Not a Theological Question: Is the River Jordan Really Dammed to Hell?

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Mark 1:5
And there went out unto him all the land of Judaea, and they of Jerusalem, and were all baptized of him in the river of Jordan, confessing their sins.

Introduction

The life of the Jordan River begins in the north during a chance winter snowfall. As dense clouds congregate over Mount Hermon and part of Lebanon, the entire Jordan River Valley almost seems to hush as if prepared for its communion. From atop the mountain, fallen snowflakes melt and rejoin a network of ancient tunnels and underground springs from within to begin their journey back towards the sea. Together, they form the Banias and the Dan, as well as the Hasbani and the Asyoun, all infant
Not a Theological Question: Is the River Jordan Really Dammed to Hell?

Tributaries that will in time converge to become the Jordan in northern Israel. The river begins its journey southward and quickly fills in the reemerging swamps of Lake Hula. Fifteen miles beyond, it empties into the biblical Sea of Galilee, reforms and unites with its cousins, the Yarmouk and Zarqa, waxing sinusoidal, growing in size and losing gradient, all the while falling towards the landlocked Dead Sea.

In Hebrew, Jordan literally means “the descender,” a name aptly chosen for a river whose full elevation profile rivals many of the world’s tallest waterfalls. Over its course of seventy miles from the base of Mount Hermon to the Dead Sea, Jordan waters plummet bit by bit nearly half a mile down to the lowest point anywhere on the planet, about 1,300 feet below sea level. There they retire among the planet’s saltiest body of water, mixing with the currents and awaiting their eventual evaporation and rebirth according to the infinite hydrological cycle.

At any given time, the Jordan River has many different faces. Most traditionally, it is seen as a sacred source of new life—for aspiring Christians (as in the Bible), it is the “garden of the Lord” and is said to be the holy river where Jesus himself was baptized. According to biblical text, it was also the site of healing miracles witnessed by Elisha and Naaman and the site of historical battles between Gideon and the Midianites and between Jonathan and Bacchides. Muslims, too, make their pilgrimage to the banks of the Jordan to honor tombs of the Prophet Mohammad’s venerable companions and military leaders. The river is a geological landmark, winding along the shifting Great Rift Valley between the African and Arabian tectonic plates. The Jordan passes between dense forests and barren deserts, giving home to a wide array of plants and wildlife, including reeds and willows, leopards, jackals, foxes, wild ducks, deer, and desert rats.

At the same time, the river supplies most of the arid region’s human water demands. Daily, it is an important source of water for drinking, irrigation, and sanitation, as well as for industry and recreation. Israel and Jordan are indeed both heavily dependent on the river, as are Syria and Lebanon to a lesser extent (Figure 1). Within the past century, these opposing countries have each competed for water using hydroelectric plants, dams, pipes, canals, and treatment plants, in an attempt to declare their own right to the water supply and to exert their riparian authority over the others. As a long witness to the area’s political, ethnic, and religious turmoil, the Jordan River now suffers its own tragedy from overuse and pollution due to agricultural runoff and raw sewage discharge. These abuses have damaged the river’s ecosystem and put an enormous stress on its clean water supply, threatening the vital welfare of more than ten million people. Over recent years, while the demand for its water has increased, the Jordan River has been choked, diverted, and sucked dry at a rate that is clearly unsustainable. Have recent generations dammed the holy river beyond the point of rescue? And what is left of hope for an ailing river that continues to inspire visiting pilgrims from all around the world?
Figure 1
The Jordan River is divided into two halves: the Upper Jordan (north of the Sea of Galilee) is fed by springs, tributaries, and run-off from Lake Hula; below this, over half of the river’s flow comes from the Yarmouk and Zarqa Rivers. Although the Upper Jordan and Yarmouk waters are potable, they become progressively more saline as they approach the Dead Sea. Because of this, much of the Lower Jordan is virtually unusable for Israel and Jordan’s municipal water demands.

Bridge over Troubled Waters

Near Kibbutz Gesher in Israel stands a powerful symbol of the Jordan River’s historical crossroads. In ancient days, as travelers wandered the valley from Africa to trade ways and war, their heavy footprints marked the lands for future horse carriages and cement trucks. Gradually, after years of crossing the river using pulley-driven ferries, these groups evolved beyond Darwin’s wildest dreams—one might imagine they became slow
figures, perhaps, almost like stone statues, whose hands and feet grew outwards across the waters and touched the ground on each side like abutments. Their perfectly adapted forms stretched and arched gracefully, and bridges arose organically, where men of the earth could face the river and honor its eternal motion. Time has preserved their fossils well: the oldest of these is a 2000-year-old stone bridge of Roman origin. Next to it is an Ottoman rail bridge made of brick, now apparently abandoned and weathering away. The third was once a British Mandate bridge, shaped with concrete early in the twentieth century to help the British Army cross into Jordan and fight the Ottomans. Today, the multiple crossings are collectively known as the “Three Bridges” by tourists.

It is here where part of the Jordan River’s modern story begins—and with it, the First Arab-Israeli War. In April 1948, when the first Transjordan Arab Legion unit invaded Palestine to interdict the roads surrounding Jerusalem, the three bridges were all bombed by Israeli sappers as a way to slow the advancing Iraqi army. Nevertheless, the Iraqis forded the Jordan, and, with combat aircraft support, they attacked the small Gesher settlement. In the early hours of war, fifty children from town were reportedly ushered into a six-by-two-meter bunker, where they withstood assault and eventually escaped by foot under the cover of nightfall. Ultimately, the Iraqi forces were repulsed, and Israelis in Gesher were left to celebrate an ostensible victory amongst their ruins.

This was not, by any means, the river’s first or last taste of blood. In fact, the Jordan River has endured conflict for millennia. Archaeological evidence dating from the Bronze Age suggests that villages near the river were fortified to protect their people against frequent attacks. Hellenistic and Roman settlements have been found scattered across the foothills and depressions of the valley (the Roman sites are usually built atop the ruins of the vanquished). And in nearby Jisr Banat Ya’aqub, a site of twentieth century Israeli-Arab water conflict, ancient skeletons have been unearthed fully armed with flint and basalt axes.

The Jordan River has often divided the land in two, acting as a barrier between neighboring enemies. Recently, it has been caught in the escalating war of identity and political tension between Israel and the surrounding Arab world. Even the river itself has
become a cause for turbulence, as water grows increasingly scarce and opposing leaders from Israel and Jordan desperately vie to quench their countries’ thirsts.

By the time of the 1949 armistice agreements (one year after the Gesher incident), Israel had declared itself an independent Jewish state much to the Arab world’s disbelief. As the postwar cloud thickened amidst growing resentment and hatred, the riparian countries quickly turned to pursue unilateral goals. Israel was the first to act—by 1951, the “All Israel Plan” commenced and Lake Hula was completely drained to make the basin available for agriculture. Israel’s plan incited the first of many clashes between Israel and Syria, which were often devised specifically to obstruct the development of shared water resources. Over time, Israel also began constructing a massive 130-kilometer aqueduct and pipeline network straight from the Sea of Galilee (Figure 2). Once completed, this National Water Carrier system would supply water to Israel’s southern Negev desert and the entire coastal region.

The Jordanian government and the UNRWA (United Nations Relief and Works Agency for Palestine Refugees in the Near East) meanwhile began to consider other strategies, and, in the end, they agreed to implement a plan by an American engineer named M.E. Bunger. In this plan, Bunger called for two storage dams on the Yarmouk River: one at Maqarin (with a 480 million cubic meter capacity) and another at Addassiyah, which would help direct the flow of water into a canal along Jordan’s East Ghor region. In addition, he proposed to build one hydroelectric power plant at each location. Ultimately, these measures were expected to help resettle 100,000 Palestinian refugees within Jordan’s territory.

Upon hearing of Bunger’s plan, Israel strongly objected—and reasonably so—since the Yarmouk supplies nearly half of the Jordan River’s total surface water discharge. Without the Yarmouk River flowing freely, Israel would have to look elsewhere to meet its annual water budget. In 1953, notwithstanding Israel’s protests, Jordan and Syria signed a treaty by which they would both share Yarmouk waters. As expected, Israel reacted one month later with yet another invention of its own: in order to take advantage of the lower salinity levels upstream, it tried (against warnings from the United Nations) to divert the Jordan River near Jisr Banat Ya’aqub within the demilitarized zone. When the United States threatened to cut off funding, however, Israel recalculated its decision and abandoned the diversion project altogether.

In the latter half of the 20th century, cooperative water policies in the Middle East have been extraordinarily difficult to implement. Bunger’s plan, after all, was abandoned. Other early plans were also dismissed, including the so-called “Main Plan” in 1953, the “Cotton Plan” and “Arab Plan” variations in 1954, and the “Unified (Johnston) Plan” in 1955, despite its approval by both Israeli and Arab technical committees. Each of these proposals failed to establish a real consensus regarding the fair division of the Jordan River system. Consequently, governments returned to their unilateral objectives and hurried to lay claim to any available water.
Therefore, to augment its agricultural water supply using the Yarmouk River, Jordan began construction of the East Ghor Main Canal in 1959, which may have been inspired by Bunger’s original vision. Furthermore, Jordan drew up plans to develop two dams along the Yarmouk (at Mukheiba and Maqarin), which it would share with Syria according to the 1953 treaty. In 1964, when Israel first began to withdraw water from the Sea of Galilee using its National Water Carrier, the Arab League responded with a tactic called the Headwater Diversion Plan. Upon completion of this plan, the Banias and Hasbani tributaries would no longer flow into Israel or the Sea of Galilee but would instead be redirected towards the dam at Mukheiba, where Jordan or Syria could easily access their waters. At first, this passive-aggressive strike against Israel seemed effective, but it did not remain unchecked for long.

The following year, Israeli Defensive Forces targeted the Arab League’s diversion works, inciting further border violence, which gradually escalated into the Third Arab-Israeli War in 1967. Six days after it began (hence its nickname, the “Six-Day War”), the war ended on a cease-fire agreement. Yet, even in this short time, Israel had managed to occupy much of the northern Golan Heights territory and nearly half the length of the Yarmouk River (Figure 3). This crucial victory put Jordan and Syria at bay, making the Headwater Diversion Plan impossible to achieve within their new borders. It also suspended their Mukheiba and Maqarin dam projects indefinitely and allowed Israel to pump at will from the Sea of Galilee.

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Figure 3
Israel: Before and After Six-Day War, 1967

Source: Israeli Ministry of Foreign Affairs

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a Recently renamed the King Abdullah Canal (KAC)
More Water, Please

In the wake of the 1991 Gulf War, Middle Eastern dynamics began to shift, forming a pair of unlikely allies. A small hope arrived in 1994 with the Israel-Jordan Treaty of Peace. It was a pact signed between King Hussein of Jordan and Israel Prime Minister Yitzhak Rabin and witnessed by President Bill Clinton.\(^\text{12}\) However, regardless of any ceremonial hurrahs or handshakes, everyone remained cautious. After all, years of violence, distrust, and vengefulness between Israel and Jordan could not be forgotten so easily. When negotiators drew up the terms for a treaty months earlier, it was clear that neither side would make any political concessions without seriously addressing the water allocation issue. In the intervening years since the Six-Day War, further problems had arisen. Israel, for instance, had begun pumping 90% of the river’s upstream flow for its own use, leaving Jordan greatly dependent on water from the Yarmouk River tributary. To make matters worse, in just a few decades’ time, the region’s total water demand had outgrown what the entire Jordan River system could supply.

The rising demand for agricultural irrigation, coupled with a steep population growth rate, had made regional water budgets unattainable. Even today, the United States Agency for International Development (USAID) expects Jordan’s water deficit to increase sharply by 297 to 408 million cubic meters (MCM) per year.\(^\text{13}\) Similarly, Greenpeace suspects Israel will be 720 to 900 MCM short of its demand by 2010, after taking into account the negative effects of climate change (such as less precipitation, higher evaporation rates, and additional salination of groundwater).\(^\text{14}\) These unnerving statistics were not available to the negotiators in 1994, but anyone could have easily seen the early consequences of competitive over-pumping: in fact, even the Dead Sea had begun shrinking, possibly by as much as three feet per year.\(^\text{15}\) The signs were clear: cooperate now or bear the consequences later. And so, in Annexes II and IV of the peace treaty, Israel and Jordan both committed to “increasing water supplies and improving water use efficiency, within the context of bilateral, regional or international cooperation.”\(^\text{16}\) As specified by the rest of the articles, they would jointly plan construction of a dam along the Yarmouk River, manage groundwater resources of Emek Ha’arava, promise one another equitable water allocation, and even install a Joint Water Committee to protect the river system from contamination and illegal withdrawals. The provisions also formally reestablished the Jordan River as the Israeli-Jordanian border.

Despite Syria’s dismissal of the event and Hezbollah’s reactionary mortar attack on northern Galilee settlements that same day, the treaty was well received. At the signing ceremony at Wadi Araba in October, King Hussein spoke to an audience of foreign delegates:

*Behind us here you see Eilat and Aqaba, the way we have lived over the years, in such close proximity—unable to meet, to visit each other, to develop this beautiful part of the world. No more—as we look into the future beyond this point, with*
determination, with hope, with commitment. We survived the hard times. Let our people beyond this point in time enjoy the good times.\footnote{17}

Hussein was then followed by Prime Minister Rabin, who described his own vision:

\begin{quote}
From this podium, I look around and I see the Arava. Along the horizon, from the Jordanian side and the Israeli side, I see only a desert. There is almost no life here. There is no water, no well, and not a spring—only minefields. Such were the relations between Israel and Jordan during the last 47 years: a desert. Not one green leaf, no trees, not even a single flower... For nearly two generations, desolation pervaded the heart of our two peoples. The time has now come not merely to dream of a better future—but to realize it.\footnote{18}
\end{quote}

From opposite sides of the political table, King Hussein and Prime Minister Rabin both recognized the difficulties that still lay ahead. They spoke mainly out of respect for their people, who had long been tortured and divided over half a century of war. They did not explicitly mention water rights in their speeches, nor did they speak of the Jordan River. But behind their careful words, they knew very well the role water plays in peacemaking. The same surface tension that pulls nations apart can indeed also force desperate cooperation when conditions worsen. Somehow, in spite of all their past conflicts, Israel and Jordan had at last come to agreeable terms.

**Don’t Drink the Holy Water**

Four years later in 1998, on the fourth Sunday in August, young Chiara Buschittari’s mother bent down to her knees in dirt, slowly, cradling her baby softly next to a brown stream. In the distance, tall banana trees and yellow warning signs “could be clearly seen sealing off the west bank of the river, where once a year, on the last day of October, the Christians, led by the Franciscans, [were] allowed to visit by the Israeli army.”\footnote{19} The effects of the Six-Day War had not yet disappeared in landscape or in memory. Nor had they disappeared from the waters. Nonetheless, thirty-one years after the Six-Day War cease-fire, the Jordan River had once again become a place of baptism. Ever since the 1994 treaty, in fact, the Jordan River has increased enormously in popularity, and it now attracts hundreds of thousands of tourists each year.\footnote{20}

Although the exact location of Jesus’ baptism is debated, Christian pilgrims travel from all over the world to be close to the original site. Many choose to visit Yardenit, the most developed and scenic of all baptismal sites, located along the Israeli bank just below the Sea of Galilee. Still, Jordanians like to claim they have found the true historical “Bethany Beyond the Jordan” baptismal site nearby Wadi el-Kharrar on the east bank.\footnote{21} This is where Chiara was baptized. Some Israelis and Palestinians, however, believe that
Qasr Al Yahud (“The Jewish Palace”) is the actual site. Just miles from Wadi el-Kharrar and the Dead Sea, Qasr Al Yahud is located outside of public access along the river’s west bank. In fact, it sits within an occupied Israeli military zone and is surrounded by enclosed desert fields, where the earth is baked with land mines and littered with hazard warnings.  

Traditionally, the Jordan River is depicted as a place of beauty and spiritual renewal (Figure 4). And for those who have a chance to visit the river in person, near Yardenit perhaps, it is often an unforgettable experience. Just imagine standing there yourself, awaiting baptism, half-submerged between the Jordan’s banks. From between a momentary opening in the green eucalyptus trees and date palms, a soft breeze rushes over your body like holy water. You lift your head in anticipation and become overwhelmed—no—shocked!—by the river’s noticeably foul aroma.  

In fact, just kilometers downstream from the crowd of unaware, white-robed pilgrims, a carrion stench hovers in the air. Here, the Alumot Dam divides the Yardenit baptismal site from the Batania Wastewater Treatment Plant outflow like a radiation shield. Nearby, untreated and partially treated sewage, saline water, and fish pond effluent all flow from large drainage pipes into a mutated riverbed. How could this be? Could the Jordan River, whose name alone embodies hope for millions, perhaps billions, of people, truly be so grossly neglected that putrid, raw sewage pours freely from its veins? The thought is uniquely appalling—indeed, as if from Dante’s Inferno, the once-idyllic Jordan now slowly descends into the River Styx.

**2 Kings 2:21**

> And he went forth unto the spring of the waters, and cast the salt in there, and said, Thus saith the LORD, I have healed these waters; there shall not be from thence any more death or barren land.

**Do Not Feed the Leptospira**

What has happened to the Jordan River? While the Israel-Jordan treaty of 1994 seemed to patch up political tears between the two countries, the river was apparently excluded...
from negotiations. Apparently, the established Joint Water Committee, which seemed like a promising solution thirteen years ago, has done little to regulate wastewater discharge into the Lower Jordan River. In fact, because Israel is developed and Jordan is not, different water management priorities arise from different standards of living. Israeli, Jordanian, and Palestinian environmentalists all agree, without doubt, that the river is infected. Gidon Bromberg is one of these, the Israeli head of Friends of the Earth Middle East (FoEME), a tri-national environmental NGO dedicated to addressing sustainable development and peace throughout the region. He observes, “Being baptized in the water below the dam—something that takes place on the Jordanian side of the river—cannot be too spiritually uplifting.”

Fifty years ago, the Jordan River had a total flow rate of about 1.3 billion cubic meters (BCM) per year into the Dead Sea. Since then that same flow has dwindled to less than 30 million cubic meters per year. Where did it all go? Undoubtedly, much of the river’s water now travels primarily through the National Water Carrier and the King Abdullah Canal to hydrate agricultural fields in Israel and Jordan. Other water waits in storage, perhaps trapped behind one of Syria’s twenty-seven small impoundment dams along the upper Yarmouk (most of which were built before 1988 but still continue to appear). Just as Greenpeace and USAID projected, this disturbing downward trend shows no signs of slowing. In 2003, after sorting through dusty design plans, Jordan and Syria revived their construction proposals for the Maqarin Dam, which alone will have a capacity to store 80 MCM along the Yarmouk River. The long-awaited dam is scheduled to begin operation this year, just in time for the forty-year anniversary of the Six-Day War. Given the region’s arid conditions and growing water demands, it is surprising these countries let any drop of water escape at all. Mira Edelstein of FoEME adds, “With Israel, Jordan, and Syria, each grabbing as much clean water as they can, it is ironically the sewage that is keeping the river alive today.”

But sewage alone cannot tell the full story: the Jordan Valley river system also suffers from agricultural runoff and contaminated ground water seepage. A group of researchers from the Technion Israel Institute of Technology collected water samples in 2004 along the Yarmouk and Lower Jordan Rivers, in hopes to quantify the impact of shallow subsurface water on riverine water quality. What they found was startlingly unsurprising—because of the Jordan River’s unnaturally low surface water flow rate, the river’s chemistry is significantly affected by groundwater. Just within twelve miles south of the Sea of Galilee and the rotten Alumot Dam, the team’s measurements picked up decreasing concentrations of chloride, calcium, and sodium (naturally present in the water), paired with increasing concentrations of sulfate and magnesium (found in plant fertilizers). On average, their data revealed 300 mg/L of sulfate in the Jordan River and over twice that amount for agricultural drainage sites and parts of the Yarmouk River. The water also contained around 1400 mg/L of chloride from saline groundwater.

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b The United States EPA’s guidelines for sulfate and chloride in drinking water are 250 mg/L for each.
Though chlorides and sulfates are not typically considered serious health risks, the numbers suggest that other contaminants might be present in the water, including small organisms and trace chemicals that are difficult to detect. In fact, in June 2002, seven out of 27 troops from the Israeli Defensive Force contracted leptospirosis after performing a series of weekly training exercises in the Jordan River, involving near-total submersion.\(^{33}\) Therefore, as it turns out, baptisms in this area could be considered very hazardous. Although you may bathe hoping to be healed, “You're likely to come out with a rash on your head,” according to Bromberg.\(^{34}\)

Other areas are also exhibiting signs of detriment. Ten years ago, the Zarqa River tributary was polluted beyond the point of access and use.\(^{35}\) Due to reduced river flow and evaporation, over-pumping and mineral extraction, one third of the Dead Sea has disappeared. Thanks to the 1951 “All Israel Plan,” Lake Hula shared a similar dry fate and was drained completely until 1993, when Israel finally acknowledged it had inadvertently spent seven years engineering itself a large, eroding dust bowl.\(^{36}\) Turning points like these are crucial to watch in the evolution of the Jordan River. Recently, with the Hula Restoration Project underway and a Red Sea-Dead Sea water conveyance system in discussion, it seems as though more sustainable practices are catching on.

**Crossing the Jordan (For Better or Worse)**

The Old Testament story of Joshua and the Israelites miraculously crossing the parted Jordan waters is often retold in Christian tradition. A curious mind might wonder: will people one day be able to walk across the river again? Perhaps so… but we would hardly need divine help. If current population trends continue, what we know today as the Jordan River may soon be no more than a dirty creek bed. There is also, incidentally, a glimmer of hope. After all, even the most soiled of puddles can still reflect the sun.

In the 21\(^{st}\) century, governments and universities, researchers, companies, and NGOs from all over the world have assembled to craft new sustainable water management plans for this area. One such plan named IWRM-SMART is comprised of twenty one different players (including Jordan’s Ministry of Water and Irrigation, the Palestinian Hydrology Group, and Mekorot Water Co., Israel’s largest water distributor and owner of the National Water Carrier).\(^{37}\) The consortium held its first official meeting in March 2007 to address management strategies for the Jordan River. And, although it may still be too early to tell how the young group will fare, it is by far the most extensive and ambitious collaboration of any Jordan River project to date, relying on innovative water technologies. Conservative drip irrigation systems have long been used in Israel to minimize its agricultural water demand. But while desalination treatments and waste water recycling plants often provide cost-effective alternatives to freshwater irrigation (Table 1), they do not yet consistently output a water quality high enough for drinking.\(^{38}\)

Innovative technologies, of course, are never enough to save the river on their own. It may be true that Israel pioneered modern drip irrigation fifty years ago and that,
while the region has few freshwater resources, it is also surrounded by vast bodies of salt water just waiting to be desalinized. Certainly, new drip irrigation and desalination techniques do have the potential to help alleviate the Middle East’s water crisis and restore life to the Jordan River. But technology itself has never created peace. In truth, without lasting peace between people, technology only tends to accentuate their disparities and conflicts.

If the Jordan River ever had a champion of peace, it would be Gidon Bromberg. Bromberg’s quotes have been scattered all throughout these last few pages, and, in fact, they are everywhere—in journals, newspapers, and video clips around the world. Bromberg himself is everywhere, speaking on behalf of the river and its people. In honor of his tireless efforts to broaden understanding in the region, Yale University named Bromberg one of eighteen Yale World Fellows for 2007. Of course, he does not work alone. Instead, as a co-director of FoEME, he has led a rare group of dedicated environmental activists to revive the river with the help of communities and local governments.

The Question is Posed

The ultimate question came to light in 2004 during the middle of an interview with Bromberg: “Do you think there’s enough water in this region for everybody?” Although the transcript does not narrate the conversation specifically, Bromberg’s reply suggests he had begun his answer before allowing the question to finish: “Oh yes,

<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Price ($/m³ water)</th>
<th>Current Capacity (MCM/year)</th>
<th>Drinking</th>
<th>Irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea of Galilee (Lake Kinneret)</td>
<td>n/a</td>
<td>600</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Lake Hula</td>
<td>n/a</td>
<td>100</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Yarmouk River</td>
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<td>100</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Surface Flood Runoff</td>
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<td></td>
<td>✓</td>
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<tr>
<td>Imported Water from Turkey</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Recycled Waste Water</td>
<td>0.35</td>
<td>300</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Desalinated Brackish Water</td>
<td>0.33 – 0.42</td>
<td>50</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Desalinated Seawater</td>
<td>0.52 – 0.55</td>
<td>4</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Total Capacity 2,300

Sources: The Washington Institute of Near East Policy, Mekorot Water Company, and the Jewish Virtual Library
definitely. There’s definitely enough.” How could he be so sure? Had he not heard of the USAID or Greenpeace water deficit projections? Are the Middle East populations not rising? Is climate change not as real as scientists say? Actually, Bromberg was well aware of the complicated and dire situation. But still he sat there, oddly, arguing that water scarcity is not a problem in the Middle East.

The true issue, he argues, is water allocation. Specifically, 62% of Israel’s freshwater supply goes to irrigation, even though agriculture provides for only 2.6% of its Gross Domestic Product (GDP). Matters in Jordan and elsewhere in the Middle East are just as extreme, as evidenced by Table 2.

Interestingly enough, in the United States and several other G8 nations, there appears to be an equally large gap between the water spent on irrigation and its indirect contribution towards the country’s GDP. However, at least for now, the United States can afford the luxury of growing most of its own food. The Middle East, on the other hand, is extremely arid with relatively few available fresh water resources—to survive in the long run, it must have sustainable priorities. If Bromberg were here talking with us, he would interrupt again:

<table>
<thead>
<tr>
<th>Country</th>
<th>% Fresh Water Spent on Irrigation</th>
<th>% GDP from Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada*</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Egypt</td>
<td>86</td>
<td>13</td>
</tr>
<tr>
<td>France*</td>
<td>10</td>
<td>2.1</td>
</tr>
<tr>
<td>Germany*</td>
<td>20</td>
<td>0.9</td>
</tr>
<tr>
<td>Israel</td>
<td>62</td>
<td>2.6</td>
</tr>
<tr>
<td>Italy*</td>
<td>45</td>
<td>2.1</td>
</tr>
<tr>
<td>Japan*</td>
<td>62</td>
<td>1.6</td>
</tr>
<tr>
<td>Jordan</td>
<td>75</td>
<td>3.6</td>
</tr>
<tr>
<td>Lebanon</td>
<td>67</td>
<td>5.1</td>
</tr>
<tr>
<td>Russia*</td>
<td>18</td>
<td>5.2</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>89</td>
<td>3.2</td>
</tr>
<tr>
<td>Syria</td>
<td>95</td>
<td>19</td>
</tr>
<tr>
<td>Turkey</td>
<td>74</td>
<td>9.4</td>
</tr>
<tr>
<td>United Kingdom*</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>United States*</td>
<td>41</td>
<td>0.9</td>
</tr>
</tbody>
</table>

*Member of the G8 international forum
Source: CIA World Factbook
We’re growing bananas! Israel and Jordan, in the Jordan Valley, we’re both growing bananas, a crop with the most ridiculously high water consumption. We could be importing bananas from Sudan, which is not far away, at half the price, if economic indicators were much more realistic, if farmers were paying the true cost of water. They’re not. That’s another policy issue that we deal with.\textsuperscript{42}

At this part of the interview, Bromberg hints at a broader water allocation problem that exists throughout the region today. Surprisingly, it has little to do with transboundary allocations, which were the primary concern in 1994. In reality, water is valuable. Yet, even though they may invest in the most advanced water conservation technologies, Israel and Jordan consistently use the water in relatively unimportant and unproductive ways. Presently, agricultural water is scarce but otherwise inexpensive, leaving farmers with little or no incentive to save it. But simply conserving water is not enough—the region must scale down its agricultural sector entirely, growing only those crops that are crucial to its food supply and difficult to import securely and economically.

Saving water has other benefits as well. With the extra water and other resources gained by offsetting their agricultural production, Israel and Jordan would have the ability to reinvest in their economies. The area is ripe for tourism, for example, both religious and recreational. Of course, creating an unrestrained base for mass tourism could also easily have negative environmental impacts on the river. No doubt, when hotels begin to populate along the banks, Westerners are sure to follow, their luggage at hand and sunglasses fully loaded. They would surely scatter like movie stars, drinking, and tanning along any available bed of fresh water. In order to avoid this fate, Israel and Jordan must both approach tourism from a perspective of sustainability. Where are hotel clusters best suited? How much tourism is too much? If designed correctly, sustainable tourism can spread an awareness of the river’s environmental problems. It can encourage cooperation between the people of Israel and Jordan. Particularly, it can foster large amounts of revenue for both countries, which, in turn, can go back into their economies to develop further leading-edge desalination or drip irrigation technologies.

To work towards this goal, FoEME has helped the Jordan Ministry of Tourism and Antiquities submit a proposal to the UNESCO (United Nations Educational, Scientific, and Cultural Organization) World Heritage Center.\textsuperscript{43} The baptismal pool nearby Wadi el-Kharrar is currently listed as a tentative World Heritage Site, and, if accepted, would attract thousands of additional visitors to the Jordan River and the Dead Sea each year. To delight and educate these travelers when they arrive, FoEME has also proposed the establishment of Peace Parks along the river, including one at the current “Three Bridges” tourist site.\textsuperscript{44} A Peace Park, as envisioned by the World Conservation Union (IUCN), intentionally overlaps boundaries between multiple countries and breaks down their political borders. Here, people and animals are allowed to come and go freely within the area—specifically, visitors can watch migratory birds, hike, bike, and follow guided tours, which blend together elements of history, religion, and nature.
Lastly, it is important that Israel, Jordan, and—let us not forget—Syria and Lebanon all have their rightful ownership to the water. But they are not nearly its only stakeholders. Christians and Muslims all over the world have a place in the river, and many of them would all but crusade to save it from extinction. Apparently, the news has yet to be fully disseminated. Perhaps it will, in time, thanks to Bromberg and Friends of the Earth Middle East.

A New Prophecy

After our journey down, around, and through the Jordan River, we are, in a way, much like the waters. And, if so, we too must inevitably return to the original question: is the River Jordan really dammed to hell? Or is it only dammed to purgatory? Before now the Jordan River had been flowing full for thousands upon millions of years. In its lifetime, it has seen continents collide, men stand upright, and caravans roll by carrying gold and silver. It has seen the face of God, the uncertainty of Man, and war’s unsparing bloodshed. The Jordan River has long been witness to the passing of generations, as Jews, Christians, and Muslims alike began to settle along its banks. And, now, the Jordan River system makes life possible for millions of people, all who live in Tel-Aviv, Jericho, Jerusalem, and Amman, and in the other towns scattered throughout the valley region.

Nevertheless, the Jordan River is not what it used to be. Its waters are overdrawn and polluted by dams and pipelines. According to water deficit trendlines, the crisis is immediate and will only worsen in time. The unanswerable matter is: when the situation becomes too desperate, how will Israel react? How will Jordan react? How will the river react?

To say that the stability of the Middle East depends on the future of the Jordan River is certainly an overstatement. However, it may be partially true, and if so, then nearly every major country in the world actually has a small stake in the wellbeing of the Jordan River. The United States has expressed its own concerns, writing letters to the Jordan government from Congress to support the preservation of the Jordan River and its potential designation as a UNESCO World Heritage Site.45 In any case, it is apparent that the river’s future depends upon support from the riparian stakeholders, the international community, and all in faith who claim some part of the Jordan River. And, as we have seen from Friends of the Earth Middle East and other recently arising interest groups, there is hope in numbers.

Job 40:23

*When the river rages, he is not alarmed; he is secure, though the Jordan should surge against his mouth.*

One by one, drops of salty mist awake and climb from their sea bed. Taken by the sun, they are headed for the skies, though they do not know where, how, or why. To say they know anything at all is a stretch of imagination. But if they did know
something, they would know this: *I am moving!* Indeed, they *are* moving. They are all moving as vapor to become the white clouds above. They rise higher still, slowly, as if scaling the world’s largest roller coaster ride. The fall will come, but do they know it? As they continue to soar, it becomes cold, and they begin to huddle together. There is warmth in numbers. The sky becomes a hazy white, and those of them that can think wonder if they have at last seen death’s color. The cold overwhelms them, binds them into one, and, with a final wisp and inward breath, it pushes them off. And then it snows.

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Table 2: