in Stutz 1994): implicit in this statement is the assumption that Palestinians only have personal, minimal water needs. On the contrary, Palestinians need water to build industry and agriculture, to build a modern Palestine that is worth building.

As for factor [f], Israel's 4.6 million population must be taken into account, but not to the exclusion of over 2 million Palestinians. The legitimacy of Israeli needs is further compromised by the fact that, of all the Jordan basin States, only Israel has an uneconomic water-guzzling agricultural sector that is not pivotal to the state's economy. Israel's focus on its needs does not stand up to international legitimacy.

The obvious conclusion is that Israel is flagrantly violating international water law. Unfortunately for Israel's co-riparians of the Jordan basin, questions of rights, justice and equity are being ignored. Instead Israel is pursuing its own agenda, centered purely upon a perception of its own "water security".

Israel's approaches to solving the water crisis

Security is perhaps the central concept in Israeli political dialogue - the slogan "national security" is frequently reformulated in terms of "environmental security", "food security", "water security". As de Shalis and Talis (1994) observe, the Israeli political agenda is overburdened with security issues: "Almost any political question in Israel is overridden by even the smallest security consideration". It is this obsession with security that informs many of Israel's approaches towards solving the water crisis. Above all, Israel has felt a need to have military or political control over its water supplies, and has therefore resisted perceiving the problem in terms of water rights, or in the economic terms of supply and demand, surplus and deficit.

Israel's proposed solutions to the riparian dispute have been twofold. Firstly, they have favored large-scale projects which would increase available water in Israel, Palestine and Jordan. Secondly, they have argued that West Bank waters should be under the joint management of Israelis and Palestinians. Both of these approaches are inappropriate.

The development of large-scale water projects has frequently been advocated by those who hold that there is an insufficient supply of water in the Jordan basin and western aquifers of Palestine and Israel. Many fantastic and creative schemes have been proposed for the enhancement of water supply, most notably the following:

- Large-scale desalinization projects, often linked with hydro-electric power generation:
    - Red Sea-Dead Sea conduit
    - Mediterranean-Dead Sea conduit
- Water diversion projects:
    - from Lebanon's Litani River to the Jordan headwaters.
    - from the Nile to Israel or Gaza, with a pipeline going underneath the Suez Canal

- Water conveyance projects:
    - oil tanker conveyance of Turkish or Yugoslavian waters

- Conveyance of Turkish or Norwegian waters in enormous balloon-like "medusa bags"

Unfortunately, faith in such dream-solutions is often ill-founded. They flounder in the face of astronomical capital expenditure. To cite one example: recent Jordanian-Israeli discussion over the proposed Red Sea-Dead Sea desalinization, pipeline and hydroelectric project has reached an estimated initial cost of $3 billion. Needless to say, this figure ignores the environmental cost of overloading the Dead Sea. In addition, the potential political dangers of transferring water from one international river basin to another must be considered: while an enhanced water supply to the Jordan basin States might decrease riparian tension in Israel, Palestine and Jordan, political tension would no doubt be increased among the riparians of the donated waters. All mega-projects currently under consideration are economically, environmentally and politically unsound.

High rates of population growth may at some time render supply enhancement projects necessary, but there is no such need at present. And if regional consumption does outstrip demand, we should look first at issues of appropriate water utilization, internal supply enhancement and conservation. Above all, there must be a restructuring of Israel's water consumption. The majority of Israel's water consumption is for uneconomic subsidized agriculture. There needs to be a recognition that the Middle East is an arid and semi-arid region, and that water use should be appropriate to this natural fact. Cultivated land should not be extensively irrigated; and water should certainly not be subsidized.

Not only would a shift in Israeli agricultural policy be environmentally sensible; it would also be economically beneficial. As Berck and Lipow (1993) persuasively argue, "Israeli overexploitation of water resources constitutes an economic burden". The high levels of water subsidization give the erroneous impression that extensive irrigation makes economic sense; if the true cost of water were charged consumption patterns would be very different. There has recently been a price increase from $0.12 to $0.16 for agricultural water, and a consequent 10% drop in Israeli agricultural production, a decrease which did not adversely affect Israel's GDP (Berck and Lipow 1993). More moves need to be made in this direction.

Internal supply enhancement projects are economically, politically and environmentally more feasible than the much vaunted mega-projects. They should be developed in both Israel and Palestine. Rooftop rainwater harvesting is currently utilised in 50,000 Palestinian houses, supplying an average 100 cm per house ("Water collecting systems" 1988), implying a total harvest of 5 mcm. This simple measure could potentially provide an additional 17-25 mcm per year in the West Bank alone. The collection of rainwater run-off from agricultural plastic sheeting could enhance water supplies by a further 4 mcm. Such practices would not lead to significant aquifer depletion: 75% of rainfall, it should be noted, is lost through evaporation (IBRD 1993).

These internal supply enhancement practices should be complemented by an increased focus on conservation. According to Palestinian water authorities, as much as 50% of domestic water is lost owing to old, inefficient supply systems. Within agriculture, drip irrigation systems should be developed: this technique requires 20-25% less water than conventional sprinkler methods, and 40-60% less than simple surface methods (Gleick 1993). The artificial recharge of aquifers could help to counter overexploitation of groundwater resources. Additionally, cloud seeding, a process in which chemical condensation nuclei are introduced into cloud systems, could increase precipitation by 10-20% (Schiller 1993). All such measures have potential for development.

Israel's second approach has been to argue for joint management of West Bank aquifers. This preference is grounded in the claim that Palestinian mismanagement may well lead to the degradation of groundwaters. "Self-rule control over Israeli water resources constitutes a threat to the infrastructure and social fabric of Israel", declares The Movement for Preservation of Israel's Water (1994). Israel fears overdrilling which, it is claimed, could result in salination; and they are also concerned that Palestinians might "voluntarily or involuntarily pollute our groundwater. Voluntarily, by terrorist action. Involuntarily, by letting sewage flow through the porous surface to the aquifer" (Stutz 1994).

These comments are quite unreasonable, and are clear evidence of the Israeli obsession with security. The idea that Palestinians might voluntarily pollute aquifers is farcical. Palestinians are not going to indulge in quasi-kamikaze activities that ruin their own waters supplies as well as those of Israel. Additionally it should be noted that this argument is premised upon the assumption that the Palestinian-Israeli conflict is not going to be resolved: what chance is there of a resolution if such an assumption is going to inform Israeli negotiating stances? As for the suggestion that Palestinians will be incapable of controlling drilling levels and managing sewage, this largely depends on whether the Palestinian Authority will be given extensive administrative, executive and legislative jurisdiction. If the Palestinian Authority lacks respect, people will be less willing to cooperate with and abide by its rulings. Stable management of the West Bank's groundwater will be achieved only if the Palestinian Authority controls these water resources.

Peacemaking so far

Negotiations thus far have achieved very little. The multilaterals on water have been stalled almost from the word go. There have been two problems in particular: the Syrian and Lebanese boycott of the multilaterals, and Israeli opposition to water rights being an agenda item. The question of water rights has been utterly neglected; the issue that should properly be pivotal to a regional solution is being ignored. Given the extent of Israeli intransigence and the absence of Syria and Lebanon, this is hardly surprising: as Joel Peters (1994) says, "[p]rogress towards finding solutions to the problem of water at the multilateral level will...remain problematic until a positive resolution of the political conflict is secured". Instead of water rights, therefore, the Working Group has focussed on enhancing water supply, water management and data. And even within these areas,

while there has been some meaningful discussion during inter-sessionals, the Working Group has been unable to reach any important concrete decisions.

Progress towards resolving the Middle East's political disputes has thus far been confined to the bilateral track. However, bilateral negotiations and agreements have failed to address "low politics" issues - such as the unequal control of water resources - in any meaningful way.

The Washington Declaration received widespread approval, in Jordan, Palestine and Israel, but it left substantive areas of dispute untouched. Jordan is now demanding access to an increased supply of water from the Jordan basin, a demand which is grounded in both historical rights and their contribution to the basin's water sources. Israel, however, has no intention of acceding to these demands. Indeed, as Ze'ev Schiff (1994) observes, "it is possible that Israel will not only not make concessions, but will make new demands. Today, Israel holds most of the cards". Much depends, as Schiff says, on Israel's "sensitivity and generosity". Israel's recent granting to Jordan of a mere 4 mcm from the Yarmouk River hardly demonstrates such attributes.

Politically, it is on the Palestinian-Israeli bilateral track that most progress has been made. The Declaration of Principles (DOP, 13 September 1993) provided the framework for a five-year interim period, during which time Palestinians would be given autonomy over certain spheres of control in the West Bank and Gaza Strip; this period is envisaged as paving the way for a permanent settlement to the Palestinian-Israeli conflict. The DOP is the foundation upon which further, less ambiguous and more detailed agreements are to be constructed. In this sense, the DOP has thus far lived up to expectations: the Cairo Agreement (4 May, 1994) specified the terms of Israeli withdrawal from the Gaza Strip and Jericho, in accordance with Annex II of the DOP; and the Agreement on Preparatory Transfer of Powers and Responsibilities (29 August 1994) made arrangements for Palestinian autonomy over various spheres of civil life in the rest of the West Bank, in accordance with Article VI of the DOP. Remaining on the DOP's agenda are an agreement on the mode and conditions of elections in the Gaza Strip and West Bank (including East Jerusalem), and the Interim Agreement, which will specify both the make-up and powers of the Palestinian Council in the West Bank and Gaza Strip, and the arrangements for Israeli military withdrawal (Articles III and VII respectively). In all cases it is the DOP which has acted, and will act, as the chief guide to subsequent agreements.

It is upon the Declaration of Principles, therefore, that we should center our attention, in an attempt to understand the status of Palestinian water rights during the interim period; subsequent agreements should be interpreted in the light of the terms outlined in the DOP. It should first be noted that the DOP is a highly ambiguous document, and necessarily so; without ambiguity there would have been no declaration. Ambiguity is an important tool of conflict resolution; it need not favor one party more than the other. In the case of the DOP, however, the unequal power relationship between Israelis and Palestinians renders ambiguity dangerous. Israel, as the occupying power that is granting limited autonomy to an occupied people, is in a position to apportion powers and

responsibilities as it sees fit, and in accordance with its interests. Such an abuse of ambiguity is clearly evident when one considers the fate of water in the Cairo Agreement, and one fears that this abuse of the spirit of peace may be repeated in the Interim Agreement.

The Declaration of Principles fails to make clear the extent to which water should be under Palestinian control during the interim period. It is not made explicit whether autonomy includes limited control of water resources; or whether, on the other hand, control of water resources is a permanent status issue, that might perhaps fall under the headings "security arrangements", "relations and cooperation with other neighbors" or "other areas of common interest" (Article V [3]). Here it is assumed that while the riparian dispute will undoubtedly figure as part of the final status negotiations, this in no way precludes the granting of control over water resources during the interim period. In other words, discussion of the water issue will be ongoing, as Annex III of the DOP specifies:

The two sides agree to establish an Israeli-Palestinian Continuing Committee for Economic Cooperation, focussing, among other things, on the following:

1. Cooperation in the field of water, including a Water Development Program prepared by experts from both sides, which will also specify the mode of cooperation in the management of water resources in the West Bank and Gaza Strip, and will include proposals for studies and plans on water rights of each party, as well as on the equitable utilization of joint water resources for implementation in and beyond the interim period.

Nowhere does the DOP state that Palestinians will control water resources in Gaza and Jericho, and nowhere does it state the contrary. Under the terms of the Cairo Agreement, however, "[a]ll water ... systems and resources in the Gaza Strip and the Jericho Area shall be operated, managed and developed (included drilling) by the Palestinian Authority ..." (Annex II, Article II [B.31,a]), with the exception of settlements and military areas, which shall continue to be operated by Mekoroth. This arrangement at first appears uncharacteristically generous of Israel - until one considers that both Gaza and Jericho are water deficit areas, where Israel is more than glad to delegate responsibility. The Jericho Area is delineated in such a way as to exclude all but one of the four surrounding springs, which stay under Israeli control; and wellwater extracted in the Jericho Area is too saline for domestic consumption. And Gaza, as has already been pointed out, suffers from a chronic water shortage. To overcome this deficit, the Palestinian Authority is obliged to find additional water supplies to meet the people's demands, from Israel. In the words of Annex II, Article II (B.31,a), "[t]he Palestinian Authority shall pay Mekoroth for the cost of water supplied from Israel and for the real expenses incurred in supplying water to the Palestinian Authority". Both Gaza and Jericho are downstream areas: hence there is no danger, from an Israeli perspective, of their infamous "water security" being threatened by Palestinian overpumping. In short, Israel has nothing to lose by donating control of water resources to the Palestinian Authority; on the contrary, they have much to gain.

Such a situation would, however, be no bad thing if Palestinians could be sure that the Cairo Agreement set a precedent for control of the West Bank's water resources under the Interim Agreement. Such a scenario - that of Palestinian control of West Bank waters, albeit under the condition that the Palestinian Authority "... shall prevent any harm to the water resources" (Annex II, Article II [B.31,a]) - is unlikely to come to fruition. The West Bank's aquifers are central to Israel's interests in the Occupied Territories, interests which are not going to be forfeited out of respect for precedent, or out of recognition of rights. Precedent, in any case, has no force, as the Cairo Agreement makes explicit: "[n]othing in this Agreement shall prejudice or preempt the outcome of the negotiations on the interim agreement ..." (Article XXIII [5]). Israel, if it were to refuse to grant Palestinian control of West Bank waters, could claim to be acting within the terms of the DOP and the Cairo Agreement. It would not be acting, however, within the spirit of the DOP.

According to this interpretation, the Interim Agreement could result in the following scenario. The Palestinian Authority would control the downstream deficit waters of Gaza and Jericho, and would be forced to purchase water from Israel, while in the West Bank, Palestinians would continue to be prevented from utilizing their rightful water resources. One fears that the "Palestinian Water Administration Authority", to be established after the Interim Agreement in accordance with Article VII (4) of the DOP, could be denied anything other than symbolic control. It could be little more than a sham institution.

The interim period framework set out in the Declaration of Principles provides no basis for an equitable solution to the Israeli-Palestinian riparian dispute. Negotiations and agreements are being premised, not upon principles of justice, but upon Israeli national interest and Palestinian desire for peace. Israel's short-termist conception of its national interest, a conception that recognizes Palestinian rights only when there is no conflict of interests, makes it hard to perceive how a just final status agreement will ever be reached. Israel needs to be willing to sacrifice some of its short-term interests, for the sake of the long-term interests of both Palestine and Israel. The recently imposed closure of 10,000 dunums of fertile irrigated farmland at Jiflik in the Jordan Valley - an area of vital importance to Palestinian agriculture - clearly reveals the Israeli attitude to peace. If the issue of water allocation continues to be addressed with an eye for might rather than justice, Palestine will remain the thirsty partner to an unjust peace. And, as is so often pointed out, an unjust peace is no peace at all.

Some modest proposals

The failure of the peace process so far to address the riparian dispute, and the urgency of finding a solution to the conflict, render some alternative approaches necessary. Here, two proposals are made: firstly, that Israel should instigate some confidence building measures, to show that it is committed to resolving the allocation problem, rather than bypassing it; and secondly, that there should be a redirecting and restructuring of the negotiations regarding water.

As a first confidence building measure, Israel should recognize Palestinian water rights with something more than the Declaration of Principles' reference to the "water rights of

each party". This move could hopefully act as a springboard for negotiation over the issue of water allocation.

Words, however, are not sufficient: declarations alone, no matter how detailed, cannot solve the problems of Gaza Palestinians who have no access to clean water. No Gaza Palestinian will be too impressed by the recognition of intangible rights, by the consideration of proposals for project proposals, or by the establishment of a data bank. Concrete action is needed. Israel, as a confidence building measure, should immediately provide Gaza with 50 mcm through the National Water Carrier. Such a move is urgently needed, and would serve as a practical recognition of Palestine's riparian rights. Gaza Palestinians should not be charged the full cost of this allocation, as is the case within the terms of the Cairo Agreement; instead it should be offered in partial recognition of Palestinian water rights.

Additionally, Israel should immediately make more water available for domestic consumption in the West Bank. The 35 cm per capita annually consumed for domestic purposes in Palestinian towns (Zarour and Isaac 1991) is simply insufficient, with shortages being critical during the summer. 70-100 cm per capita/annum should be made available to those who are connected to piped water supplies. And Israel should facilitate the work of the Palestinian Authority in distributing water to those who have no piped supplies.

Such confidence building measures would clearly demonstrate that Israel desires a just and equitable solution to the riparian dispute. Thereafter, substantive Israeli-Palestinian negotiations on water should begin. Final status negotiations will include discussion of water issues: however, preparation for the final status must start now. Questions regarding the aims of these negotiations, the interests and needs that they should recognize, and their organizational and operational structure should be addressed.

A clarification of the aims of negotiations is the issue that must be prioritized, and it is this issue that, at present, is being insufficiently focussed upon. First and foremost, a distinction should be drawn between aiming for a short-termist and potentially unstable "settlement" of the riparian dispute, and aiming for a more sustainable "resolution". Resolutions involve creative and, most importantly, cooperative solutions to common problems. It is not fanciful to envisage a resolution, rather than a settlement, to the region's riparian dispute. On the contrary, the only way that peace can be meaningful is if agreements are sustainable. And the potential does exist for cooperative solutions to the water crisis.

Israeli policy, as has already been noted, is centered upon enhancing water supplies. Israel, however, is mistaken if it thinks that supply enhancement can be attained without the allocation dispute being attended to. A settlement which increased resources without addressing water equity would be unstable, a good deal more unstable than one which incorporated equity yet offered no prospect of regional cooperation. Any resolution of the riparian dispute must aim to look at the conflict as a totality.

Specifically, three issues - water equity, increasing water supplies and appropriate water utilization - should be considered within a single formula. To reiterate: the water crisis is not one of insufficient supply, but of an uneven and unequitable distribution which is aggravated by inappropriate consumption practices. However, any resolution must necessarily consider Israeli perceptions, interests and needs, and hence the issue of supply enhancement should be included with any negotiation formula. Linkage of these three issues is envisaged as being framed within a "Water Charter". Such a document could provide the framework for resolution of the riparian dispute. The following is a speculative proposal for the elements to be included:

1. Aims.
    - to ensure water equity for the people of Israel and Palestine.
    - to ensure adequate water supplies for both parties.
    - to ensure appropriate water utilization.
    - to ensure the preservation of water quality and the environment.
    - to foster regional cooperation.
2. Principles.
    - The Jordan River basin is considered to be an indivisible hydrological unit.
    - The Jordan basin is considered to be an international drainage basin.
    - All Jordan basin states have riparian rights within the whole basin.
3. Water rights / entitlement / allocation.
    - The Palestinian Authority is entitled to the waters originating in the West Bank.
    - Palestinians have rights to waters which originate in the Israeli coastal aquifer and recharge Gaza's aquifer.
    - Both the Palestinian Authority and Israel have rights to the waters of the Jordan basin. Jordan, Syria and Lebanon also have rights to these waters. The rights of riparians to the Jordan basin should be discussed on a multilateral level, in accordance with its status as an international drainage basin.
    - Palestinians have storage rights to Lake Tiberias, which is part of the Jordan River basin.
    - Palestinians are entitled to compensation in view of the illegal expropriation of Palestinian waters over the past 27 years.
4. Water supplies.
    - Both parties recognize that, given projected population growth rates, present water supplies will, in future, be insufficient to cater for demand.
    - Both parties recognize the future necessity of enhancing water supplies in order to cater for future demand.
5. Water utilization.
    - Both parties adhere to the view that water should be utilized in a manner that is appropriate to the region's arid climate and scarce water resources.
    - Both parties adhere to the principles of sustainable development.
    - Both parties agree that, in order to foster appropriate utilization, the price of water should reflect the real cost of supply.

- Both parties agree to improve water management through research into and development of internal supply enhancement technologies and water reuse systems, through improving supply efficiencies, and through reducing demand to appropriate levels.

6. Water quality.
   - Both parties agree on the importance of preserving water quality.
   - Both parties adhere to the polluter pay principle.
7. Final status control of water resources.
   - The Palestinian Authority will be responsible for the operation, management and development (including drilling) of water resources in the West Bank and Gaza Strip.
   - Israel and the Palestinian Authority will commence negotiations on water rights within the framework of the rights listed above, within the framework of the Helsinki Rules, and other relevant articles of international law.
   - These negotiations should address the issue of alleviating environmental problems related to water shortages.
   - These negotiations will commence and reach conclusion within a set timescale.
8. Water development.
   - Simultaneous to the final status negotiations, talks will commence which will cover issues of supply and utilization: conservation, appropriate consumption, large-scale water development projects, and other areas of common interest.
   - These negotiations will reach conclusion within a set timescale.
9. Interim arrangements.
   - Upon the completion of final status negotiations, water allocations and control of water resources will be increased in the West Bank and the Gaza Strip in partial accordance with the final status agreement.
   - Allocations of water and control of water resources in the West Bank and Gaza Strip will be increased in accordance with the extent to which water conservation and development projects are put into effect, and in accordance with the extent to which shortfalls in regional supply are being met by these projects.

The chief problem with this Water Charter, indeed with any such agreement, is that Israel would be of the opinion that it benefits insufficiently. Israel hopes that it can instigate large-scale water development projects without having to address the issues of water rights and appropriate water utilization. Movement in both the multilateral and Israeli-Jordanian bilateral negotiations suggests that this is a hope that might well come to fruition. Given this prospect, why should Israel want to discuss water allocation, an area in which it is bound to be the party making concessions?

It is in overcoming this difficulty that international financial institutions could play a central role. Specifically, the World Bank should make it clear to Israel (and any other interested parties) that loan guarantees for large-scale water projects will be forthcoming

only after progress towards overcoming the allocation dispute has been made. Israel has a strong, high GDP economy, and might well perceive mega-projects to be in its interests: Israel should have the right to enhance its water supplies, but not while it is appropriating Palestinian waters. The World Bank should insist upon linkage of equity and development. If such a position were adopted, Israel would no doubt be much more willing to enter into meaningful discussion of water allocation; and there would be a much greater likelihood of a "win-win" resolution to the riparian dispute being secured.

What structural and operational changes to negotiations would encourage the negotiation of a resolution-oriented agreement? Above all, a third party should be introduced, a thoroughly independent body, not simply a subscriber to one party's agenda. The "honest broker" would fulfil the following functions. Firstly, it would be responsible for verifying data, for establishing the facts which would form the basis of negotiation, and for clarifying misleading assertions. Secondly, it would act as a clearing house, as an incubator for positions. And thirdly, it would be in close contact with international financial institutions, and would attempt to guide the dispute by holding the right to sanctions against one or other of the parties.

Such a framework, it is believed, could provide an environment conducive to overcoming the water crisis. Nevertheless, we should recognize that the Israeli-Palestinian dispute will not be overcome without the cooperation of the other Jordan River basin States. As Housen-Couriel (1994) states, "there is no doubt that the most effective regimes will include as signatories all states which possess water rights in a given river or lake basin". And Israel cannot be expected to agree to a permanent status formula with the Palestinians unless it is safe in the knowledge that new demands from Syria, Lebanon or Jordan are not just around the corner. Perhaps above all, resolution of the Palestinian-Israeli riparian dispute is dependent upon there being some progress on the Israeli-Syrian track. That does not mean, however, that attempts to accelerate the Israeli-Palestinian talks are futile: on the contrary, if some results were achieved, the likelihood of there being a real, meaningful peace in the Middle East would be immeasurably enhanced.

Jad Isaac, Applied Research Institute of Jerusalem (ARIJ), Bethlehem, P.O. Box 860, West Bank. The author would like to thank Mr. Jan Selby for his assistance in writing this paper.

References

1. Berck, P. and Lipow, J. (1993), "Water and an Israeli-Palestinian peace settlement". Presented at Eurames Conference, Warwick University, England, June 1993.
2. Bulloch, J. and Darwish, A. (1993), *Water Wars: Coming Conflicts in the Middle East*. London: Victor Gollancz.
3. Central Bureau of Statistics (1993), *Statistical Abstract of Israel 1993*. Tel Aviv: Government Publishing House.
4. de Shalit, A. and Talis (1994), "Green or blue and white? Environmental controversies in Israel". (Unpublished).

5. Eckstein, Z., Zackai, D. and Nachtom, Y. (1993), "The division of water sources between Israel, the West Bank and Gaza: an economic analysis".
6. Gleick, P. (1993), *Water in Crisis*. Oxford: Oxford University Press.
7. Housen-Couriel, D. (1994), *Some Examples of Cooperation in the Management and Use of International Water Resources*. Jerusalem: Harry S Truman Research Institute for the Advancement of Peace.
8. IBRD (1993), *Developing the Occupied Territories 4: Agriculture*. Washington: World Bank.
9. Isaac, J. et al (1994), "Water supply and demand in Palestine". ARIJ (unpublished) .
10. Lindholm, H. (1992), "Water and the Arab-Israeli Conflict", in Ohlsson, L. (1992), *Regional Case Studies of Water Conflicts*. Gothenburg University: Padrigu.
11. Main, C. (1953), "The unified development of the water resources of the Jordan Valley Region". Tennessee Valley Authority.
12. Peace Now (1993). Jerusalem (cumulative figures).
13. Peters, J. (1994), *Building Bridges: The Arab-Israeli Multilateral Talks*. London: Royal Institute of International Affairs.
14. Rudge, D. (1992), *The Jerusalem Post*, 28 Februray 1992.
15. Schiff, Z. (1994), *Ha'aretz*, 11 August 1994.
16. Schiller, E. (1993), "Enhancement of Middle East water supply. A literature survey: technologies and applications". University of Ottowa: International Water Engineering Centre.
17. Scobbie, I. (1994), "Natural resources and belligerent occupation: mutation through permanent sovereignty". Presented at International Human Rights Colloquium: Protection Measures and Political Change, Gaza City, Palestine, September 1994.
18. Shuval, H. (1993), "Estimate of the water resources and water demands of Syria, Lebanon, Jordan, Palestine and Israel up to the year 2025".
19. Soffer, A. (1994), "The relevance of Johnston Plan to the reality of 1993 and beyond", in Isaac, J. and Shuval, H. (1994), *Water and Peace in the Middle East*. Amsterdam: Elsevier.
20. Stutz, B. (1994), "Water and peace", *Audubon*, October 1994 .
21. The Movement for the Preservation of Israel's Water (1994), "Self-rule control over Israeli water resources constitutes a threat to the infrastructure and social fabric of Israel". Jerusalem.
22. The Water Commission for the Study of Water Conditions in the Third Round of Talks of the Multilateral Negotiations on the Water Issue (1993), "Report on the water conditions in the Occupied Palestinian Territories".
23. "Water collecting systems" (1988), *Shu'un Tanmawieh*, March 1988 (in Arabic).
24. Wolf, A. (1993), "Principles for confidence-building measures in the Jordan River watershed". Presented at the International Symposium on Water Resources in the Middle East: Policy and Institutional Aspects, University of Illinois, USA,
25. Zarour, H. and Isaac, J. (1991), "The Water Crisis in the Occupied Territories". Presented at the VII World Congress on Water, Rabat, Morocco, 12-16 May 1991.

26. Zarour, H. and Isaac, J. (1993), "Nature's apportionment and the open market: a promising solution to the Arab-Israeli water conflict", *Water International* 18 (1993).