Water Agreements ‘Between Israel and Its Neighbors’

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ABSTRACT
Israel signed a Peace Treaty with Jordan in October 1994, and the Oslo II Agreement with the Palestinians in September 1995. Both agreements address issues of water between the two parties to the agreement. The purpose of this paper is to review and discuss these agreements, so we can draw some lessons from them.

BACKGROUND: WATER IN THE MIDDLE EAST
Although the estimates differ somewhat, there is little doubt that Middle East water resources are being used to the limits of their availability. Some of the sources (particularly groundwater) are over-utilized; that is, current annual extraction exceeds average annual replenishment. Analyses in the professional literature uniformly indicate that there is an acute water shortage in the region.

The Middle East’s population is growing (see Winckler, this volume), an ever-increasing percentage of it in the cities. Standards of living are rising, and with them unit water consumption rates. The product of these two increasing parameters—population and per capita water use—translates into rapidly escalating urban requirements for potable water.

Currently, agriculture utilizes approximately 70% of the freshwater in the Middle East. Although this percentage is somewhat lower in the more industrialized areas, agriculture is likely to remain the major water-consuming sector in coming decades. However, rising urban needs will require diversion of some potable freshwater resources away from agriculture to the cities. This will be accomplished in two main ways: improved water use efficiency and substitutions of reclaimed wastewater for irrigation and uses other than direct human consumption. The latter is compatible with the increasing production of urban wastewater. Meanwhile, maintaining the viability of agriculture in the region is desirable for a variety of reasons, among them food self-sufficiency and the preservation of rural pastoral lifestyle in the social fabric.

As freshwater utilization has reached the limits of its availability in Israel, the West Bank and the Gaza Strip, and Jordan, international tensions over scarce water have increased. Several attempts have been made to reach a water agreement in the region, the best known of which is the “Johnston Agreement,” named after the American envoy Eric Johnston, who visited the region several times between 1953 and 1955 (see Elmusa, this volume, and Wolf, this volume). At the time his mission ended, Johnston had proposed

* Article includes text of water-related provisions of the Jordan-Israel Treaty and the Oslo II Agreement between Israel and the Palestinian Authority as an appendix.
three somewhat different versions of an agreement, one each to Syria, Jordan and Israel, with specified allocations for each. The basis for allocations in his proposals was agricultural use of water, calculated via the areas of arable land of each riparian. The Johnston agreement was never ratified. In later years, American envoys Richard Armitage and Philip Habib made attempts to reach an agreement on water allocations between the regional parties, but were never successful.

Political, institutional, and economic constraints have hindered water quality protection in the region, resulting in threats to human health and the integrity of aquatic and terrestrial ecosystems. Re-use of treated wastewater for irrigation can contribute to the reduction of such hazards.

THE WATER PROVISIONS OF THE JORDAN-ISRAEL TREATY OF PEACE

Since the early 1980s, progress has been made on the ground between Israel and Jordan. Meeting in the field, close to the diversion point from the Yarmuk River into the Jordanian King Abdullah Canal (KAC, earlier known as the Ghor Canal), water experts from the two sides met to consider Jordanian requests for increasing the diversion into the KAC. Trustful and solid relations developed in what came to be known as the “Picnic Table Talks” (see Wolf, this volume), and Israel consented to alleviate some of the water shortage in Jordan by increasing the quantities diverted. This, however, did not change Jordan’s position that it was entitled to more water from the Yarmuk, as well as from the Jordan, including from the Sea of Galilee. Jordan stood by the position that it is riparian to the entire Jordan River, from its origin, and saw Israel’s diversion of water from the Sea of Galilee into its National Water Carrier as a breach of internationally accepted principles. Israel, on the other hand, maintains, as it did then, that Jordan is riparian only to that portion of the Jordan along their common border, and therefore has no part in the Jordan upstream from its confluence with the Yarmuk.

This was the situation when the two countries entered direct negotiations, following the procedure established in the Madrid peace conference of 1991. Many rounds of negotiations ensued, in Washington and later in the region. In the beginning, there were two Arab delegations to the Washington rounds: a Jordanian delegation with Palestinian participation, and a Palestinian delegation with Jordanian presence. (This resulted from Israel’s refusal at the time to recognize the Palestinians as a separate entity.) Jordan delayed its agreement to the “Agenda” for the final peace talks until Israel and
the Palestinians signed the Oslo I Accord on the White House lawn on September 13, 1993. The “Agenda” had been ready a year earlier, but was signed only the day after the Israeli-Palestinian agreement, at the State Department in Washington. This led to intensification of the negotiations, which moved to the region, and culminated in the Peace Treaty.

The state of belligerency between the two countries came to an end with the signing of the Peace Treaty, celebrated by a ceremony in the Arava/Araba Valley just north of Aqaba/Eilat, on October 26, 1994 (referred to herein as “the Treaty”). It is a comprehensive agreement, covering all areas of concern between the two countries, including water.

The agreement on water was one of the last issues to be concluded at all night meetings in the Jordanian Palace between the water negotiators—Dr. Munther Haddadin for Jordan and Mr. Noah Kinarti for Israel—with His Majesty King Hussein and Prime Minister Rabin working out the final details.

GENERAL BACKGROUND AND THE JOINT WATER COMMITTEE

Article 6 of the Treaty states the principles relating to water, and Annex II details the “Water Related Matters.” The agreement covers two distinct geographic areas, the first of which runs along the Jordan River from its confluence with the Yarmuk River to its confluence with Wadi Yabis at Tirat Zvi (the point at which the northern border of the West Bank meets the Jordan River), the second of which begins near the Dead Sea and extends down to the Red Sea at Eilat/Aqaba through Emek Ha’Arava/Wadi Araba.

The opening statement of Article 6 (“With the view to achieving a comprehensive and lasting settlement of all the water problems between them”) stresses that this is a final agreement. Still, the negotiating parties each have recognized the need for future flexibility, and thus a Joint Water Committee (JWC) has been formed (Annex II, Article VII) as a permanent institution. The JWC is charged with implementing the Treaty and with resolving additional water-related matters which may arise subsequently.

The JWC consists of three members from each side. There is no third party involvement; however, Article 29 of the Treaty states that “Disputes arising out of the application or implementation of this Treaty shall be resolved by negotiations. Any such disputes which cannot be settled by negotiations shall be resolved by conciliation or submitted to arbitration.” The JWC obviously comes under the supervision of their respective national leaders, via the relevant Ministers.
The Treaty establishes two JWC sub-committees, one each for the northern and southern areas (Annex II, Article VII.2). The northern sub-committee deals with matters relating to the Jordan/Yarmuk, and the southern with groundwater in the Arava/Araba.

According to Article 6.3 of the Treaty “The parties recognize that their water resources are not sufficient to meet their needs. More water should be supplied for their use through various methods, including projects of regional and international co-operation.” That is, the parties have recognized that by dividing the existing sources both will still face shortage, and thus endeavor not only to divide the “pie” but also to enlarge it. This is also an appeal to the international community for assistance in augmenting the region’s water resources, as one of the so-called “fruits of peace.”

The specific areas of cooperation, as outlined in Article 6.4, are: development of existing and new water resources, increasing of water availability, including regional co-operation on a regional basis, and waste minimization; prevention of contamination of water resources; mutual assistance in the alleviation of water shortages; information transfer; joint water research and development, and “review of the potentials for enhancement of water resources development and use.”

WATER ALLOCATIONS, STORAGE, AND QUALITY PROTECTION IN THE JORDAN-YARMUK RIVER SYSTEM

The Agreement does not mention “water rights,” but states that “the parties agree mutually to recognize the rightful allocations of both of them in Jordan River and Yarmuk River waters and Arava/Araba groundwater, in accordance with agreed-upon acceptable principles, quantities and quality as set out in Annex II, which shall be fully respected and complied with” (Article 6.1). This indicates the pragmatic approach adopted by the parties; rather than insisting on what their respective rights might be according to the vague and somewhat contradictory international law on the subject, the parties agreed on specific water quantities, qualities, times and locations.

Allocations are taken up in Annex II, Article I. Israel is allotted flows from the Yarmuk River, specified for a “summer” period (May 15 to October 15) and a “winter” period (October 16 to May 14), with the remainder allocated to Jordan. To implement these allocations, “Jordan and Israel shall cooperate to build a diversion/storage dam on the Yarmuk River directly downstream of the Adassiya Diversion/point 121.” (Annex II, Article II.1.) Preliminary work in the location where the dam is to be constructed has been ongoing, but there is still no agreement on the precise location, design and operation, or environmental protection.
Israel stores in its system 20 million m³ per year (MCM/y) of winter flows in the Yarmuk, to be returned to Jordan in the summer. This is done with a pipeline, 3.2 km long, “...from the Jordan River directly upstream of the Deganya gates on the river.” (Annex II, Article I.2.a). The pipeline was constructed by Jordan, partly on Israeli territory, at its expense, and is operated by Jordan. Jordan pays Israel the operating costs of this system, and no compensation for the value of the water itself. A recent agreement by the Israeli Minister of Infrastructure Ariel Sharon resulted in an increase of 25 MCM/y to Jordan from this source.

Jordan is given allocations from the Jordan River: “Winter period – 16th October to 14th May of each year. Jordan is entitled to store for its use a minimum average of (20) MCM of the floods in the Jordan River south of its confluence with the Yarmuk” (Annex II, Article I.2.b). This is conditioned on the assumption that “Israel is entitled to maintain its current uses of the Jordan River waters between its confluence with the Yarmuk and its confluence with Wadi Yabis/Tirat Zvi” (Annex II, Article I.2.c). Agreement on how this translates into actual quantities has not been settled, and studies of potential for storage on the Jordan River have not been completed yet.

Annex II, Article I.2.d entitles Jordan to “an annual quantity of (10) MCM of desalinated water from the desalination of about (20) MCM of saline springs now diverted to the Jordan River.” The brine from this operation cannot be discharged into the watercourses, as is the case with other low quality waters. “Jordan and Israel will each prohibit the disposal of municipal and industrial wastewater into the courses of the Yarmuk or the Jordan Rivers before they are treated to standards allowing their unrestricted agricultural uses.” (Annex II, Article III.3.)

According to Annex II, Article I.3: “Jordan and Israel shall cooperate in finding sources for the supply to Jordan of an additional quantity of 50 MCM/y of water of drinkable standards. To this end, the Joint Water Committee will develop, within one year from the Treaty’s entry into force, a plan for the supply to Jordan of the above mentioned additional water. This plan will be forwarded to the respective governments for discussion and decision.”

This particular matter is one of the major outstanding issues on which the parties have not as yet reached a plan, two years after the expiration of the deadline. Jordan has insisted that it is Israel’s responsibility to supply this water from its sources, and has repeatedly demanded that it be supplied from the Sea of Galilee. Israel’s position was that the sources for this water should be found on both sides of the border, and that Jordan should pay the full price of
developing and supplying it. The recent decision by Minister Ariel Sharon to supply an additional 25 MCM/y to Jordan from the Israeli system constitutes a deviation from this position. The first deliveries of those volumes were transferred to Jordan in the summer of 1998.

GROUNDWATER IN WADI ARABA/EMEK HA’ARAVA

This is the area between the Dead Sea and the port cities of Eilat/Aqaba. “… some wells drilled and used by Israel along with their associated systems fall on the Jordanian side of the border. These wells and systems are under Jordan’s sovereignty. Israel shall retain the use of these wells and systems in the quantity and quality detailed in Appendix 1, that shall be prepared by December 1, 1994. Neither country shall take, or cause to be taken, any measure that may appreciably reduce the yields or quality of these wells and systems” (Annex II, Article IV.1)

Furthermore, “Israel may increase the abstraction rate from wells and systems in Jordan by up to (10) MCM/year above the yields referred to in paragraph 1 above, subject to the determination by the Joint Water Committee that this undertaking is hydrogeologically feasible and does not harm existing Jordanian uses. Such increase is to be carried out within five years from the entry into force of this Treaty” (Annex II, Article IV.3).

OBSERVATIONS AND COMMENTS

It must be stressed that the Jordan-Israel water agreement is a single component in a comprehensive peace treaty. What it accomplishes for each of the parties must be viewed in this light, and not in isolation.

The northern pipeline from the Jordan River in Israel to the KAC, built and operated by Jordan, and Israel’s continued use and potential expansion of the groundwater in the Jordan in the south, are quite unique in international water agreements. This interlinking of water systems, allowing entry of one country into the territory of the other, should be viewed as an indication of the mutual trust and commitment which prevailed when the agreement was negotiated and concluded.

The Treaty is a permanent one. It is also fairly pragmatic and certainly complex, making it possible to present different perspectives on what it achieves for each side. This allows interested parties, on both sides, to characterize the agreement as either an achievement or a failure in domestic fora.

Protection of water quality and of the environment is an integral part of the Treaty. And yet, there is concern that while other parts of the Agreement have strong interests behind them (water users), the environmental interests may not have strong and specific interests to
stand for them. It is therefore the role of the national authorities to make sure that the environment does not get short-changed.

The parties recognize the need to develop additional water, not merely to divide the existing sources.

The Treaty does not specify how shortages (in the Yarmuk and Jordan) are to be allocated between the sides; instead the task is left for resolution by the JWC.

Syrian involvement in the Yarmuk is an important factor. The construction of storage reservoirs on the Yarmuk and water uses from the Yarmuk in Syria have a critical influence on the discharge of the river remaining for Jordan and Israel. Any future agreement between Israel and Syria is likely to have a significant effect on the flows of the Jordan, and thus there is a possibility of having to decrease the quantities specified in Jordan-Israel Treaty, but also perhaps inspiring creative alternatives for increasing the quantities available to all parties in the Jordan basin.

Similarly, the agreement is likely to need adjustment when a final Israeli-Palestinian water agreement is discussed, for areas in the Jordan Valley and elsewhere in the West Bank.

**THE PALESTINIAN-ISRAELI WATER AGREEMENT IN OSLO II**

Oslo II is an interim agreement signed between the Palestinians and Israelis in September 1995, named with reference to “Oslo I,” the initial Declaration of Principles which initiated the peace process in September 1993. Article 40 of the Agreement’s Annex III, entitled “Water and Sewage,” was initialed by the water negotiators—Mr. Nabil Sharif for the Palestinians and Mr. Noah Kinarti for Israel—in the early morning hours of September 18, 1995. It was the first portion of the overall Interim Agreement to be concluded between the two sides.

**INTRODUCTION OF THE NOTION OF RIGHTS, GENERAL PRINCIPLES, AND THE TRANSFER OF AUTHORITY**

While Jordan consented to discussing “allocations,” the Palestinians succeeded in including in the Agreement an explicit reference to water “rights.” The first substantive language of the water provisions of the Interim Agreement is as follows: “Israel recognizes the Palestinian water rights in the West Bank. These will be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources” (Article 40.1).

The Interim Agreements’ principles echo the Jordan-Israel Treaty’s declarations on the necessity to augment existing reserves and to maintain existing uses (Article 40.2, 3a) and to prevent water
quality deterioration (Article 40.3b, f). The Agreement notably adds language on sustainability (in terms of both quantity and quality) and on the factoring of interannual variability in hydrologic conditions (Article 40.3c, d). Wastewater reuse is introduced as a principle (Article 40.3f), as is avoidance of harm (Article 40.3h). Finally, the Agreement calls for coordinated operation, management, and development of water and sewage systems and insurance that the provisions of the Agreement are applied to all resources and systems, including those under private ownership or operation (Article 40.3g, i). “Coordinated” should be understood in this context as an alternative to “joint.” “Joint” would mean joint ownership and management of a resource, and the nature of joint ownership must obviously be defined, for the principle to be made practical. “Coordinated” indicates that each side is sovereign in its domain, but agrees that certain matters (which have to be defined, to make the agreement practical) are managed together.

There is significant substantive language on regulatory and management authority which calls for the transfer by Israel (and, of course, the assumption by the Palestinians) of water and sewerage powers and responsibilities in spheres “related solely to the Palestinians, that are currently held by the military government and its Civil Administration” (Article 40.4). There are, nonetheless, caveats which postpone resolution (like other critical components of the peace process) until the final status negotiations, including “ownership of water and sewage-related infrastructure in the West Bank” (Article 40.5).

DATA ON THE MOUNTAIN AQUIFER

Schedule 10 of the Agreement places numerical estimates on the “utilization, extraction, and … potentials” of the sub-basins of the Mountain Aquifer, which it refers to as the Eastern, Northeastern, and Western Aquifers. (See Wolf, Figure 9, this volume.) The Eastern Aquifer is estimated to have an annual recharge of 172 MCM, of which 40 MCM (from wells) are utilized by Israelis, 54 MCM (24 MCM from wells and 30 MCM from springs) are utilized by Palestinians and an additional 78 MCM are “to be developed.” The Northeastern Aquifer is estimated to yield 145 MCM, of which 103 MCM (from the Gilboa and Beisan springs, including wells) are utilized by Israelis and 32 MCM are utilized by Palestinians (25 MCM to users around Jenin and 17 MCM from the East Nablus springs). The Western Aquifer is estimated to have an annual recharge of 362 MCM, of which 340 are utilized within Israel and 20 MCM by the Palestinians. An additional two MCM from springs around Nablus is also to be utilized by Palestinians.
ADDITIONAL WATER

The Agreement states that “Both sides have agreed that the future needs of the Palestinians in the West Bank are estimated to be between 70 - 80 MCM/y” (Article 40.6), and then details the additional water to be provided to the Palestinians “during the interim period” (Article 40.7), some projects to be constructed by Israel, others by the Palestinians. The total quantity specified in these projects is 28.6 MCM/y, of which 5 MCM/y is dedicated to Gaza from the Israeli water system (Article 40.7.a.6, b.3), 17 MCM/yr “...to the Hebron, Bethlehem and Ramallah areas from the Eastern Aquifer or other agreed sources in the West Bank” (Article 40.7.b.2), and the remainder (6.6 MCM/y) from a number of specified sources and systems.

THE JOINT WATER COMMITTEE (JWC) AND A JOINT SUPERVISION AND ENFORCEMENT MECHANISM (JSET)

The Joint Water Committee provisions (Article 40.11-15, and Schedule 8) are far more detailed in the Israeli-Palestinian Interim Agreement than in the Jordan-Israel Peace Treaty. Although the Agreement does not specify the size of the committee (stating only that representation from the two sides must be equal in number), it is more specific as to the functions of the body (see Article 40.12.a-j and Schedule 8). Most significantly, all new water development in the area under jurisdiction must receive approval from the JWC from the planning stages onward (see Article 40.1.a-b, 2.d).

All JWC decisions are to be “reached by consensus, including the agenda, its procedures, and other matters” (Article 40.13). There is no reference to arbitration or other third party dispute resolution mechanisms, although the Committee is obviously entitled to seek advice or involvement by external entities, if it so agrees.

The Agreement also establishes enforcement arms of the JWC, termed “Joint Supervision and Enforcement Teams” (JSETs), to be comprised of at least two members from each side, with costs shared equally, to “monitor, supervise, and enforce Article 40 and [Schedule 9]” and granted extremely broad inspection and data collection powers (Article 40.17, Schedule 9.5.a-f.).

WATER RESOURCE PROTECTION AND SEWAGE SYSTEMS

The Interim Agreement requires the parties to “take all necessary measures” for the prevention of water quality deterioration and pollution, the protection of water and sewage systems in their own and the counterpart’s jurisdictions (Article 40.21-24) as well as to reimburse the counterpart for “any unauthorized use or sabotage” to water systems under its responsibility (Article 40.24).
OBSERVATIONS AND COMMENTS

It must be stressed that this is an *interim* agreement. As such, it may indicate a direction for the final status agreement, but is not binding for that stage.

Like in the Jordan-Israel Peace Treaty, this is but one part of an overall agreement. It should be viewed in this context, and not in isolation. As in the case of Jordan, the Interim Agreement is pragmatic. However, the leading statement deals with “water rights,” which are then deferred to the final status negotiations.

The agreement is rather complex, making it possible to present different perspectives on what it achieves for each side. This enables interested parties, on both sides, to characterize the agreement in domestic settings as either an achievement or a failure.

The Agreement is more comprehensive than the Israel-Jordan Treaty with respect to monitoring and enforcement (as evidenced by the establishment of JSETs) and with respect to the specific functions of the joint oversight bodies.

Water and sewage are dealt with jointly, reflecting the danger which sewage poses to the environment and water resources, and its importance as a source of water for irrigation.

The agreement recognizes the need for both parties to develop additional water, not merely divide the existing sources.

The water agreements between Israel and its two neighbors—Jordan and the Palestinian Authority—will obviously have to be coordinated and brought in line.

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Appendix

Excerpted from the Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan, signed October 26, 1994 on the Israel-Jordan border in the Arava/Araba Valley:

ARTICLE 6

WATER

With the view to achieving a comprehensive and lasting settlement of all the water problems between them:

1. The Parties agree mutually to recognize the rightful allocations of both of them in Jordan River and Yarmouk River waters and Araba/Arava ground water in accordance with the agreed acceptable principles, quantities and quality as set out in Annex II, which shall be fully respected and complied with.

2. The Parties, recognizing the necessity to find a practical, just and agreed solution to their water problems and with the view that the subject of water can form the basis for the advancement of cooperation between them, jointly undertake to ensure that the management and development of their water resources do not, in any way, harm the water resources of the other Party.

3. The Parties recognize that their water resources are not sufficient to meet their needs. More water should be supplied for their use through various methods, including projects of regional and international cooperation.

4. In light of paragraph 3 of this Article, with the understanding that cooperation in water-related subjects would be to the benefit of both Parties, and will help alleviate their water shortages, and that water issues along their entire boundary must be dealt with in their totality, including the possibility of trans-boundary water transfers, the Parties agree to search for ways to alleviate water shortage and to co-operate in the following fields:
   a. development of existing and new water resources, increasing the water availability including cooperation on a regional basis as appropriate, and minimizing wastage of water resources through the chain of their uses;
   b. prevention of contamination of water resources;
   c. mutual assistance in the alleviation of water shortages;
   d. transfer of information and joint research and development in water-related subjects, and review of the potentials for enhancement of water resources development and use.

5. The implementation of both Parties’ undertakings under this Article is detailed in Annex II.
ANNEX II
Pursuant to Article 6 of the Treaty, Israel and Jordan agreed on the following Articles on water related matters:

ARTICLE I: ALLOCATION
1. Water from the Yarmouk River
   a. Summer period - 15th May to 15th October of each year. Israel pumps (12) MCM and Jordan gets the rest of the flow.
   b. Winter period - 16th October to 14th May of each year. Israel pumps (13) MCM and Jordan is entitled to the rest of the flow subject to provisions outlined hereinbelow: Jordan concedes to Israel pumping an additional (20) MCM from the Yarmouk in winter in return for Israel conceding to transferring to Jordan during the summer period the quantity specified in paragraphs (2.a) below from the Jordan River.
   c. In order that waste of water will be minimized, Israel and Jordan may use, downstream of point 121/Adassiya Diversion, excess flood water that is not usable and will evidently go to waste unused.

2. Water from the Jordan River
   a. Summer period - 15th May to 15th October of each year. In return for the additional water that Jordan concedes to Israel in winter in accordance with paragraph (1.b) above, Israel concedes to transfer to Jordan in the summer period (20) MCM from the Jordan River directly upstream from Deganya gates on the river. Jordan shall pay the operation and maintenance cost of such transfer through existing systems (not including capital cost) and shall bear the total cost of any new transmission system. A separate protocol shall regulate this transfer.
   b. Winter period - 16th October to 14th May of each year. Jordan is entitled to store for its use a minimum average of (20) MCM of the floods in the Jordan River south of its confluence with the Yarmouk (as outlined in Article II below). Excess floods that are not usable and that will otherwise be wasted can be utilized for the benefit of the two Parties including pumped storage off the course of the river.
   c. In addition to the above, Israel is entitled to maintain its current uses of the Jordan River waters between its confluence with the Yarmouk and its confluence with Tirat Zvi/Wadi Yabis. Jordan is entitled to an annual quantity equivalent to that of Israel, provided however, that Jordan’s use will not harm the quantity or quality of the above Israeli uses. The Joint Water Committee (outlined in Article VII below) will survey existing uses for documentation and prevention of appreciable harm.
   d. Jordan is entitled to an annual quantity of (10) MCM of desalinated water from the desalination of about (20) MCM of saline springs now diverted to the Jordan River. Israel will explore the possibility of financing the operation and maintenance cost of the supply to Jordan of this desalinated water (not including capital cost). Until the desalination facilities are operational, and upon the entry into force of the Treaty, Israel will supply Jordan (10) MCM of Jordan River water from the same location as in (2.a) above, outside the summer period and during dates Jordan selects, subject to the maximum capacity of transmission.
3. Additional Water
   Israel and Jordan shall cooperate in finding sources for the supply to Jordan of an additional quantity of (50) MCM/year of water of drinkable standards. To this end, the Joint Water Committee will develop, within one year from the entry into force of the Treaty, a plan for the supply to Jordan of the above mentioned additional water. This plan will be forwarded to the respective governments for discussion and decision.

4. Operation and Maintenance
   a. Operation and maintenance of the systems on Israeli territory that supply Jordan with water, and their electricity supply, shall be Israel’s responsibility. The operation and maintenance of the new systems that serve only Jordan will be contracted at Jordan’s expense to authorities or companies selected by Jordan.
   b. Israel will guarantee easy unhindered access of personnel and equipment to such new systems for operation and maintenance. This subject will be further detailed in the agreements to be signed between Israel and the authorities or companies selected by Jordan.

ARTICLE II: STORAGE
1. Israel and Jordan shall cooperate to build a diversion/storage dam on the Yarmouk River directly downstream of the point 121/Adassiya Diversion. The purpose is to improve the diversion efficiency into the King Abdullah Canal of the water allocation of the Hashemite Kingdom of Jordan, and possibly for the diversion of Israel’s allocation of the river water. Other purposes can be mutually agreed.
2. Israel and Jordan shall cooperate to build a system of water storage on the Jordan River, along their common boundary, between its confluence with the Yarmouk River and its confluence with Tirat Zvi/ Wadi Yabis, in order to implement the provision of paragraph (2.b) of Article I above. The storage system can also be made to accommodate more floods; Israel may use up to (3) MCM/year of added storage capacity.
3. Other storage reservoirs can be discussed and agreed upon mutually.

ARTICLE III: WATER QUALITY AND PROTECTION
1. Israel and Jordan each undertake to protect, within their own jurisdiction, the shared waters of the Jordan and Yarmouk Rivers, and Arava/Araba groundwater, against any pollution, contamination, harm or unauthorized withdrawals of each other’s allocations.
2. For this purpose, Israel and Jordan will jointly monitor the quality of water along their boundary, by use of jointly established monitoring stations to be operated under the guidance of the Joint Water Committee.
3. Israel and Jordan will each prohibit the disposal of municipal and industrial wastewater into the course of the Yarmouk or the Jordan Rivers before they are treated to standards allowing their unrestricted agricultural use. Implementation of this prohibition shall be completed within three years from the entry into force of the Treaty.
4. The quality of water supplied from one country to the other at any given location shall be equivalent to the quality of the water used from the same location by the supplying country.
5. Saline springs currently diverted to the Jordan River are earmarked for desalination within four years. Both countries shall cooperate to ensure that the resulting brine will not be disposed of in the Jordan River or in any of its tributaries.

6. Israel and Jordan will each protect water systems in its own territory, supplying water to the other, against any pollution, contamination, harm or unauthorized withdrawal of each other’s allocations.

ARTICLE IV: GROUNDWATER IN EMEK HA’ARAVA/WADI ARABA

1. In accordance with the provisions of this Treaty, some wells drilled and used by Israel along with their associated systems fall on the Jordanian side of the borders. These wells and systems are under Jordan’s sovereignty. Israel shall retain the use of these wells and systems in the quantity and quality detailed an Appendix to this Annex, that shall be jointly prepared by 31st December, 1994. Neither country shall take, nor cause to be taken, any measure that may appreciably reduce the yields of quality of these wells and systems.

2. Throughout the period of Israel’s use of these wells and systems, replacement of any well that may fail among them shall be licensed by Jordan in accordance with the laws and regulations then in effect. For this purpose, the failed well shall be treated as though it was drilled under license from the competent Jordanian authority at the time of its drilling. Israel shall supply Jordan with the log of each of the wells and the technical information about it to be kept on record. The replacement well shall be connected to the Israeli electricity and water systems.

3. Israel may increase the abstraction rate from wells and systems in Jordan by up to (10) MCM/year above the yields referred to in paragraph 1 above, subject to a determination by the Joint Water Committee that this undertaking is hydrogeologically feasible and does not harm existing Jordanian uses. Such increase is to be carried out within five years from the entry into force of the Treaty.

4. Operation and Maintenance
   a. Operation and maintenance of the wells and systems on Jordanian territory that supply Israel with water, and their electricity supply shall be Jordan’s responsibility. The operation and maintenance of these wells and systems will be contracted at Israel’s expense to authorities or companies selected by Israel.
   b. Jordan will guarantee easy unhindered access of personnel and equipment to such wells and systems for operation and maintenance. This subject will be further detailed in the agreements to be signed between Jordan and the authorities or companies selected by Israel.

ARTICLE V: NOTIFICATION AND AGREEMENT

1. Artificial changes in or of the course of the Jordan and Yarmouk Rivers can only be made by mutual agreement.

2. Each country undertakes to notify the other, six months ahead of time, of any intended projects which are likely to change the flow of either of the above rivers along their common boundary, or the quality of such flow. The subject will be discussed in the Joint Water Committee with the aim of preventing harm and mitigating adverse impacts such projects may cause.
ARTICLE VI: COOPERATION
1. Israel and Jordan undertake to exchange relevant data on water resources through the Joint Water Committee.
2. Israel and Jordan shall cooperate in developing plans for purposes of increasing water supplies and improving water use efficiency, within the context of bilateral, regional or international cooperation.

ARTICLE VII: JOINT WATER COMMITTEE
1. For the purpose of the implementation of this Annex, the Parties will establish a Joint Water Committee comprised of three members from each country.
2. The Joint Water Committee will, with the approval of the respective governments, specify its work procedures, the frequency of its meetings, and the details of its scope of work. The Committee may invite experts and/or advisors as may be required.
3. The Committee may form, as it deems necessary, a number of specialized sub-committees and assign them technical tasks. In this context, it is agreed that these sub-committees will include a northern sub-committee and a southern sub-committee, for the management on the ground of the mutual water resources in these sectors.
Excerpted from the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip ("Oslo II"), signed September 28, 1995 in Taba, Egypt:

ANNEX III

PROTOCOL CONCERNING CIVIL AFFAIRS

ARTICLE 40

WATER AND SEWAGE
On the basis of good-will, both sides have reached the following agreement in the sphere of Water and Sewage:

PRINCIPLES
1. Israel recognizes the Palestinian water rights in the West Bank. These will be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources.
2. Both sides recognize the necessity to develop additional water for various uses.
3. While respecting each side’s powers and responsibilities in the sphere of water and sewage in their respective areas, both sides agree to coordinate the management of water and sewage resources and systems in the West Bank during the interim period, in accordance with the following principles:
   a. Maintaining existing quantities of utilization from the resources, taking into consideration the quantities of additional water for the Palestinians from the Eastern Aquifer and other agreed sources in the West Bank as detailed in this Article.
   b. Preventing the deterioration of water quality in water resources.
   c. Using the water resources in a manner which will ensure sustainable use in the future, in quantity and quality.
   d. Adjusting the utilization of the resources according to variable climatological and hydrological conditions.
   e. Taking all necessary measures to prevent any harm to water resources, including those utilized by the other side.
   f. Treating, reusing or properly disposing of all domestic, urban, industrial, and agricultural sewage.
   g. Existing water and sewage systems shall be operated, maintained and developed in a coordinated manner, as set out in this Article.
   h. Each side shall take all necessary measures to prevent any harm to the water and sewage systems in their respective areas.
   i. Each side shall ensure that the provisions of this Article are applied to all resources and systems, including those privately owned or operated, in their respective areas.
TRANSFER OF AUTHORITY

4. The Israeli side shall transfer to the Palestinian side, and the Palestinian side shall assume, powers and responsibilities in the sphere of water and sewage in the West Bank related solely to Palestinians, that are currently held by the military government and its Civil Administration, except for the issues that will be negotiated in the permanent status negotiations, in accordance with the provisions of this Article.

5. The issue of ownership of water and sewage related infrastructure in the West Bank will be addressed in the permanent status negotiations.

ADDITIONAL WATER

6. Both sides have agreed that the future needs of the Palestinians in the West Bank are estimated to be between 70 - 80 MCM/year.

7. In this framework, and in order to meet the immediate needs of the Palestinians in fresh water for domestic use, both sides recognize the necessity to make available to the Palestinians during the interim period a total quantity of 28.6 MCM/year, as detailed below:

   a. Israeli Commitment:
      1. Additional supply to Hebron and the Bethlehem area, including the construction of the required pipeline - 1 MCM/year.
      2. Additional supply to Ramallah area - 0.5 MCM/year.
      3. Additional supply to an agreed take-off point in the Salfit area - 0.6 MCM/year.
      4. Additional supply to the Nablus area - 1 MCM/year.
      5. The drilling of an additional well in the Jenin area - 1.4 MCM/year.
      6. Additional supply to the Gaza Strip - 5 MCM/year.
      7. The capital cost of items (1) and (5) above shall be borne by Israel.

   b. Palestinian Responsibility:
      1. An additional well in the Nablus area - 2.1 MCM/year.
      2. Additional supply to the Hebron, Bethlehem and Ramallah areas from the Eastern Aquifer or other agreed sources in the West Bank - 17 MCM/year.
      3. A new pipeline to convey the 5 MCM/year from the existing Israeli water system to the Gaza Strip. In the future, this quantity will come from desalination in Israel.
      4. The connecting pipeline from the Salfit take-off point to Salfit.
      5. The connection of the additional well in the Jenin area to the consumers.
      6. The remainder of the estimated quantity of the Palestinian needs mentioned in paragraph 6 above, over the quantities mentioned in this paragraph (41.4 - 51.4 MCM/year), shall be developed by the Palestinians from the Eastern Aquifer and other agreed sources in the West Bank. The Palestinians will have the right to utilize this amount for their needs (domestic and agricultural).

8. The provisions of paragraphs 6-7 above shall not prejudice the provisions of paragraph 1 to this Article.

9. Israel shall assist the Council in the implementation of the provisions of paragraph 7 above, including the following:
a. Making available all relevant data.
b. Determining the appropriate locations for drilling of wells.

10. In order to enable the implementation of paragraph 7 above, both sides shall negotiate and finalize as soon as possible a Protocol concerning the above projects, in accordance with paragraphs 18 - 19 below.

THE JOINT WATER COMMITTEE

11. In order to implement their undertakings under this Article, the two sides will establish, upon the signing of this Agreement, a permanent Joint Water Committee (JWC) for the interim period, under the auspices of the CAC.

12. The function of the JWC shall be to deal with all water and sewage related issues in the West Bank including, inter alia:
   a. Coordinated management of water resources.
   b. Coordinated management of water and sewage systems.
   c. Protection of water resources and water and sewage systems.
   d. Exchange of information relating to water and sewage laws and regulations.
   e. Overseeing the operation of the joint supervision and enforcement mechanism.
   f. Resolution of water and sewage related disputes.
   g. Cooperation in the field of water and sewage, as detailed in this Article.
   h. Arrangements for water supply from one side to the other.
   i. Monitoring systems. The existing regulations concerning measurement and monitoring shall remain in force until the JWC decides otherwise.
   j. Other issues of mutual interest in the sphere of water and sewage.

13. The JWC shall be comprised of an equal number of representatives from each side.

14. All decisions of the JWC shall be reached by consensus, including the agenda, its procedures and other matters.

15. Detailed responsibilities and obligations of the JWC for the implementation of its functions are set out in Schedule 8.

SUPERVISION AND ENFORCEMENT MECHANISM

16. Both sides recognize the necessity to establish a joint mechanism for supervision over and enforcement of their agreements in the field of water and sewage, in the West Bank.

17. For this purpose, both sides shall establish, upon the signing of this Agreement, Joint Supervision and Enforcement Teams (JSET), whose structure, role, and mode of operation is detailed in Schedule 9.

WATER PURCHASES

18. Both sides have agreed that in the case of purchase of water by one side from the other, the purchaser shall pay the full real cost incurred by the supplier, including the cost of production at the source and the conveyance all the way to the point of delivery. Relevant provisions will be included in the Protocol referred to in paragraph 19 below.
19. The JWC will develop a Protocol relating to all aspects of the supply of water from one side to the other, including, inter alia, reliability of supply, quality of supplied water, schedule of delivery and off-set of debts.

MUTUAL COOPERATION
20. Both sides will cooperate in the field of water and sewage, including, inter alia:
   b. Cooperation concerning regional development programs, in accordance with the provisions of Article XI and Annex IV of the Declaration of Principles.
   c. Cooperation, within the framework of the joint Israeli-Palestinian-American Committee, on water production and development related projects agreed upon by the JWC.
   d. Cooperation in the promotion and development of other agreed water-related and sewage-related joint projects, in existing or future multi-lateral forums.
   e. Cooperation in water-related technology transfer, research and development, training, and setting of standards.
   f. Cooperation in the development of mechanisms for dealing with water-related and sewage related natural and man-made emergencies and extreme conditions.
   g. Cooperation in the exchange of available relevant water and sewage data, including:
      1. Measurements and maps related to water resources and uses.
      2. Reports, plans, studies, researches and project documents related to water and sewage.
      3. Data concerning the existing extractions, utilization and estimated potential of the Eastern, North-Eastern and Western Aquifers (attached as Schedule 10).

PROTECTION OF WATER RESOURCES AND WATER AND SEWAGE SYSTEMS
21. Each side shall take all necessary measures to prevent any harm, pollution, or deterioration of water quality of the water resources.
22. Each side shall take all necessary measures for the physical protection of the water and sewage systems in their respective areas.
23. Each side shall take all necessary measures to prevent any pollution or contamination of the water and sewage systems, including those of the other side.
24. Each side shall reimburse the other for any unauthorized use of or sabotage to water and sewage systems situated in the areas under its responsibility which serve the other side.

THE GAZA STRIP
25. The existing agreements and arrangements between the sides concerning water resources and water and sewage systems in the Gaza Strip shall remain unchanged, as detailed in Schedule 11.
SCHEDULE 8

JOINT WATER COMMITTEE

Pursuant to Article 40, paragraph 15 of this Appendix, the obligations and responsibilities of the JWC shall include:

1. Coordinated management of the water resources as detailed hereunder, while maintaining the existing utilization from the aquifers as detailed in Schedule 10, and taking into consideration the quantities of additional water for the Palestinians as detailed in Article 40. It is understood that the above-mentioned Schedule 10 contains average annual quantities, which shall constitute the basis and guidelines for the operation and decisions of the JWC:
   a. All licensing and drilling of new wells and the increase of extraction from any water source, by either side, shall require the prior approval of the JWC.
   b. All development of water resources and systems, by either side, shall require the prior approval of the JWC.
   c. Notwithstanding the provisions of a. and b. above, it is understood that the projects for additional water detailed in paragraph 7 of Article 40, are agreed in principle between the two sides. Accordingly, only the geo-hydrological and technical details and specifications of these projects shall be brought before the JWC for approval prior to the commencement of the final design and implementation process.
   d. When conditions, such as climatological or hydrological variability, dictate a reduction or enable an increase in the extraction from a resource, the JWC shall determine the changes in the extractions and in the resultant supply. These changes will be allocated between the two sides by the JWC in accordance with methods and procedures determined by it.
   e. The JWC shall prepare, within three months of the signing of this Agreement, a Schedule to be attached to this Agreement, of extraction quotas from the water resources, based on the existing licenses and permits.

The JWC shall update this Schedule on a yearly basis and as otherwise required.

2. Coordinated management of water and sewage systems in the West Bank, as follows:
   a. Existing water and sewage systems, which serve the Palestinian population solely, shall be operated and maintained by the Palestinian side solely, without interference or obstructions, in accordance with the provisions of Article 40.
   b. Existing water and sewage systems serving Israelis, shall continue to be operated and maintained by the Israeli side solely, without interference or obstructions, in accordance with the provisions of Article 40.
   c. The systems referred to in a and b above shall be defined on Maps to be agreed upon by the JWC within three months from the signing of this Agreement.
   d. Plans for construction of new water and sewage systems or modification of existing systems require the prior approval of the JWC.
SCHEDULE 9

SUPERVISION AND ENFORCEMENT MECHANISM

Pursuant to Article 40, Paragraph 17 of this Appendix:

1. Both sides shall establish, upon the signing of this Agreement, no less than five Joint Supervision and Enforcement Teams (JSETs) for the West Bank, under the control and supervision of the JWC, which shall commence operation immediately.

2. Each JSET shall be comprised of no less than two representatives from each side, each side in its own vehicle, unless otherwise agreed. The JWC may agree on changes in the number of JSETs and their structure.

3. Each side will pay its own costs, as required to carry out all tasks detailed in this Schedule. Common costs will be shared equally.

4. The JSETs shall operate, in the field, to monitor, supervise and enforce the implementation of Article 40 and this Schedule, and to rectify the situation whenever an infringement has been detected, concerning the following:
   a. Extraction from water resources in accordance with the decisions of the JWC, and the Schedule to be prepared by it in accordance with sub-paragraph 1.e of Schedule 8.
   b. Unauthorized connections to the supply systems and unauthorized water uses;
   c. Drilling of wells and development of new projects for water supply from all sources;
   d. Prevention of contamination and pollution of water resources and systems;
   e. Ensuring the execution of the instructions of the JWC on the operation of monitoring and measurement systems;
   f. Operation and maintenance of systems for collection, treatment, disposal and reuse, of domestic and industrial sewage, of urban and agricultural runoff, and of urban and agricultural drainage systems;
   g. The electric and energy systems which provide power to all the above systems;
   h. The Supervisory Control and Data Acquisition (SCADA) systems for all the above systems;
   i. Water and sewage quality analyses carried out in approved laboratories, to ascertain that these laboratories operate according to accepted standards and practices, as agreed by the JWC. A list of the approved laboratories will be developed by the JWC;
   j. Any other task, as instructed by the JWC.

5. Activities of the JSETs shall be in accordance with the following:
   a. The JSETs shall be entitled, upon coordination with the relevant DCO, to free, unrestricted and secure access to all water and sewage facilities and systems, including those privately owned or operated, as required for the fulfillment of their function.
   b. All members of the JSET shall be issued identification cards, in Arabic, Hebrew and English containing their full names and a photograph.
   c. Each JSET will operate in accordance with a regular schedule of site visits, to wells, springs and other water sources, water works, and sewage systems, as developed by the JWC.
d. In addition, either side may require that a JSET visit a particular water or sewage facility or system, in order to ensure that no infringements have occurred. When such a requirement has been issued, the JSET shall visit the site in question as soon as possible, and no later than within 24 hours.

e. Upon arrival at a water or sewage facility or system, the JSET shall collect and record all relevant data, including photographs as required, and ascertain whether an infringement has occurred. In such cases, the JSET shall take all necessary measures to rectify it, and reinstate the status quo ante, in accordance with the provisions of this Agreement. If the JSET cannot agree on the actions to be taken, the matter will be referred immediately to the two Chairmen of the JWC for decision.

f. The JSET shall be assisted by the DCOs and other security mechanisms established under this Agreement, to enable the JSET to implement its functions.

g. The JSET shall report its findings and operations to the JWC, using forms which will be developed by the JWC.

SCHEDULE 10

DATA CONCERNING AQUIFERS

Pursuant to Article 40, paragraph 20 and Schedule 8 paragraph 1 of this Appendix:
The existing extractions, utilization and estimated potential of the Eastern, North-Eastern, and Western Aquifers are as follows:

Eastern Aquifer:
- In the Jordan Valley, 40 MCM to Israeli users, from wells;
- 24 MCM to Palestinians, from wells; 30 MCM to Palestinians, from springs;
- 78 MCM remaining quantities to be developed from the Eastern Aquifer;
- Total = 172 MCM.

North-Eastern Aquifer:
- 103 MCM to Israeli users, from the Gilboa and Beisan springs, including from wells;
- 25 MCM to Palestinian users around Jenin;
- 17 MCM to Palestinian users from East Nablus springs;
- Total = 145 MCM.

Western Aquifer:
- 340 MCM used within Israel;
- 20 MCM to Palestinians;
- 2 MCM to Palestinians, from springs near Nablus;
- Total = 362 MCM.

All figures are average annual estimates.
The total annual recharge is 679 MCM.
SCHEDULE 11

THE GAZA STRIP

Pursuant to Article 40, Paragraph 25:

1. All water and sewage (hereinafter referred to as “water”) systems and resources in the Gaza Strip shall be operated, managed and developed (including drilling) by the Council, in a manner that shall prevent any harm to the water resources.

2. As an exception to paragraph 1., the existing water systems supplying water to the Settlements and the Military Installation Area, and the water systems and resources inside them shall continue to be operated and managed by Mekoroth Water Co.

3. All pumping from water resources in the Settlements and the Military Installation Area shall be in accordance with existing quantities of drinking water and agricultural water. Without derogating from the powers and responsibilities of the Council, the Council shall not adversely affect these quantities. Israel shall provide the Council with all data concerning the number of wells in the Settlements and the quantities and quality of the water pumped from each well, on a monthly basis.

4. Without derogating from the powers and responsibilities of the Council, the Council shall enable the supply of water to the Gush Katif settlement area and Kfar Darom settlement by Mekoroth, as well as the maintenance by Mekoroth of the water systems supplying these locations.

5. The Council shall pay Mekoroth for the cost of water supplied from Israel and for the real expenses incurred in supplying water to the Council.

6. All relations between the Council and Mekoroth shall be dealt with in a commercial agreement.

7. The Council shall take the necessary measures to ensure the protection of all water systems in the Gaza Strip.

8. The two sides shall establish a subcommittee to deal with all issues of mutual interest including the exchange of all relevant data to the management and operation of the water resources and systems and mutual prevention of harm to water resources.

9. The subcommittee shall agree upon its agenda and upon the procedures and manner of its meetings, and may invite experts or advisers as it sees fit.