

FACTORS RELATING TO THE EQUITABLE DISTRIBUTION OF WATER IN ISRAEL AND PALESTINE

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ABSTRACT

Access to sufficient volumes of water of appropriate quality is a vital human need, as demonstrated by the title of this conference and by proposals of the World Health Organization (and others). Indeed, the United Nations Committee on Economic, Social and Cultural Rights has recently recognized the human right to water.

Many authors have documented the inequitable distribution of water resources in Israel and Palestine, and this issue is included as an element of the Permanent Status negotiations between the two Parties. Surprisingly, the Road Map produced by the Quartet does not specifically mention the need for attention to water resources except in the context of multilateral efforts (addressing regional sources of water, and the Jordan River basin in particular). However, it is clear that the current inequitable division of the water resources as a whole in the region must be addressed if Palestine is to become an independent viable State in the future, which is a pre-condition at the end of the second phase of the Road Map.

In this and other facets of the negotiations between the Parties, Palestine should rely upon the principles of customary international law, if a robust and lasting agreement is to be attained. Israel's reliance to date on the single criterion relating to the prior use of water should be considered against the background of the multiple

factors determining the equitable and reasonable allocation of international watercourses, as set out in customary international water law. The relevance of such international law to the permanent status negotiations is discussed, and the implications for resource allocations from shared freshwater sources are addressed. It is noted that both Parties will benefit significantly from the joint management of shared watercourses in the future, and a framework for this is proposed.

INTRODUCTION

On 28 September 1995, representatives of Palestine and Israel signed *The Israeli-Palestinian Interim Agreement on the West Bank and Gaza Strip*. Article XXXI of that Agreement requires Palestine and Israel (generally referred to as “the Parties”, hereafter) to reach final agreement on a number of issues, through the completion of permanent status negotiations. These negotiations are intended to cover several aspects of relevance to the Parties, including water-related issues.

Topics relating to water and wastewater were addressed by Annex III of the Interim Agreement (the *Protocol Concerning Civil Affairs*), and principally in Appendix 1, Article 40 (entitled *Water and Sewage*). This included the recognition by Israel of Palestinian water rights in the West Bank; laid down agreements on the coordination of the management of water supplies and of wastewater treatment and disposal for the interim period; and specified additional water resources which should be made available to Palestine during the same period. General agreements were also included on mutual cooperation, and on the protection of water resources and infrastructure. Article XXXI of the Interim Agreement also stated the following, in Clause 6:

“Nothing in this Agreement shall prejudice or pre-empt the outcome of the negotiations on the permanent status to be conducted pursuant to the DOP [the Declaration of Principles]. Neither Party shall be deemed, by virtue of having entered into this Agreement, to have renounced or waived any of its existing rights, claims or positions.”

A similar provision is repeated in Article 40 [8] of Annex III, Appendix 1, in relation specifically to water resources. Negotiations between Palestine and Israel on permanent status have not been concluded, as yet. This paper addresses factors relating to the key element of negotiations on water between the Parties, this being the need for an equitable and reasonable distribution of the existing regional water resources, as recognized previously by Israel and as required under the principles of customary international water law.

WATER STRESS, AND THE HUMAN RIGHT TO WATER

The three downstream co-riparians to the Jordan River (Israel, Palestine and Jordan) suffer from water deficiency, as determined by either the water stress index or the water poverty index proposed more recently (Falkenmark and Widstrand, 1992; Lawrence *et al.*, 2002). The threshold for “absolute scarcity” in relation to water resource availability is generally considered to be 500 m³/year on a *per capita* basis. Israel currently has a *per capita* utilization of fresh water of about 330 m³/year, while the equivalent figure for Jordan is 160 m³/year, and that for Palestine is presently about 70 m³/year. It is clear from these figures that the *per capita* use of water in Israel is almost five-fold greater than that in Palestine.

International authorities on water use, such as the World Health Organization and the Food and Agriculture Organization, make no distinctions between the magnitude of the demand for water by different communities within countries, noting only that the degree of attainment of adequate water supplies may differ markedly according to the level of socio-economic development and other factors (Howard and Bartram, 2003; WHO, 2003). The *International Covenant on Economic, Social and Cultural Rights* of 1966 (ratified by Israel in January 1992 and by the other riparian States to the Jordan River basin in 1976) has been interpreted to include the human right to water (United Nations, 2002; see also Guissé, 2004). These authorities suggest that all persons should have access to water, and that no distinctions should be made on the basis of colour, creed or other matters. It is argued here that this should extend to Israelis and Palestinians.

The concept of equal *per capita* shares of water for Palestinians and Israelis in the region is not new, having been proposed in the early

1990s and repeated more recently. Thus, Shuval (1992, 2000) suggested that 125 cubic metres/person/year (equivalent to 342 litres/person/day) would be an appropriate volume for “domestic, urban and industrial use” for both the populations, with supplies for agriculture being additional to this currently, but deriving mainly from recycled wastewaters in the future. In addition, strong arguments have been made that there is no basis for discrimination between the Israeli and Palestinian populations in this respect, and that many stakeholders on both sides have accepted this principle (Shuval, 2000).

Consistent with this analysis, it is argued here that the permanent status negotiations should seek to allocate water on an equal *per capita* basis in Israel and Palestine as a *prima facie* reflection of their equitable entitlements.

THE PRESENT DISTRIBUTION OF THE WATER RESOURCES IN ISRAEL AND PALESTINE

The total water resource available to Palestine and Israel in combination has risen over time in recent decades. Thus, for example, the total combined water resource (for an average year) has increased by about 450 MCM/year since the mid-1980s, to some 2,450 MCM/year currently. This reflects an increased use of the available regional water resources, plus the introduction of rising levels of desalination and water re-use, especially by Israel. Most recently, Israel has agreed terms for the importation of small volumes of water in bulk, from Turkey (Peterson, 2000; Shamir, 2004).

Despite this significant increase in the total combined water resources over time, the volume of water allocated to Palestine has hardly altered since the mid-1980s (see Table 1). Within Palestine, the population has more than doubled in this period. The total volumetric allocation of water to domestic use in Palestine has risen through these years, almost maintaining the *per capita* allocation for this category of use. Allocations to industrial use in Palestine have remained effectively unchanged, while those to the agricultural sector have fallen. By contrast, an increase in the total allocation of water for domestic use in Israel has occurred between the mid-1980s and the present, with *per capita* water use for domestic purposes also rising in this sector in Israel, during that period (Table 1).

Table 1. Estimates of water consumption for various uses in Palestine and Israel, for both the mid-1980s and 1998. Data for the mid-1980s are from the United Nations (1992), while the data for 1998 are from the Palestinian Water Authority and the Statistical Abstract of Israel. It is noted that 1998 is utilized to typify more recent years, as the droughts of 1999-2002 influenced allocations during that period, and full data for 2003 are not yet available. MCM: million cubic metres.

Water Allocations on a Total Volumetric Basis (MCM/year):

<u>Type of Use</u>	<i>Palestine</i>		<i>Israel</i>		<i>Total</i>	
	Mid-1980s	1998	Mid-1980s	1998	Mid-1980s	1998
Domestic	47	87	325	671	372	758
Industrial	5	5	125	129	130	134
Agricultural	175	165	1,320	1,364	1,495	1,529
TOTALS	227	257	1,770	2,164	1,997	2,421

Water Allocations on a *per capita* Basis (m³/person/year)

Parameter/ Type of Use	<i>Palestine</i>		<i>Israel</i>	
	Mid-1980s	1998	Mid-1980s	1998
Population (millions)	1.47	3.0	4.3	6.0
Domestic	32	29	76	112
Industrial	3.4	1.7	29	21
Agricultural	119	55	307	227
Total Allocations	156	86	412	360

One of the reasons for the ongoing paucity of water in Palestine relates to the difficulty in accessing the additional water volumes allocated to Palestine in the Interim Agreement of September 1995. To date, only about 40 MCM/year of a total of 70-80 MCM/year as cited by the Interim Agreement has been made available. A number of reasons exist for this, including the effective veto held by Israel through the Joint Water Committee, relating to the construction of wells and other water infrastructure in the West Bank.

Referring specifically to shared surface water resources, the Johnston Plan of 30 September 1955 sought to generate a preferred allocation pattern for the waters of the Jordan River basin. The Plan was predicated on the water demand in the agricultural sector only (as irrigable land areas were the sole determinant of water demand, as calculated by Johnston). This methodology does not match the present-day approach to allocating shared watercourses, and the allocations proposed in the Johnston Plan are therefore of only limited utility to either Palestine or Israel in the bilateral negotiations on permanent status.

Despite the fact that the Johnston Plan was never officially recognized by the coparticipants to the Jordan River basin, some authors have claimed that its proposed allocations of the water resources within the basin have been respected by the coparticipants since the mid-1950s. However, this is not the case. Both Syria and Israel presently abstract considerably more than their share of the Jordan River waters compared to the Johnston Plan allocations, while Lebanon, Jordan and Palestine receive much less than the shares allocated to them in the Johnston Plan.

It is clear from these data that the existing regional water resources are not shared equitably between the Parties. Israel has dominated the development of the regional water resource, essentially from the time of the partition in 1948.

WATER, THE ROAD MAP, AND ISRAELI INTENTIONS

The Road Map was released by the Quartet (the European Union, Russia, the USA and the United Nations) in May 2003. The Road Map sought to reinvigorate the peace process between the Parties, laying out a new framework for addressing permanent status and for achieving a two-State solution by mid-2006.

Most curiously, the Road Map includes very little by way of direct reference to water-related issues, although it mentions the need to revive the multilateral track on water in the region, during the second phase (year two of the three-year process). This has clear implications for the allocation of the Jordan River waters, and it is anticipated that further discussions may be held on this topic in the near future.

This sparse attention by the Road Map to water-related issues should not be taken to imply that the Parties can ignore the allocation of water during the permanent status negotiations. Thus, the requirement at the end of year two of the Road Map process to create a viable and independent Palestinian State with provisional borders has clear implications for the need for negotiations on the allocation of the regional water resources prior to that time. This is because a future Palestinian State

obviously cannot be viable without a reliable and secure source of water, of appropriate volume.

A recent statement by Shamir (2004) provides a preview of Israel's intentions relating to this matter. In testimony to the Committee on International Relations of the United States House of Representatives, Shamir stated that "*the only viable long-term solution for the West Bank*" involves major desalination on the Mediterranean coast (proposed at Hadera), funded by the donor community or by the Palestinians. This assessment and conclusion, which has not been accepted by the Palestinian Authority, is flawed in a number of respects:

- it fails to address the high costs of pumping desalinated water from the Mediterranean Sea to the West Bank;
- it fails to acknowledge the fact that desalinated water produced within Israel at the Mediterranean coast would far better be utilized by the near-coastal Israeli population;
- it ignores the need for a reallocation of the existing regional water resources, to attain an equitable and reasonable allocation between two independent Sovereign States existing peacefully side-by-side; and
- it fails to recognize Israel's responsibilities in relation to customary international water law (see below), or to other elements of international law.

RELEVANT PRINCIPLES OF CUSTOMARY INTERNATIONAL WATER LAW

International water law has been developed over the whole of the last century, but it has been codified only relatively recently. This process is ongoing, and continues to refine the principles relating to the allocation of shared water resources. As the process of codification continues, customary international law on water is strengthened.

Israel is bound by the principles of customary international law, whether or not it has signed or ratified international agreements to this effect. This includes customary international law on water. Three instruments, all of which constitute evidence of customary international law, are of particular note in the latter respect:

- *The Helsinki Rules on the Uses of the Waters of International Rivers*, adopted by the International Law Association in 1966;
- *The Seoul Rules on International Groundwaters*, adopted by the International Law Association in 1986; and
- *The Convention on the Law of the Non-Navigational Uses of International Watercourses*, adopted by the United Nations General Assembly and opened for signature in 1997.

While all of these instruments have evidentiary value as to the applicable rules of customary international law, the last is the most recent and authoritative, being the product of preparatory work and negotiations within the United Nations system.

Customary international law on water contains a number of key principles. The most important of these relate to the equitable and reasonable allocation of shared watercourses; the avoidance of significant harm; and the need for prior notification of any development plans which could affect shared watercourses.

The most fundamental standard of international law for allocating shared freshwater resources among two or more States is that of **equitable and reasonable allocation**. The International Court of Justice recognized this in its 1997 judgment in the Gabcikovo-Nagymaros Project relating to the Danube River, when it referred to a State's "*basic right to an equitable and reasonable sharing of the resources of an international watercourse.*" In stating this rule, the Court was no doubt mindful of the 1997 UN *Convention on the Law of the Non-Navigational Uses of International Watercourses*, to which it referred several times in its judgment and which embodies the rule of equitable and reasonable utilization. This rule is also a cornerstone of the Helsinki Rules and Seoul Rules, referred to above.

It is notable that Israel has previously approved the standard of the equitable allocation of regional water resources. Thus, for example, the Declaration of Principles includes a demand for the equitable utilization of water (see Annex III, paragraph 1), and this agreement remains binding upon the Parties. Israel has also approved this general principle in other documents, including the tripartite Oslo Declaration on water resources, and *The Bahrain Environmental Code of Conduct for the Middle East*. As early as 1981 in an official response to the United Nations, the Israeli Government stated the following with respect to regional water resources: "*Under international law this principle of equitable distribution among riparians is a well-established right*" (United Nations, 1981).

The avoidance of significant harm is the second most important standard arising from international law relating to shared watercourses. The 1997 UN Convention reflects that obligation (see Article 7 of the Convention) as one of the general principles in the field. It also figures in the Helsinki Rules of 1966 (in Articles V and X, being termed "*substantial injury*" or "*substantial damage*" therein). The *Bellagio Draft Treaty on Transboundary Groundwater* of 1988 referred to the need to "*avoid appreciable harm*" to the groundwaters of other States. Several other international legal instruments also contain such a provision. Article 40 [3] [b] of Appendix 1, Annex III to the Interim Agreement notes the requirement for the Parties to take "*all necessary measures to prevent any harm to water resources, including those utilized by the other side*". This is important in the context of the watercourses shared between Palestine and Israel, as reflected by past accusations of each Party against the other (in relation to potential pollution of the aquifers, in particular).

The obligation of prior notification is the third principle of importance arising from customary international water law. This requirement was included in both the

1997 UN Convention (Part III, Articles 11-19) and the Helsinki Rules (Article XXIX), although in somewhat different forms. Article XXIX [4] of the Helsinki Rules is particularly interesting, as it states that a failure to provide prior notification will affect the weight accorded to any change in the regime of a drainage basin, when equitable and reasonable shares are determined at a later time.

REALLOCATION AND THE IMPORTANCE OF THE TRANSITION PERIOD

The three pillars of customary international water law as discussed above are certainly of relevance to Israel and Palestine, especially as the bulk of the water resources in the region as a whole are international watercourses, shared by two or more parties. It is argued here that the existing water resources available to Israel and Palestine should be reallocated, to comply with the principles of customary international law.

However, it is most important to note that any such reallocation of the regional water resources would not have immediate effect, as the existing infrastructure would not allow Palestine to abstract greatly increased volumes of water, and would need to be developed over time following the agreement. This implies that a transition period would exist following any agreement on equitable and reasonable use, and Figure 1 shows such a period diagrammatically. The most important aspect of the transition period is that Israel would have sufficient time to further develop its own water resources following the conclusion of a permanent status agreement with Palestine. As a result of this, the volumes of water available to Israel would not necessarily be reduced by any such agreement. This is of great importance to both Parties, and should provide a key to their determination to reach an equitable and reasonable allocation of the existing water resources within the region.

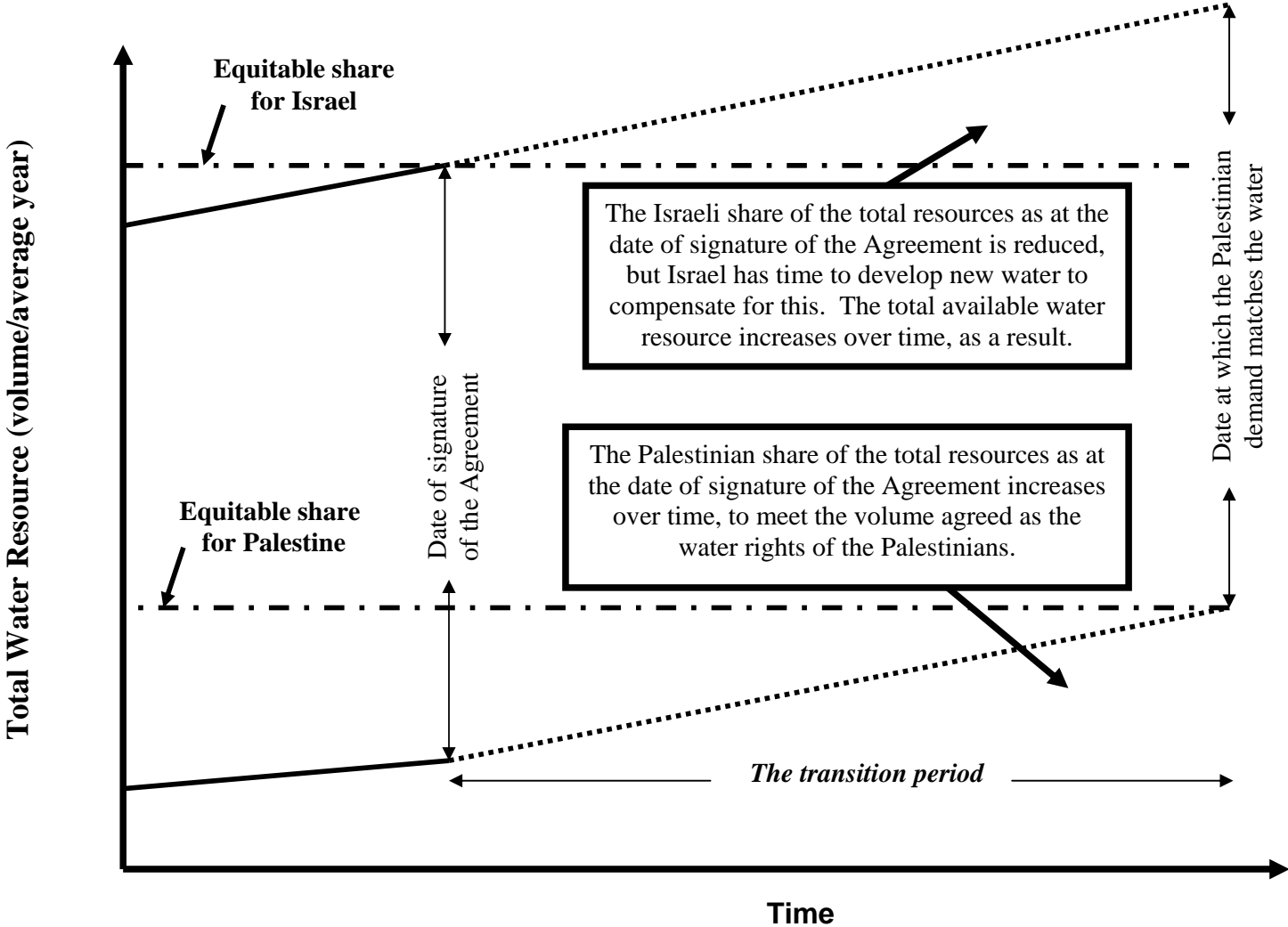
THE FUTURE MANAGEMENT OF THE SHARED WATER RESOURCES

Once the equitable and reasonable allocation of the available water resources has been agreed by Israel and Palestine, the Parties will need to consider the future management of the shared water resources.

Many authors have documented the historical mismanagement of the available water resources in Israel and Palestine. Examples of such mismanagement follow:

- Abstraction rates have commonly exceeded recharge volumes in the shared aquifers, especially during periods of drought. The Gaza sub-aquifer (which constitutes a geographical part of the much larger Coastal Aquifer) has been particularly heavily affected, with annual abstraction rates presently averaging about 140 MCM/year, as against recharge rates of about 60 MCM/year. However, almost all the shared watercourses have been subject to over-abstraction in recent years.

Figure 1. A diagrammatic representation of the anticipated changes to water allocations during the transition period.



- At least in part as a result of such over-abstraction, water quality has deteriorated in all the shared aquifers over the last decade, with salinity intrusion being common, and contamination from terrestrial sources also occurring (especially in Gaza).
- The drought years of 1999-2002 were accompanied by a very considerable reduction in the levels of the aquifers and of Lake Tiberias (Kinneret), this being evidence of the poor management of the resources in relation to ensuring that abstraction rates match the previous rates of recharge.
- The Dead Sea has decreased markedly in both level and size during the last two decades in particular, principally due to the abstraction of high flows by Israel from Lake Tiberias, to feed the National Water Carrier.

It is emphasized that the aquifers in particular are vital resources for both Israel and Palestine in the future. Their shared nature implies that both Parties have a responsibility for their protection (and hence, for the avoidance of significant harm to the other Party, as noted previously).

The historical mismanagement of the shared water resources cannot continue, if they are to be of acceptable quality and are therefore to be of utility to the Parties in the future. For this reason and to ensure that any agreement on allocations is respected, it is clear that the shared resources should be subject to some form of joint management regime in the future. In any such joint management scheme, the monitoring of water supplies is of very considerable importance, as each Party has a duty of care to supply consumers (and probably also each other, in the future) with water of the appropriate quantity and quality. The current level of monitoring effort in both Palestine and Israel is insufficient to guarantee the safety of consumers.

Both Parties will also wish to have access to data on the water quantities utilized in the future, as part of their efforts to manage the resources efficiently and to ensure that the other side is adhering to its rightful allocations from the shared watercourses. This implies the need to install a comprehensive monitoring network within the region, extending and reinforcing the monitoring systems used presently by either Party. The installation of telemetry links at key nodes in such a network would ensure that both Parties receive real-time data on abstraction rates at critical locations, and this would serve to defuse future disputes between the Parties. Any such monitoring system should also extend to water quality parameters, as both Parties have an interest in ensuring that the water provided to end-users is of appropriate quality, and that “significant harm” is avoided.

It is noted that none of these requirements is unique to the region, and that the installation of a comprehensive monitoring network to provide the basis for coherent water resource management is a facet of all such systems in developed nations. With respect to the aquifers, it is critically important that the Parties introduce a system of management that matches abstraction rates in any one year to the previous year’s recharge rates. This will allow the sustainable use of the available water resources, and should eliminate the historical mismanagement of those resources.

CONCLUSIONS

The difficulty in ensuring a fair availability of water to the Parties has been cited as a major impediment to any future peace agreement between Israel and Palestine. However, this need not be the case. While Israel has resisted the demand for the equitable allocation of the existing regional water resources, this is a requirement of customary international water law, which applies to Israel as to other States.

In reality, the equitable allocation of the regional water resources would not disadvantage Israel, as new sources of water (many of which are already under development) could be utilized to supplant any volumes allocated to Palestine under a permanent status agreement. If this were to occur, both Parties would attain water security, and this should clearly be the primary objective for each side.

An enhanced management regime will be needed in the future, both to improve the protection of the shared watercourses and to ensure that the Parties abide by the allocations to be determined through the permanent status negotiations. Such improvements are in any event required, to eliminate the historical mismanagement of the critical resources.

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