

**Case Study of Transboundary Dispute Resolution: the Jordan River**  
***Johnston Negotiations 1953-1955; Yarmuk Mediations 1980s***  
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## 1. Case summary

<i>River basin:</i>	Jordan River and tributaries, directly; Litani, indirectly (figure 1, table 1)
<i>Dates of negotiation:</i>	1953-1955; 1980s through the present
<i>Relevant parties:</i>	United States (initially sponsoring); U.S. and Russia (sponsoring multilateral negotiations); riparian entities: Israel, Jordan, Lebanon, Palestine, Syria
<i>Flashpoint:</i>	1951 and 1953 Syrian/Israeli exchanges of fire over water development in demilitarized zone; 1964-66 water diversions
<i>Issues:</i>	Stated objectives: negotiate an equitable allocation of the flow of the Jordan River and its tributaries between the riparian states; develop a rational plan for integrated watershed development
<i>Additional issues:</i>	Water-related: Out-of-basin transfers; level of international control ("water master"); location and control of storage facilities; inclusion or exclusion of the Litani River. Non-water: political recognition of adversaries
<i>Excluded issues:</i>	Groundwater; Palestinians as political entity (initially)
<i>Criteria for water allocations:</i>	Amount of irrigable land within watershed for each state (in Johnston negotiations); "needs-based" criteria developed in current peace talks
<i>Incentives/linkage:</i>	Financial: U.S. and donor communities have agreed to cost-share regional water projects. Political: Multilateral talks work in conjunction with bilateral negotiations
<i>Breakthroughs:</i>	Harza study of Jordan's water needs (in Johnston talks); question of water rights successfully regulated to bilateral talks; creation of Palestinian Water Authority accepted by all parties
<i>Status:</i>	Israel-Jordan Peace Treaty (1994); Israel-Palestine Interim Agreement (1993, 1995) each have major water components

## 2. Background

In 1951, several states announced unilateral plans for the Jordan watershed. Arab states began to discuss organized exploitation of two northern sources of the Jordan—the Hasbani and the Banias. The Israelis made public their "All Israel Plan" which included the draining of Huleh Lake and swamps, diversion of the northern Jordan River and construction of a carrier to the coastal plain and Negev Desert—the first out-of-basin transfer for the watershed in the region.

Jordan announced a plan to irrigate the East Ghor of the Jordan Valley by tapping the Yarmuk. At Jordan's announcement, Israel closed the gates of an existing dam south of the Sea of Galilee and began draining the Huleh swamps, which infringed on the demilitarized zone with Syria. This action led to a series of border skirmishes between Israel and Syria which escalated over the summer of 1951.

In March 1953, Jordan and the U.N. Relief and Works Agency for Palestine Refugees (UNRWA) signed an agreement to begin implementing the "Bunger Plan" which called for a dam at Maqarin on the Yarmuk River with a storage capacity of 480 MCM, and a diversion dam at Addassiyah which would direct gravity flow along the East Ghor of the Jordan Valley. The water would both open land for irrigation and provide power for Syria and Jordan and offer resettlement for 100,000 refugees. In June 1953, Jordan and Syria agreed to share the Yarmuk but Israel protested that its riparian rights were not being recognized.

In July 1953, Israel began construction on the intake of its National Water Carrier at the Bridge of Jacob's Daughters, north of the Sea of Galilee and in the demilitarized zone. Syria deployed its armed forces

*Table 1: Features of the Jordan watershed.*

Name	Riparian states (With % of national available water being utilized) b <sup>a</sup>	Riparian relations (with dates of most recent agreements)	Watershed features <sup>a</sup>			
			Average annual flow (km <sup>3</sup> /yr.) <sup>c</sup>	Size (km <sup>2</sup> )	Climate	Special features
Jordan	Israel (95.6), Jordan (67.6), Lebanon (20.6), Palestine (100.0), Syria (102.0), West Bank (n/a), Egypt (n/a), Golan Heights (n/a)	Cool to warm (1994 Treaty of Peace - Israel/Jordan; 1995 Interim Agreement - Israel/ Palestine)	1.4	42,800	Dry to mediterranean	Complex conflict and attempts at conflict resolution since 1919

*a Values for lakes under "Annual Flow" are for storage volumes.*

*b Source: Kulshreshtha (1993)*

*c Sources: Gleick ed. (1993); UN Register of International Rivers (1978)*

*The remaining data in this table is from the TFDD (2007).*



Figure 1: Map of the Jordan River and tributaries (directly and indirectly, including Litani) (TFDD, 2007)..

along the border and artillery units opened fire on the construction and engineering sites. Syria also protested to the U.N. and, though a 1954 resolution allowed Israel to resume work, the USSR vetoed the resolution. The Israelis then moved the intake to its current site at Eshed Kinrot on the northwestern shore of the Sea of Galilee.

Against this tense background, President Dwight Eisenhower sent his special envoy Eric Johnston to the Mideast in October 1953 to try to mediate a comprehensive settlement of the Jordan River system allocations, and design a plan for its regional development.

### 3. The problem

The Jordan River flows between five particularly contentious riparians, two of which rely on the river as the primary water supply. By the early-1950s, there was little room for any unilateral development without impacting on other riparian states. The initial issue was an equitable allocation of the annual flow of the Jordan watershed between its riparian states—Israel, Jordan, Lebanon, and Syria. Egypt also was included, given its preeminence in the Arab world. Since water was (and is) deeply related to other contentious issues of land, refugees, and political sovereignty. The Johnston negotiations, named after U.S. special envoy Eric Johnston, attempted to mediate the dispute over water rights among all the riparians in the mid-1950s.

Until the current Arab-Israeli peace negotiations, which began in 1991, political or resource problems were always handled separately. Some experts have argued that by separating the two realms of "high" and

"low" politics, each process was doomed to fail. The initiatives which were addressed as strictly water resource issues, namely—the Johnston Negotiations of the mid-1950s, attempts at "water-for-peace" through nuclear desalination in the late 1960s, negotiations over the Yarmuk River in the 1970s and 1980s, and the Global Water Summit Initiative of 1991, all failed to one degree or another, because they were handled separately from overall political discussions. The resolution of water resources issues then had to await the Arab-Israeli peace talks to meet with any tangible progress.

#### **4. Attempts at conflict management**

Johnston's initial proposals were based on a study carried out by Charles Main and the Tennessee Valley Authority at the request of UNRWA to develop the area's water resources and to provide for refugee resettlement. The TVA addressed the problem with a regional approach, pointedly ignoring political boundaries in their study. In the words of the introduction, "the report describes the elements of an efficient arrangement of water supply within the watershed of the Jordan River System. It does not consider political factors or attempt to set this system into the national boundaries now prevailing."

The major features of the Main Plan included small dams on the Hasbani, Dan, and Banias, a medium size (175 MCM storage) dam at Maqarin, additional storage at the Sea of Galilee, and gravity flow canals down both sides of the Jordan Valley. Preliminary allocations gave Israel 394 MCM/yr, Jordan 774 MCM/yr, and Syria 45 MCM/yr (see table 2). In addition, the Main Plan described only in-basin use of the Jordan River water, although it conceded that "it is recognized that each of these countries may have different ideas about the specific areas within their boundaries to which these waters might be directed"; and excluded the Litani River.

Israel responded to the "Main Plan" with the "Cotton Plan," which It allocated Israel 1290 MCM/yr, including 400 MCM/yr from the Litani, Jordan 575 MCM/yr, Syria 30 MCM/yr, and Lebanon 450 MCM/yr. In contrast to the Main Plan, the Cotton Plan called for out-of-basin transfers to the coastal plain and the Negev; included the Litani River; and recommended the Sea of Galilee as the main storage facility, thereby diluting its salinity.

In 1954, representatives from Lebanon, Syria, Jordan, and Egypt established the Arab League Technical Committee under Egyptian leadership and formulated the "Arab Plan." Its principal difference from the Johnston Plan was in the water allocated to each state. Israel was to receive 182 MCM/yr, Jordan 698 MCM/yr, Syria 132 MCM/yr, and Lebanon 35 MCM/yr, in addition to keeping all of the Litani. The Arab Plan reaffirmed in-basin use; excluded the Litani; and rejected storage in the Galilee, which lies wholly in Israel.

Johnston worked until the end of 1955 to reconcile U.S., Arab, and Israeli proposals in a Unified Plan amenable to all of the states involved. His dealings were bolstered by a U.S. offer to fund two-thirds of the development costs. His plan addressed the objections of both sides, and accomplished no small degree of compromise, although his neglect of groundwater issues would later prove an important oversight. Though they had not met face to face for these negotiations, all states agreed on the need for a regional approach. Israel gave up on integration of the Litani and the Arabs agreed to allow out-of-basin transfer. The Arabs objected, but finally agreed, to international supervision of withdrawals and construction. Allocations under the Unified Plan, later known as the Johnston Plan, included 400 MCM/yr to Israel, 720 MCM/yr to Jordan, 132 MCM/yr to Syria and 35 MCM/yr to Lebanon (table 2).

Although the agreement was never ratified, both sides have generally adhered to the technical details and allocations, even while proceeding with unilateral development. Agreement was encouraged by the United States, which promised funding for future water development projects only as long as the Johnston Plans allocations were adhered to. Since that time to the present, Israeli and Jordanian water officials have met several times a year, as often as every two weeks during the critical summer months, at so-called "Picnic

Table Talks" at the confluence of the Jordan and Yarmuk Rivers to discuss flow rates and allocations.  
*Table 2: Water allocations from the Johnston Negotiations, in MCM/year.*

Plan	Israel	Jordan	Lebanon	Syria
Main	393	774	—	45
Cotton (Israel) <sup>1</sup>	1290	575	450	30
Arab	182	698	35	132
Unified	400 <sup>2</sup>	720 <sup>3</sup>	35	132

<sup>1</sup> Cotton Plan included integration of the Litani River into the Jordan Basin.

<sup>2</sup> Unified Plan allocated Israel the "residue" flow, what remained after the Arab States withdrew their allocations, estimated at an average of 409 MCM/year

<sup>3</sup> Two different summaries were distributed after the negotiations, with a difference of 15 MCM/year. on allocations between Israel and Jordan on the Yarmuk River. This difference was never resolved and was the focus of Yarmuk negotiations in the late 1980s.

## 5. Outcome

The technical committees from both sides accepted the Unified Plan, and the Israeli Cabinet approved it without vote in July 1955. President Nasser of Egypt became an active advocate because Johnston's proposals seemed to deal with the Arab-Israeli conflict and the Palestinian problem simultaneously. Among other proposals, Johnston envisioned the diversion of Nile water to the western Sinai Desert to resettle two million Palestinian refugees.

Despite the forward momentum, the Arab League Council decided not to accept the plan in October 1955 because of the political implications of accepting, and the momentum died out. As noted above, the agreement was never ratified, but both sides have generally adhered to the allocations.

## 6. Negotiations over the Yarmuk River

Although the watershed-wide scope of the Johnston negotiations has not been taken advantage of, the allocations which resulted have been at the heart of ongoing attempts at water conflict resolution, particularly along the Yarmuk River, where a dam for storage and hydroelectric power generation has been suggested since the early 1950s.

In 1952, Miles Bunger, an American attached to the Technical Cooperation Agency in Amman, first suggested the construction of a dam at Maqarin to help even the flow of the Yarmuk River and to tap its hydroelectric potential. The following year, Jordan and UNRWA signed an agreement to implement the Bunger plan the following year, including a dam at Maqarin with a storage capacity of 480 MCM and a diversion dam at Addassiyah, and Syria and Jordan agreed that Syria would receive 2/3 of the hydropower generated, in exchange for Jordan's receiving 7/8 of the natural flow of the river. Dams along the Yarmuk were also included in the Johnston negotiations—the Main Plan included a small dam, 47 meters high with a storage capacity of only 47 MCM, because initial planning called for the Sea of Galilee to be the central storage facility. As Arab resistance to Israeli control over Galilee storage became clear in the course of the negotiations, a larger dam, 126 meters high with a storage capacity of 300 MCM, was included.

While the idea faded with the Johnston negotiations, the idea of a dam on the Yarmuk was raised again in 1957, in a Soviet-Syrian Aid Agreement, and at the First Arab Summit in Cairo in 1964, as part of

the All-Arab Diversion Project. Construction of the diversion dam at Mukheiba was actually begun, but was abandoned when the borders shifted after the 1967 war—one side of the projected dam in the Golan Heights shifted from Syrian to Israeli territory.

The Maqarin Dam was resurrected as an idea in Jordan's Seven Year Plan in 1975, and Jordanian water officials approached their Israeli counterparts about the low dam at Mukheiba in 1977. While the Israelis proved amenable at a ministerial-level meeting in Zurich—a more-even flow of the river would benefit all of the riparians—the Israeli government shifted that year to one less interested in the project.

This stalemate might have continued except for strong U.S. involvement in 1980, when President Carter pledged a \$9 million loan towards the Maqarin project, and Congress approved an additional \$150 million—provided that *all* of the riparians agree. Philip Habib was sent to the region to help mediate an agreement. While Habib was able to gain consensus on the concept of the dam, on separating the question of the Yarmuk from that of West Bank allocations, and on the difficult question of summer flow allocations—25 MCM would flow to Israel during the summer months—negotiations were hung up winter flow allocations, and final ratification was never reached.

Syria and Jordan reaffirmed mutual commitment to a dam at Maqarin in 1987, whereby Jordan would receive 75% of the water stored in the proposed dam, and Syria would receive all of the hydropower generated. The agreement called for funding from the World Bank, which insists that all riparians agree to a project before it can be funded. Israel refused until its concerns about the winter flow of the river were addressed.

Against this backdrop, Jordan in 1989 approached the U.S. Department of State for help in resolving the dispute. Ambassador Richard Armitage was dispatched to the region in September 1989 to resume indirect mediation between Jordan and Israel where Philip Habib had left off a decade earlier. The points raised during the following year were as follows:

Both sides agreed that 25 MCM/yr would be made available to Israel during the summer months, but disagreed as to whether any additional water would be specifically earmarked for Israel during the winter months.

The overall viability of a dam was also open to question—the Israelis still thought that the Sea of Galilee ought to be used as a regional reservoir, and both sides questioned what effects ongoing development by Syria at the headwaters of the Yarmuk would have on the dam's viability. Since the State Dept. had no mandate to approach Syria, their input was missing from the mediation.

Israel eventually wanted a formal agreement with Jordan, a step which would have been politically difficult for the Jordanians at the time.

By fall of 1990, agreement seemed to be taking shape, by which Israel agreed to the concept of the dam, and discussions on a formal document and winter flow allocations could continue during construction, estimated for more than five years. Two issues held up any agreement. First, the lack of Syrian input left questions of the future of the river unresolved, a point noted by both sides during the mediations. Second, the outbreak of the Gulf War in 1991 overwhelmed other regional issues, finally preempting talks on the Yarmuk. The issue has not been brought up again until recently in the context of the Arab-Israeli peace negotiations.

In the absence of an agreement, both Syria and Israel are currently able to exceed their allocations from the Johnston accords, the former because of a series of small storage dams and the latter because of its downstream riparian position. Syria began building a series of small impoundment dams upstream from both Jordan and Israel in the mid-1980s., while Israel has been taking advantage of the lack of a storage facility to increase its withdrawals from the river. Syria currently has 27 dams in place on the upper Yarmuk, with a combined storage capacity of approximately 250 MCM (its Johnston allocations are 90 MCM/yr. from the Yarmuk), and Israel currently uses 70-100 MCM/yr (its Johnston allocation are 25-40 MCM/yr). This leaves

Jordan approximately 150 MCM/yr for the East Ghor Canal (as compared to its Johnston allocations of 377 MCM/yr).

By 1991, several events combined to shift the emphasis on the potential for 'hydro-conflict' in the Middle East to the potential for 'hydro-cooperation.' The Gulf War in 1990 and the collapse of the Soviet Union caused a realignment of political alliances in the Mideast that finally made possible the first public face-to-face peace talks between Arabs and Israelis, in Madrid on October 30, 1991. During the bilateral negotiations between Israel and each of its neighbors, it was agreed that a second track be established for multilateral negotiations on five subjects deemed 'regional,' including water resources.

Since the opening session of the multilateral talks in Moscow in January 1992, the Working Group on Water Resources, with the United States as "gavel-holder," has been the venue by which problems of water supply, demand and institutions has been raised among the parties to the bilateral talks, with the exception of Lebanon and Syria. The two tracks of the current negotiations, the bilateral and the multilateral, are designed explicitly not only to close the gap between issues of politics and issues of regional development, but perhaps to use progress on each to help catalyze the pace of the other, in a positive feedback loop towards "a just and lasting peace in the Middle East." The idea is that the multilateral working groups would provide forums for relatively free dialogue on the future of the region and, in the process, allow for personal ice-breaking and confidence building to take place. Given the role of the Working Group on Water Resources in this context, the objectives have been more on the order of fact-finding and workshops, rather than tackling the difficult political issues of water rights and allocations, or the development of specific projects. Likewise, decisions are made through consensus only.

The pace of success of each round of talks has vacillated but, in general, has been increasing. By this third meeting in 1992, it became clear that regional water-sharing agreements, or any political agreements surrounding water resources, would not be dealt with in the multilaterals, but that the role of these talks was to deal with non-political issues of mutual concern, thereby strengthening the bilateral track. The goal in the Working Group on Water Resources became to plan for a future region at peace, and to leave the pace of implementation to the bilaterals. This distinction between "planning" and "implementation" became crucial, with progress only being made as the boundary between the two is continuously pushed and blurred by the mediators.

The multilateral activities have helped set the stage for agreements formalized in bilateral negotiations—the Israel-Jordan Treaty of Peace of 1994, and the Interim Agreements between Israel and the Palestinians (1993 and 1995). For the first time since the states came into being, the Israel-Jordan peace treaty legally spells out mutually recognized water allocations. Acknowledging that, "water issues along their entire boundary must be dealt with in their totality," the treaty spells out allocations for both the Yarmuk and Jordan Rivers, as well as regarding Arava/Araba ground water, and calls for joint efforts to prevent water pollution. Also, "[recognizing] that their water resources are not sufficient to meet their needs," the treaty calls for ways of alleviating the water shortage through cooperative projects, both regional and international. The Interim Agreement also recognizes the water rights of both Israelis and Palestinians, but defers their quantification until the final round of negotiations.

## 7. Lessons learned

- *In highly conflictual settings, separating resource issues from political interests may not be a productive strategy.*

Eric Johnston took the approach that the process of reaching a rational watershed management plan: (1) may, itself, act as a confidence-building catalyst for increased cooperation in the political realm, and (2) may help alleviate the burning political issues of refugees and land rights. By approaching peace through water, however, several overriding interests remained unmet in the process. The plan finally

remained unratified mainly for political reasons.

Issues of national sovereignty which were unmet during the process included:

- The Arab states saw a final agreement with Israel as recognition of Israel, a step they were not willing to make at the time.
- Some Arabs may have felt that the plan was devised by Israel for its own benefit and was 'put over' on the U.S.

The plan allowed the countries to use their allotted water for whatever purpose they saw fit. The Arabs worried that if Israel used their water to irrigate the Negev (outside the Jordan Valley), that the increased amount of agriculture would allow more food production, which would allow for increased immigration, which might encourage greater territorial desires on the part of Israel.

- *Issues of national sovereignty can manifest itself through the need for each state to control its own water source and/or storage facilities.*

The Johnston Plan provided that some winter flood waters be stored in the Sea of Galilee, which is entirely in Israeli territory. The Arab side was reluctant to relinquish too much control of the main storage facility. Likewise, Israel had the same kinds of control reservations about a water master.

- *Ignoring a riparian party, even one without political standing, can hamper agreement.*

There was some concern over whether the Plan was designed to "liquidate the Palestinian refugee problem rather than to give the refugees their right of return." In fact, Palestinians were not addressed as a separate political entity.

Along with political entities, many interests affected by river management were not included in the process. These included NGO's, public interest groups, and environmental groups. Perhaps as a consequence, the *entire* river was allocated, leaving no water at all for in-stream uses.

- *Including key non-riparian parties can be useful to reaching agreement; excluding them can be harmful.* Egypt was included in the negotiations because of its preeminence in the Arab world, and despite its non-riparian status. Some attribute the accomplishments made during the course in part to President Nasser's support.

In contrast, pressure after the negotiations from other Arab states not directly involved in the water conflict may have had an impact on its eventual demise. Iraq and Saudi Arabia strongly urged Lebanon, Syria and Jordan not to accept the Plan. Perhaps partially as a result, Lebanon said they would not enter any agreement that split the waters of the Hasbani River or any other river.

- *All of the water resources in the basin ought to be included in the planning process. Ignoring the relationship between quality and quantity, and between surface- and groundwater, ignores hydrologic reality.*

Groundwater was not explicitly dealt with in the Plan, and is currently the most pressing issue between Israel and Palestinians. Likewise, tensions have flared over the years between Israel and Jordan over Israel's diverting saline springs into the lower Jordan, increasing the salinity of water on which Jordanian farmers rely.

- *Even in the absence of an explicit arrangement, some degree of implicit cooperation may be possible, perhaps leading to fairly high stability, if also to sub-optimum water management.*

While the lack of ratified agreement left a legacy of unilateral and generally sub-optimum water development in the basin, the implicit arrangement which resulted, particularly between Israel and Jordan, decreased tensions and added a certain stability between these most active riparians. The "Picnic Table" talks have allowed a venue for some level of technical agreement, and an outlet for minor disputes, for more than forty years.

## 8. Creative outcomes resulting from resolution process

- The plan called for water allocations to be determined according to the amount irrigable land each state had within the basin, then allowed each country to do what it wished with its water, including out-of-basin transfers.
- The development plan was created without regard to political borders, guaranteeing a degree of objectivity and engineering efficiency.
- The plan incorporated issues of hydrologic variability. For example, Israel was to receive the "residue" after Arab withdrawals, sometimes more, sometimes less from the average flow.

## 9. Timeline

- 1948 "TVA on the Jordan, Proposals, for Irrigation and Hydro-electric Development in Palestine" by James B. Hays; first Israeli plan for developing Jordan water.
- March 1951 First formal plan put forward by Jordan during post- 1948 period, presented by Sir M. McDonald and Partners.
- 1953 U.S. becomes actively involved in Jordan water management planning. Johnston is appointed by Eisenhower, and given the rank of ambassador.
- Oct 1955 Johnston presents "The Unified Development of the Water Resources of the Jordan Valley Region" to Israel, Jordan, Syria, Lebanon and Egypt- was initially poorly received. Counterproposals put forward: the Cotton Plan for Israel and the Arab Plan for the Arab countries.
- 1955 Engineering study conducted by Michael Baker, Jr., Inc. and Harza Engineering (American firms); concludes that less water is needed by Jordan than is thought; more water is therefore available for negotiations. An agreement is reached by technical committees.
- 11 October 1955 Unified Plan fail to win approval by Arab League, is sent back until plan better protected Arab interests.
- 15 Octob 1954 Letter from Johnston to Assistant Sec. of State Byroade urging that any financial aid in support of the project be in addition to existing aid.
- January-February 1955 Johnston returns to the Middle East for talks. 2/19/55 (Beirut) Johnston reaches a "preliminary understanding" concerning major elements of the proposed plan with Jordan, Lebanon, Syria and Egypt. Tentative agreement reached on: 300 MCM dam on the Yarmuk and diversion of Yarmuk floodwaters to Sea of Galilee for release to Jordan. Israel would receive approximately 409 MCM/yr.
- 10 March 1955 Discussion w/Israel begins concerning the arrangement; Johnston reassures Israel about its main concern, the nature of the neutral authority which would be established to oversee the allocations of Galilee water.
- 14 March 1955 Meeting between Assistant Sec. of State Allen and Ambassador Eban of Israel: Eban says that Allen threatened to withhold aid from Israel if the Israelis did not come to terms with Johnston. In a meeting later that same day w/ Sec. of State Dulles, Governor Stassen, Assistant Sec. Allen, and Arthur Gardiner, Johnston brings the issue up for discussion. Allen states that he had "advised Mr. Eban that agreement on the Jordan River problem would furnish a useful basis for aid."
- June 1955 Israel agrees to the basic terms of the plan Johnston had set up with the Arabs in Beirut.
- 1955-56 Events begin overtaking chances of agreement: Jordanian press reported several times in May 1955 that the project is intended to resettle Palestinian refugees. Public opposition springs up in August 1955; the Jordan National Socialist Party puts out a memo listing several points of opposition.
- 27 July 1955 Lebanon expresses its intent not to allow any water from the Hasbani to be distributed.
- August 1955 Johnston returns to Middle East for talks with representatives from the Arab states.

- 30 August 1955 Jordan states that it would accept Jordan Valley proposals on economic grounds given certain modifications, but that a political decision would have to be decided by a subcommittee of Arab states.
- September 1955 Meeting with Arab representatives continue, but no decision is reached.
- 1956 Israel indicates it would be willing to wait and see if Arab states would accept the plan before beginning work on a system to divert water from the upper Jordan.
- October 1956 War in Sinai Desert effectively ends any explicit chance of agreement. Implicit agreements managed through ongoing "Picnic Table Talks" between Israel and Jordan.

## 10. Timeline Yarmuk Negotiations

- 1952 Maqarin Dam first proposed by Miles Bunger, an American attached to the Technical Cooperation Agency in Amman.
- 1953 Jordan and UNRWA sign an agreement to implement Bunger Plan, including a dam at Maqarin with a storage capacity of 480 MCM.
- Syria and Jordan agree that Syria will receive 2/3 of the hydropower generated, in exchange for Jordan receiving 7/8 of the natural flow of the river.
- 1953-55 Johnston Negotiations. Main Plan included a dam 47 meters high with a storage of 47 MCM, to be managed in conjunction with storage in the Sea of Galilee. Arab position argued for the hydropower that a higher dam would produce, and that, "...the water needed for Arab crops should be under direct Arab control." Therefore, a high dam was agreed to, 126 meters high with a storage capacity of 300 MCM. Negotiations never ratified.
- 28 October 1957 Soviet-Syrian Aid Agreement, including provisions for a hydroelectric project in the Yarmuk basin.
- 1964 Concept of a dam on the Yarmuk reaffirmed at the First (and subsequent) Arab Summit(s) in Cairo, as a component in the All-Arab Diversion Project. Construction begun on lower dam at Mukheiba.
- 1967 Construction halted as a result of June 1967 war. One side of projected dam site would now abut on Israeli-occupied Golan Heights.
- 1975 Jordanian Seven Year Plan includes a dam at Maqarin with a storage capacity of 486 MCM, which would generate 20MW of power.
- 1977 Jordanian water officials approach their Israeli counterparts through U.S. intermediaries and discuss re-building the low dam at Mukheiba. Israelis agree, but elections in that country, and the resulting shift in government, put further negotiations on hold.
- 1980 President Carter pledges a \$9 million USAID loan towards Jordan's plan, in addition to \$10 million which had already been allocated. Congress commits \$150 million, on condition that all riparians agree to resolve their differences over the river. U.S. mediation efforts led by Philip Habib prove fruitless, although some agreement is reached on summer flow allocations, and the plan is indefinitely postponed.
- Mid-1980s In absence of an agreement, Syria begins a series of small impoundment dams on the headwaters of the Yarmuk within Syrian territory. By August, 1988, 20 dams were in place with a combined capacity of 156 MCM. That capacity has grown to 27 dams with a combined capacity of approximately 250 MCM, and is projected to grow to total storage of 366 MCM by 2010. Israel, meanwhile, increases its Yarmuk withdrawals from the 25 MCM allocated in the Johnston negotiations, to 70-100 MCM/yr.
- 1987 Agreement signed by Jordan and Syria, whereby Jordan receives 75% of water stored in the proposed dam, while Syria receives 25% and all of the 46 MW of hydropower to be generated. World Bank insists that all riparians agree to project before funding is provided—Israel refuses.

- 1989-90 Indirect negotiations on the Maqarin Dam are renewed, mediated by Richard Armitage of the U.S. Department of State, with talks focusing on winter flows. Negotiations are put on hold during Gulf War and are not renewed.

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