

# Take Me over the Jordan

**Concept Document to Rehabilitate,  
Promote Prosperity, and Help Bring Peace  
to the Lower Jordan River Valley**



Supported by the Swedish International Development Cooperation Agency (SIDA), the European Union, the Goldman Fund, the Global Nature Fund/ Ursula Merz Foundation and the Osprey Foundation.





## Friends of the Earth Middle East



EcoPeace/ Friends of the Earth Middle East (FoEME) is a unique organization at the forefront of the environmental peacemaking movement. As a tri-lateral organization that brings together Jordanian, Palestinian, and Israeli environmentalists, our primary objective is the promotion of cooperative efforts to protect our shared environmental heritage. In so doing, we seek to advance both sustainable regional development and the creation of necessary conditions for lasting peace in our region. FoEME has offices in Amman, Bethlehem, and Tel-Aviv. FoEME is a member of Friends of the Earth International, the largest grassroots environmental organization in the world.

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The views expressed are those of EcoPeace/ FoEME and do not necessarily represent the views of our expert team, project advisors, participants in the project's National and Regional Jordan River Forum and Council meetings, or our funders.

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### Regional Terminology

No single geographical name applies to all periods and to the same designated area of land that encompasses modern Jordan, Palestine, and Israel. We therefore use the term "region" in this publication when referring to the aforementioned area. Many individual locations in the region are recognized by several alternative names. Whenever possible, we introduce locations with these alternative names and then use the internationally recognized name throughout the report. In the case of English spellings, we have endeavored to select the most commonly used spellings.

The terms "Palestine," and "West Bank," are used in different contexts throughout the document. "Palestine" is used to refer to the future State of Palestine, encompassing the West Bank and the Gaza Strip. "The West Bank" is a geographical term that designates the area captured and subsequently occupied by Israel since June 4th 1967.<sup>1</sup>

The term "settlement" refers to Israeli settlements in the West Bank that are recognized by the international community as illegal and therefore FoEME does not cooperate with them.

The term, "Lower Jordan River Valley" is used throughout the document to refer to the section of the Jordan Rift Valley that stretches from the southern exit of the Sea of Galilee in the north to the northernmost point of the Dead Sea. This term encompasses the Lower Jordan River itself, the "Zor," or river floodplain, and the greater tectonic basin that is bordered by tall slopes on either side. In other publications, the term "Lower Jordan River Valley" is often used synonymously with the locally used term, "Ghor."



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# 1. EXECUTIVE SUMMARY

The Lower Jordan River (LJR) is situated in the lowest area on Earth as well as in one of the narrowest parts of the 7,200 kilometer Great Rift Valley (GRV). The LJR is the lowest river in the world and longest permanent river in the region, flowing south from the Sea of Galilee (also known as Lake Tiberius, or Lake Kinneret) with a stream channel length of over 200 km and eventually flowing into the Dead Sea. On both sides of the Lower Jordan River Valley (LJRV) are natural and cultural sites that are valued all over the world.

## **The natural and cultural highlights of the Lower Jordan River Valley include:**

- The meeting point of three bio-geographic zones and three mammal zoogeographic zones sustaining diverse vegetation and fauna; an important wetland habitat;
- A flyway for over 500 million birds twice each year;
- One of the human migratory routes out of Africa during the hominid period that remains a main pathway for the movement of birds, animals, and plant life;
- Hebrew Bible, New Testament, and Islamic references associating the river to the prophets Moses and Elijah, the baptism of Christ, and the Companions of the Prophet Mohammed, making the river holy to the peoples of the three Abrahamic religions;
- Roman and Crusader castles built in the valley as well as churches and monasteries throughout the Byzantine period and public works during the Omayyad dynasty; and
- Innovative changes in building, farming, and water management technologies; the development of crafts such as mosaics, pottery, and frescos.

Though still unique in its natural and cultural heritage, the river is presently threatened by diversion, pollution, and inappropriate development. Of the 1.3 billion cubic meters of water that historically flowed down the LJR, approximately 96% has been diverted by the national authorities of Israel, Syria, and Jordan. Untreated or poorly treated sewage water has been dumped directly into the river for the past 50 years, and municipal sewage water often reaches the river indirectly through ground water seepage. The degradation of the LJR in terms of quantity and quality is due to the growing demand for water by Israel, Syria, Palestine, and Jordan, and is compounded by the adverse effects of climate change. Residents and tourists have little access to the river, due to military restrictions. Palestinians have no access to the river due to its control by Israel and do not receive water directly from the river.

Unless immediate action is taken, the LJR is in danger of drying up completely. Responsible management of the LJR and its valley requires concerted regional effort that includes relevant authorities and stakeholders, including local residents, faith-based communities, municipal governments, national water regulatory bodies, governments, legislatures, and international champions.



### **FoEME's recommendations to rehabilitate the Lower Jordan River include:**

- The return of 400-600 MCM of primarily fresh water to LJR (the highest quality of effluents may be permitted for up to 25% of the LJR's base flow), with Israel contributing 220 MCM, Syria contributing 100 MCM and Jordan contributing 90 MCM, maintaining salinity below 750 ppm;
- Right of access and right to a fair share of water for Palestine;
- At least one flood for the LJR each year of 100 m<sup>3</sup>/sec for a 24 hour period;
- The release of 125 MCM/Yr from the Degania Dam, the ceasing of pumping from the Lower Yarmouk when the Sea of Galilee is higher than the bottom red line, transferring saline effluents away from the LJR, and decreasing usage for irrigated agriculture; and
- Implementation of national policy strategies in Jordan, Israel, and Palestine to manage demand for water in the agricultural and domestic sectors.

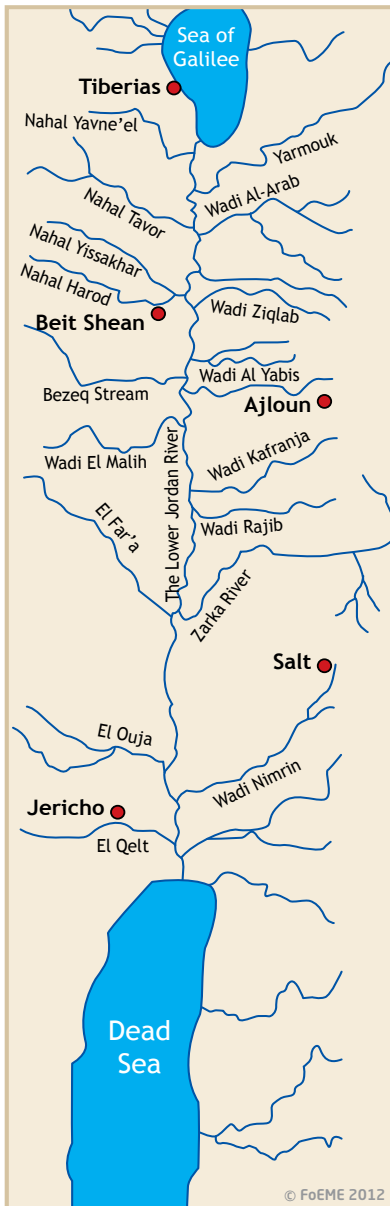
### **FoEME's next steps to pursue rehabilitation of the LJR include:**

- Spearheading the development of the FoEME Master Plan for the Lower Jordan River and creating a planning, policy, and implementation framework for the study's recommendations to be released in the spring of 2014;
- Publication of a Model Basin Commission for the LJR through a framework that ensures the reasonable and equitable use of the LJR system for all riparians with an equal consideration to conserve river ecology to be released in the fall of 2014;
- Conducting national educational campaigns to promote water conservation policy options in Jordan, Israel, and Palestine;
- Disseminating the use of FoEME's faith-based tool kits that are geared toward engaging congregations from each of the three Abrahamic religions concerning river rehabilitation;
- Raising awareness of the potential benefits that a rehabilitated river will bring to national and local economies with specific regards to ecosystem services and potential for tourism development based on FoEME's Economic Benefits Study; and
- Engaging stakeholders and decision makers to influence policy towards river rehabilitation through continued top-down and bottom-up advocacy work.

FoEME also calls for the preservation and promotion of cultural and religious heritage sites, the development of sustainable agriculture, and the promotion of viable ecological tourism in the LJR. Public awareness, media attention, political will, and international assistance are all urgently required to ensure that present and future generations can enjoy a rehabilitated LJR.



## 2. TAKE ME OVER THE JORDAN: INTRODUCTION



This concept document is intended as an update to EcoPeace/ Friends of the Earth Middle East's (FoEME) March 2005 publication, *Crossing the Jordan: Concept Document to Rehabilitate, Promote Prosperity and Help Bring Peace to the Lower Jordan River Valley*. This revision synthesizes the earlier document with research FoEME has since published: an environmental flows report on the rehabilitation of the river; economic analyses of opportunities to conserve and produce water in Palestine, Jordan, and Israel; a roadmap for Israel in the initial phase of the rehabilitation of the Jordan River; and a study of the shared economic benefits of the river's rehabilitation. This document refers to new studies that will be completed shortly, such as faith-based toolkits to engage the Muslim, Christian, and Jewish communities in river rehabilitation, a regional NGO master plan for the Lower Jordan River, and the publication of a proposal for a Model Basin Commission for the Lower Jordan River.

As a regional advocacy organization, FoEME recognizes the importance of bringing together stakeholders from Israel, Palestine, and Jordan to find joint solutions to trans-boundary water problems. In the Jordan River Rehabilitation Project, FoEME draws attention to the exploitation of the river, sets goals for a rehabilitated Lower Jordan River (LJR), highlights the need to fairly share its water resources between its Palestinian, Jordanian and Israeli riparians, and provides decision makers, residents, and other stakeholders with information and tools they need to achieve river rehabilitation. FoEME's vision for a rehabilitated LJR extends

beyond the river itself to the Lower Jordan River Valley (LJRV). Throughout the LJRV, FoEME works for sustainable management of water, ecological rehabilitation, fair water distribution between residents of the riparian countries, sustainable development and economic opportunities, and preservation of cultural and religious heritage.

The LJR will only be successfully rehabilitated if its bordering countries put in place cooperative agreements and mechanisms. In addition, the agreements already established by riparian countries must be fully implemented. The governments of Israel and Jordan must abide by the terms of the 1994 Peace Treaty, which calls upon the parties under Environment Annex IV to cooperate for "ecological rehabilitation of the Jordan River," "environmental protection of water resources to ensure optimal water quality," "[development of] nature reserves and public areas," and "[promotion of] tourism and local heritage." In Article 40 of the Israeli-Palestinian Oslo Peace Accord, Israel recognizes Palestinian water rights in the West Bank. As the LJR marks the eastern border of the West Bank with Jordan, Palestinian riparian rights including access and fair share of the LJR's water resources must be allocated as part of the Middle East peace negotiations. The 1994 Israel-Jordan Peace Treaty and the 1995 Oslo Interim Agreement between Israel and the Palestinian Authority provide mechanisms for shared water management in the region, including bi-lateral Joint Water Committees. While symbolically significant, the Oslo Interim Agreement is broken in practice and the management system it





establishes needs to be replaced by a more workable mechanism. The Israel-Jordan Environment Committee created under the Peace Treaty has failed to meet for over a decade. The continued deterioration of the LJR in the nearly two decades since the passage of both the Israel-Jordan Peace Treaty and Oslo Accords is a direct result of the failures of these agreements.

The river is currently a military zone, serving as a border between Jordan to the east and Israel and Palestine to the west. Access to the river is therefore extremely limited for Jordanians and Israelis and almost non-existent for Palestinians. Jordanians can only access the river at the Baptism Site. Israelis have no access south of Old Gesher or Jisr Al Majama, ten kilometers south of the Sea of Galilee. Outside of the Israeli-controlled West Bank Baptism Site (also known as Kaser el Yehud), Palestinians have no access to the river due to Israeli control and do not receive water directly from the river.

The health of the LJR has a major impact on the state of the Dead Sea: the terminal lake of the river and lowest place on earth. The water level of the Dead Sea is dropping by over one meter each year. Decreasing water levels are primarily due to water diversion from the LJR coupled with the industrial solar evaporation ponds maintained by the Dead Sea Works and the Arab Potash Company for mineral extraction. The Dead Sea has already lost over one-third of its surface area and is in danger of drying up.<sup>2</sup> Rehabilitation of the LJR would greatly contribute towards the stabilization of Dead Sea water levels.





### 3. WADE IN THE RIVER JORDAN: A MIGHTY AND UNIQUE RIVER

The LJR is situated in the lowest area on Earth in one of the narrowest parts of the 7,200 kilometer Great Rift Valley (GRV). The GRV—which extends from Mozambique in East Africa to Turkey in West Asia—was one of the human migratory routes out of Africa during the hominid period and remains a main pathway for the movement of birds, animals, and plant life.<sup>3</sup> This part of the GRV has been identified by the International Union for Conservation of Nature as an area where three biomes meet: Europe, Asia and Africa, and is known for the first cultivation of wild wheat.<sup>4</sup>

The LJR is the longest permanent river in the region, flowing south from the Sea of Galilee (also known as Lake Tiberius, or Lake Kinneret) with a stream channel length of 217 km and an aerial length of 105 km. The river is the lowest river in the world, meandering from 212 m below sea level to 426 m below sea level along its path, and eventually flowing into the Dead Sea.<sup>5</sup>

#### Water Sources and Natural Habitat

Underground reservoirs formed by precipitation on Mount Hermon (also called Jabel Sheikh) are the main source of the waters of the Upper Jordan River. While the southwestern flanks of the mountain drain into the Jordan River by direct runoff, the amount of drainage water fluctuates depending on annual precipitation. A stable water supply to the river originates from three large springs: Hasbani in Lebanon, Baniyas in the Syrian Golan Heights, and Dan in Israel. These springs combine near the northern edge of the Hula Valley to form the Upper Jordan River, which flows south about 14 km and enters the Sea of Galilee.<sup>6</sup> The Sea of Galilee receives additional water drained from the Galilee hills southwest of Mount Hermon and the Golan Heights to the east.<sup>7</sup>

After leaving the Sea of Galilee, the river is known as the Lower Jordan River. The natural surface water sources of the LJR are the Sea of Galilee, the Yarmouk River, and eastern and western streams.<sup>8</sup> About 10 km south of the Sea of Galilee, the LJR is joined by its main tributary, the Yarmouk River, which drains the basaltic plateaus of the Hauran in Syria. In its path from the Yarmouk to the Dead Sea, the LJR receives little direct rainfall, but collects water from ground water spring flow and intermittent tributaries.

The table below shows the major sources of spring flow and tributaries to the LJR by country.<sup>9</sup> In addition, a number of less significant wadis and canals once drained to the LJR.

Country	Spring Flow and Intermittent Tributaries
Jordan	Wadi Arab, Wadi Ziglab, Wadi Abu Ziab, Wadi Jurum, Wadi Yabis, Wadi Kufranja, Wadi Rajib, River Zarqa, Wadi Shueib, Wadi Kafrein, Wadi Hisban
Palestine	Wadi El Malih, Wadi El Far'a, Wadi El Auja, Wadi El Quilt
Israel	Yavniel, Tavor, Issashar, Harod, Bezeq

At the ecological junction of three continents, the LJR hosts a unique mixture of diverse habitats. The LJR encompasses three biogeographic regions in a relatively small area: Mediterranean (European), Irano-Turanean (EuroAsian) and Afro-Tropical (Ethiopian). The Irano-Turanean region serves as a buffer between the two other regions, each of which maintains flora and fauna species with distinctive origins.<sup>10</sup> In this rare ecosystem, some species are threatened regionally and globally.

Vegetation in the LJR varies depending on climate, elevation, and geology. Water vegetation such as the White Willow is found in the wadi systems—natural tributaries that flow east and west toward the LJR. Tropical and sub-tropical vegetation such as Acacia and the Christ's Thorn Jujube occupies the lowest elevations of the valley, while saline vegetation such as Tamarisk predominates in the middle and southern parts of the river banks as well as the former flood plain. Steppe vegetation extends from the river banks until the middle elevations of the valley giving way to deciduous oak vegetation in the northern and high elevations. In addition, Mediterranean non-forest vegetation, characterized primarily by shrubs, is found in the northern-most areas of the valley.<sup>11</sup>

**The diverse vegetation cover includes important species which are endemic, rare, or endangered, some of which are outlined in the table below:**

Endemic Plant Species	Rare Plant Species	Endangered Plant Species
Tamarix jordanis, Jordan Tamarisk	Acacia albidae, Ana Tree	Acacia albidae, Ana Tree
Centaurea procurrens	Salix alba, White Willow	Salix alba, White Willow
Micromeria sinaica	Iris pseudacorus, Yellow Iris	Iris pseudacorus, Yellow Iris
Withania obtusifolia	Micromeria sinaica	Phoenix dactylifera, Date Palm
	Pistacia atlantica, Atlantic Pistachio	Ziziphus nemmularia, Jujube

The LJR is also the meeting point for three mammal zoogeographic regions. The Mediterranean Zoogeographic Region predominates in the northern and the higher elevations of the valley, the Sahro-Sindian Zoogeographic Region predominates in the middle areas of the valley, and the Ethiopian / Afro-tropical Zoogeographic Region predominates in lower elevations occupied by tropical vegetation.

The diversity of the fauna in the valley is significant for the conservation of important species that are globally or regionally endangered, threatened, and rare.

**Examples of megafauna that make their home in the valley include:**

Species, Common Name	IUCN Conservation Status <sup>12</sup>
<i>Suncus etruscus</i> , Savi's Dwarf Shrew	Rare in the valley, unknown status due to insufficient data
<i>Canis lupus pallipes</i> , Indian/Gray Wolf	Stable
<i>Hyaena hyaena syriaca</i> , Syrian Hyaena	Near threatened
<i>Felis sylvestris tristrami</i> , Wild Cat	Threatened by habitat loss, fragmentation and degradation as well as hybridization
<i>Felis chaus</i> , Jungle Cat	Considered rare and threatened, decreasing
<i>Caracal caracal</i> , Caracal	Of conservation concern in most of its Asian range, unknown status in Valley due to insufficient data
<i>Panthera Pardus nimr</i> , Arabian Leopard	Near threatened, decreasing
<i>Lutra lutra</i> , Common Otter	Near threatened, decreasing
<i>Gazella gazella</i> , Palestine Mountain Gazelle	Vulnerable, decreasing, extinct in Jordan since 1986 but reintroduced to Shaumari Wildlife Reserve

Furthermore, due to its location in the GRV, the LJR is the center of one of the most important global migration flyways in the world. More than 500 million birds migrate twice annually from and to the southern and northern hemispheres of the GRV, making key stops in areas such as Kfar Ruppin and Naharayim in Israel and the Bakoura in Jordan. The LJR is the first fresh water location before or after the Sahara flight.

**The valley is home to globally and regionally threatened and endangered bird species such as: <sup>13</sup>**

Species, Common Name	Conservation Status
<i>Marmaronetta angustirostris</i> , Marbled Duck	Resident, Vulnerable, Decreasing
<i>Botaurus stellaris</i> , Bittern	Migrant, Least Concern, Decreasing
<i>Neophron percnopterus</i> , Egyptian Vulture	Rare Resident, Migrant, Endangered, Decreasing
<i>Gallinago media</i> , Great Snipe	Migrant, Near Threatened, Decreasing
<i>Serinus syriacus</i> , Syrian Serin	Rare Migrant, Vulnerable, Decreasing



Declining water levels and deteriorating water quality threaten fish fauna in the LJR. The valley is home to the following fresh water fish species:

Fish Family	Fish Species	Distribution	Conservation Status
Acanthuridae	<i>Garra rufa</i>	Jordan River, tributaries towards north of Jordan	Vulnerable Endemic
Anguillidae	<i>Anguilla</i> spp.	Jordan River	Occasional
Balitoridae	<i>Nemacheilus galilaeus</i>	Yarmouk River	Occasional
	<i>Nemacheilus leontinea</i>	Jordan River	Rare
	<i>Nemacheilus insignis</i>	Jordan River tributaries	Vulnerable Endemic
Blenniidae	<i>Blennius fluviatilis</i>	Yarmouk River	Occasional
Cichlidae	<i>Astatotilapia flauijosephi</i>	LJR, tributaries	
	<i>Oreochromis aureus</i>	LJR, dams	Common
	<i>Sartherodon galilaeus</i>	LJR, dams	Common
	<i>Tilapia simonis</i>	Yarmouk River	Common
	<i>Tilapia-zilli</i>	LJR, dams	Common
	<i>Tristramella sacra</i>	Yarmouk River	Occasional
Clariidae	<i>Clarias gariepinus</i>	LJR	Common
Cyprinidae	<i>Acanthobrama hulensis</i>	LJR tributaries	Not Defined
	<i>Acanthobrama lissneri</i>	Widely distributed in LJR drainage and in some dams	Common
	<i>Acanthobrama terraesanctae</i>	Yarmouk River	Common
	<i>Barbus cants</i>	LJR, dams	Common
	<i>Barbus longiceps</i>	LJR, dams	Common
	<i>Capoeta damascina</i>	LJR Tributaries, Yarmouk River, Mujib	Common
	<i>Hemigrammocapoeta nana</i>	LJR, Yarmouk River	Not Common
	<i>Pseudophoxinus drusensis</i>	Northern part of Jordan River Valley	Vulnerable Endemic
Cyprinodontidae	<i>Aphanius dispar</i>	Restricted to the streams	Vulnerable Endemic
	<i>Aphanius sirhani</i>	Restricted to the streams	Endangered
Mugilidae	<i>Mugil cephalus</i>	LJR	Occasional
Pseudocrenilabrinae	<i>Astatotilapia flavijosephi</i>	LJR	Not Defined



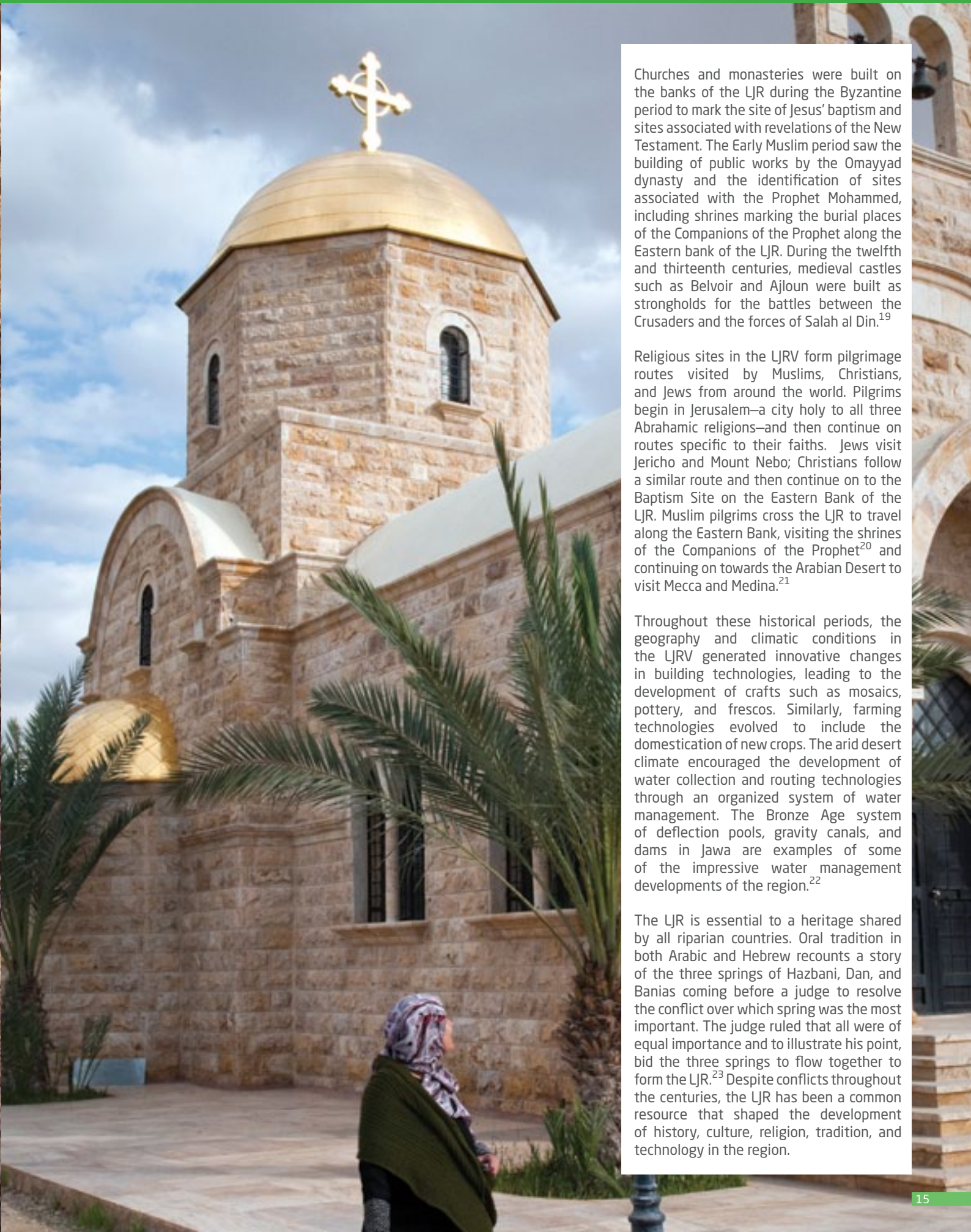
## Heritage and Cultural Significance

The LJR's strategic position where the GRV merges into the Fertile Crescent has made it a cradle of human development. As migration spilled out of Africa into Asia and Europe, hunter gatherers developed into farmers and began to build the first forms of urban dwellings. Inhabited since pre-historic times, the valley's evolving cultural history is important to all human heritage.

The cultural significance of the LJR extends across a succession of historical periods. Villages and cities such as 'Ubeidiya, Jericho, Bet Yerach, Sha'ar Hagolan, and Tell al-Far'a represent the expanding limits of human civilization through the GRV and out of Africa.<sup>15</sup> The remains of these pre-historic sites show early evidence of human origins. Jericho is one of the oldest continuously inhabited cities in the world. These settlements were also the sites of early milestones in human civilization, for example, Gilgal, near Jericho, is the site where wild wheat was first cultivated.<sup>16</sup>

The Jordan River is mentioned nearly 200 times in the Hebrew Bible and New Testament. In many instances the Jordan River is given a particular spiritual significance; Na'aman is healed of leprosy after washing in the Jordan River seven times and Jesus is anointed by the Spirit of God when he was baptized by John the Baptist in the Jordan River. The Jordan Valley as a whole is also featured in these Holy Books. Genesis 13:10-11 refers to the beauty of the Jordan Valley: "And Lot lifted up his eyes, and saw that the Jordan Valley was well watered everywhere like the garden of the Lord." Moses, a prophet to the three Abrahamic faiths, is allowed to gaze at the Jordan Valley from Mount Nebo before his death. Two of the gates to the Garden of Eden were attributed to places in the LJR in the Talmud. The river's significance to the Abrahamic traditions has carried its spiritual symbolism far beyond the region. For example, the Jordan River was a common motif in nineteenth-century African-American spirituals symbolizing liberation.<sup>17</sup>

Writings dating to the Greco-Roman period, primarily by Pliny and in the New Testament, reference an authority that controlled contiguous territory on both sides of the LJR. This authority was focused on the "Decapolis"--the ten largely autonomous cities of Roman and Greek influence located in the region. The city-states of Bet Shean/Scythopolis to the west of the LJR and Susseita/Hippos, Gadara, and Pella to the east of the river were four of the ten cities located in the LJR.<sup>18</sup>



Churches and monasteries were built on the banks of the LJR during the Byzantine period to mark the site of Jesus' baptism and sites associated with revelations of the New Testament. The Early Muslim period saw the building of public works by the Omayyad dynasty and the identification of sites associated with the Prophet Mohammed, including shrines marking the burial places of the Companions of the Prophet along the Eastern bank of the LJR. During the twelfth and thirteenth centuries, medieval castles such as Belvoir and Ajloun were built as strongholds for the battles between the Crusaders and the forces of Salah al Din.<sup>19</sup>

Religious sites in the LJR form pilgrimage routes visited by Muslims, Christians, and Jews from around the world. Pilgrims begin in Jerusalem—a city holy to all three Abrahamic religions—and then continue on routes specific to their faiths. Jews visit Jericho and Mount Nebo; Christians follow a similar route and then continue on to the Baptism Site on the Eastern Bank of the LJR. Muslim pilgrims cross the LJR to travel along the Eastern Bank, visiting the shrines of the Companions of the Prophet<sup>20</sup> and continuing on towards the Arabian Desert to visit Mecca and Medina.<sup>21</sup>

Throughout these historical periods, the geography and climatic conditions in the LJR generated innovative changes in building technologies, leading to the development of crafts such as mosaics, pottery, and frescos. Similarly, farming technologies evolved to include the domestication of new crops. The arid desert climate encouraged the development of water collection and routing technologies through an organized system of water management. The Bronze Age system of deflection pools, gravity canals, and dams in Jawa are examples of some of the impressive water management developments of the region.<sup>22</sup>

The LJR is essential to a heritage shared by all riparian countries. Oral tradition in both Arabic and Hebrew recounts a story of the three springs of Hazbani, Dan, and Baniyas coming before a judge to resolve the conflict over which spring was the most important. The judge ruled that all were of equal importance and to illustrate his point, bid the three springs to flow together to form the LJR.<sup>23</sup> Despite conflicts throughout the centuries, the LJR has been a common resource that shaped the development of history, culture, religion, tradition, and technology in the region.

## 4. I LOOKED OVER JORDAN AND WHAT DID I SEE?

### DIVERSION, POLLUTION, AND OTHER CHALLENGES

Historically, the LJR was a strong and healthy river watering a lush wetland ecosystem, rich in biodiversity. Early explorers such as United States Lieutenant Officer W.F. Lynch in his 1847 expedition down the LJR to the Dead Sea describe the river's rapids and waterfalls. Lynch's 1858 writings report that the width of the stream channel varied from 24 to 26 meters from the Sea of Galilee down to the inlet of the Dead Sea—and much wider in flooding periods—while the depth of the river varied from 0.70 to 4 meters. Lynch describes the water quality as “high” and clear enough to see fish in the river.<sup>24</sup> Until the second half of the 20th century, the waters of the LJR were robust enough to turn the turbines of a hydroelectric power plant built at the junction of the LJR and the Yarmouk, providing power to thousands of residents on both sides of the river.



## DIVERSION

The present day LJR is very different from the river Lynch wrote about. Israel, Syria, and Jordan have dammed and diverted nearly all the tributaries that fed the LJR, leaving an estimated 4% of the 1.3 billion cubic meters of water that used to flow naturally only some fifty years ago.<sup>25</sup> Israel's construction of the Degania Dam just south of the Sea of Galilee in 1932 led to a succession of dams and diversion weirs during the last eight decades. In 1964 and 1966-1987, Israel and Jordan constructed the Israeli National Water Carrier and King Abdullah Canal, respectively. These major national water infrastructure projects divert the LJR, the Yarmouk, and other tributaries for domestic and agriculture use.<sup>26</sup> Ninety per cent of the Yarmouk was further depleted by over 42 earth retention dams mostly built by Syria since 1994. Jordan joined Syria to complete the Unity Dam on the Yarmouk River in 2007, capturing the majority of the Yarmouk's remaining flow and further reducing the LJR.<sup>27</sup> This dam is designed to prevent the winter floodwaters of the Yarmouk from enriching the banks of the LJR. Due to the dramatic diversion of water, the LJR has been reduced to a stagnant pool habitat in the northern sections and barely a trickle towards the south.<sup>28</sup>







## Pollution, Sewage, and Salinity



Compounding the issue of diverted freshwater, many communities in Israel, Jordan, and Palestine have discharged their untreated or poorly treated sewage water directly into the river for the past 50 years. Even without direct dumping, municipal sewage water often reaches the river indirectly through ground water seepage.<sup>29</sup>

In addition, saline water, agricultural runoff, and fish farm effluents are diverted into the LJR. The Israeli Saline Water Carrier (ISWC) was constructed with the goal of reducing

the salinity level of the Sea of Galilee, a major source of fresh water, but resulted in the further degradation of the LJR. The ISCW increased the LJR's salinity levels to 3,000 – 4,000 parts per million.<sup>30</sup> Presently, only sewage and brackish waters flowing into the river keep it from running dry entirely.

In recent years, national and local authorities are increasingly shifting their focus towards returning freshwater to the LJR to maintain continuous river flow by advancing sewage treatment solutions.





## Effects on the River

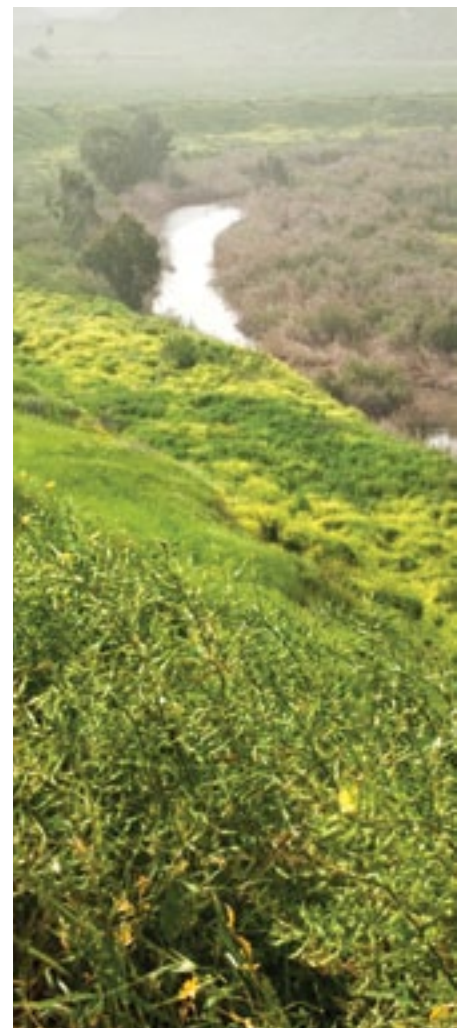
Dams and diversions have destroyed all fast flow habitats and floods of the LJR and reduced the river's biodiversity to approximately 50% lower than its biodiversity in the 1970s.<sup>31</sup> Loss of floodwaters has also significantly narrowed the riparian belt, leaving it with fewer trees and an overabundance of saline-tolerant reeds that cover the river's channel completely in some places. The water's high salinity levels have further contributed to an overall reduction of biodiversity in the valley and shifted the botanical biodiversity toward saline-tolerant and invasive species.

**Below is a chart delineating some of the species that are extinct along the banks of the LJR as well as invasive species identified in FoEME's 2010 Environmental Flows Report:**<sup>32</sup>

Extinct Species	Invasive Species
Nerium oleander	Acacia saligna
Laurus nobilis	Prosopis juliflora
Salvadora persica	Parkinsonia aculeate
Aciaca	Phragmites
Typha	
Cyperus	
Foeniculum vulgare	

Pollution in the LJR is dangerous for human health and for the health of the ecosystem. Organic pollution in high levels at both the northern and southern river segments poses public health risks.<sup>33</sup> This is a particular concern at the southern baptism sites, where pilgrims and tourists have full contact with the water.

The responsible authorities should clarify the water quality standards for immersion in the Lower Jordan River and maintain a strict testing regiment, restricting access when pollution levels exceed safe levels.





## Water Sector Challenges

Growing demand for water by Israel, Syria, Jordan, and Palestine is the overarching cause for the degradation of the LJR. Apart from Syria, all of these countries are considered some of the poorest of the world in terms of water resources. In Jordan, water poverty is due to both physical water scarcity and increasing demand from a high rate of demographic growth during most of the second half of the twentieth century.<sup>34</sup>

Demand for water in Palestine exceeds the available supply which is constrained due to artificial non-economic factors. The gap between demand and supply continues to grow with population growth, improvement in living standards, agricultural expansion, and increasing industrialization. Israeli control of

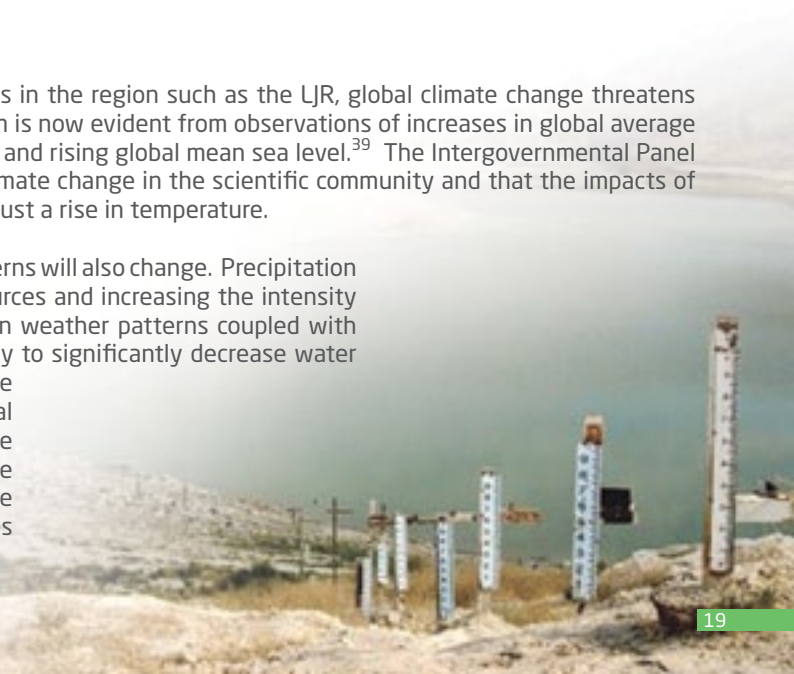
water resources particularly limits water supply in occupied Palestine.<sup>35</sup> Palestinians abstract less than 20% of the fresh groundwater available in the West Bank, while Israel abstracts the rest.<sup>36</sup>

Israel has been consuming water beyond renewable rates since the 1970s. Growing demand, especially for household and urban commercial use, has increasingly put pressure on Israel's water supplies in recent years. Developments in desalination of Mediterranean seawater are changing this pattern,<sup>37</sup> but desalination is energy intensive and contributes significantly to air pollution and greenhouse gas emissions, indicating that Israel needs other sustainable solutions to address water shortages.<sup>38</sup>

## Climate Change and the LJR

While increasing water demand puts pressure on water resources in the region such as the LJR, global climate change threatens the river even further. The disruption of the global climate system is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level.<sup>39</sup> The Intergovernmental Panel on Climate Change stated in 2007 that there is little doubt of climate change in the scientific community and that the impacts of climate change are complex and multifaceted causing more than just a rise in temperature.

Global average temperature will continue to rise and climatic patterns will also change. Precipitation will become increasingly unpredictable, engendering water resources and increasing the intensity of extreme weather as well as droughts and floods.<sup>40</sup> Change in weather patterns coupled with an increase in rates of evaporation due to climate change is likely to significantly decrease water availability in the region.<sup>41</sup> Decreasing water supply due to climate change combined with increasing demand suggests that total unmet demand for water in the LJR could double by the middle of the century.<sup>42</sup> This will lead to the further deterioration of the LJR and its tributaries, which could increase tensions between the governments of the riparian countries and lead to economic losses and threats to political stability.





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## Barriers to Access

Politically, the LJR can be divided into three sections. From the Sea of Galilee to the Yarmouk River, the LJR flows through Israel. From the Yarmouk to Bezeq Stream, to the 1967 Green Line, the river serves as the border between Israel and Jordan. South of Bezeq Stream to the Dead Sea, the LJR marks the border between Jordan and the West Bank presently under Israeli occupation. As a border area from the Yarmouk southwards, much of the river is a closed military zone from both sides. Landmines have yet to be removed along the full western bank of the river.

The military zone protects the natural habitats of the LJR and their species because it prevents commercial development. Nevertheless, such barriers to access keep most local residents and tourists unaware of the LJR's poor condition. Lack of public awareness allows government authorities, with little accountability to an alert public, to divert most of the river's fresh water and replace it with sewage. With the river in danger of running dry, controlled access to the LJR is crucial to gather public support for its rehabilitation. Because increased human access will affect the natural habitats along the river, tourism development must be sustainable and ecologically sound.





## 5. SHALL WE GATHER AT THE RIVER? RESPONSIBLE AUTHORITIES AND STAKEHOLDERS

Responsible management of the LJR and its valley requires concerted regional efforts that include authorities and stakeholders in Jordan, Israel, Palestine, and Syria<sup>43</sup> as over-exploitation by one country may discourage responsible management by its neighbors.<sup>44</sup> Therefore, to ensure systemic change, any strategy for long-term sustainable management must be regional in scope and should emphasize cooperation from responsible agencies and stakeholders.



### Local Residents

Because local residents are the beneficiaries of any policies passed to better manage the valley's water resources, their support is essential for building and implementing transboundary projects. FoEME's top-down advocacy efforts and bottom-up grass roots strategies through the Good Water Neighbors (GWN) project partners 25 communities in Jordan, Palestine, and Israel to work together to solve local and regional water issues. The project empowers community residents to effectively challenge their present water realities by developing local advocates that form the base of FoEME's top-down efforts.

These advocates have advanced environmental solutions to water problems in the Jordanian Parliament and the Israeli Knesset and before members of the Palestinian Legislative Council. In addition, GWN programming provides opportunities for youth to receive water and environmental training alongside their peers from across the border.

FoEME partners with schools throughout the LJR and establishes groups of Youth Water Trustees that go through an environmental education program called WaterCare. The program focuses on hands-on experiential work, and currently has over 1000 youth participants from the three countries.





## Faith-Based Communities

FoEME is bringing attention to the environmental state of the LJR to faith-based communities that reside in and visit the LJR. As the river is emphasized as a symbol in Christianity, Judaism, and Islam, and hundreds of thousands of pilgrims visit the river each year, FoEME is working with faith-based communities to firmly tie the river's religious significance to the importance of its environmental preservation. To advance awareness and understanding of the problems and the potential rehabilitation of the LJR, FoEME is developing faith-based tool kits to launch campaigns that are geared toward congregations from each of the three Abrahamic religions. In addition, FoEME is partnering with tourism agencies for faith-based groups visiting the LJR to encourage discussion on the river's current state and potential rehabilitation.





## Municipal Government

In Palestine, Jordan, and Israel, municipal governments are primarily responsible for the treatment and sanitation of wastewater under the guidance of their respective sewage treatment authorities. Mayors and members of city councils are therefore key decision makers in efforts to remove pollution from the river and implement best practices in domestic and agriculture demand management. FoEME's GWN program has made important progress in developing cross-border community and municipal partnerships. FoEME maintains a network of mayors from GWN communities in the LJR and facilitates transboundary projects led by these mayors. These projects have included successful advocacy for the construction of waste water treatment plants in Muaz ben Jabal, Jordan, Beit Shean Regional Council and Jordan Valley Regional Council, Israel, and most recently in Jericho, Palestine.

## National Water Regulatory Bodies

In Jordan, there is some degree of overlap in water jurisdiction. The Jordan Valley Authority (JVA) oversees irrigation facilities as well as socio-economic growth encompassing water resource management in the Jordan Valley. The Water Authority of Jordan (WAJ) executes procedures assigned by the Ministry of Water and Irrigation. In addition, the Ministries of Environment, Agriculture, Health, Finance, Municipal and Rural Affairs, and Public Works and Housing are each responsible for different aspects of water management, protection, and distribution.

The Israeli Water Authority (IWA) is responsible for management of the water sector in Israel. The Water Authority Council coordinates water management authorities from the key responsible ministries of Agriculture, Infrastructure, Finance, Environment, and the Interior to supervise water management within Israel.

In Palestine, the Palestinian Water Authority (PWA) is the regulatory body in charge of the management of water resources and sanitation. The National Water Council (NWC) creates policy for the



water sector and includes the Ministers of Agriculture, Finance, Local Government, and Planning and International Cooperation. Although these bodies formally manage water resources, the majority of water actually used by Palestinians is managed by local or farmer-based institutions, which functioned for decades before the creation of the PWA.<sup>45</sup>

As part of FoEME's work to bring together diverse stakeholders to advance efforts to rehabilitate the LJR, national and regional Jordan River forums were established in Israel, Palestine, and Jordan involving expert stakeholders, ministry representatives, and members of the respective national authorities. The informal forums are currently the only entities that enable experts and decision makers from all three countries to share information and strategies concerning the LJR. Initially intended to gather information and build political will for FoEME projects, committee meetings have broadened and members exchange and propose additional plans for further development and rehabilitation related to the LJR.





## National Governments

After generations of neglect, positive efforts to remove sewage from the river are being undertaken in Israel and Jordan and are in the planning stages in Palestine. These efforts must be coupled with commitments from the Israeli and Jordanian governments to return fresh water to the river. In a June 2011 letter to FoEME, the Israeli Ministry of Environment committed to replace the sewage that will be removed for treatment and reuse in agriculture with 30 MCM of "good quality [water] ...from the Sea of Galilee."<sup>46</sup> While this is a good first step, further solutions need to be found to allocate high quality water to the LJR to meet the regional rehabilitation goal. National governments should also require that environmental impact assessments for any building or development project within the entire watershed evaluate how the project would affect the LJR.



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## Legislatures

The Jordanian Parliament, the Israeli Knesset, and the Palestinian Legislative Council are the elected bodies responsible for passing legislation in their respective countries. FoEME's national advocacy work pushes water issues to the forefront of these elected officials' agendas to achieve sustainable solutions to the threats facing the region's shared waters. FoEME's main strategy is to develop and support "champions" of the LJR; members of national legislatures who partner with FoEME in support of river rehabilitation policy and action. These champions encourage their colleagues to attend tours of the LJR, participate in regional meetings on transboundary cooperation, and influence national policy in the sustainable management of the LJR.

In December of 2010, the Israeli Knesset's Internal Affairs and Environment Committee called for the Jordan River's rehabilitation to be a project of national priority. The committee's decision affirmed that Israel and Jordan are responsible for action because both countries contribute to pollution and flow levels of the river. The committee also stressed that rehabilitation should be of utmost importance for Israeli - Jordanian relations. This decision effectively made river rehabilitation a priority for all levels of Israeli government and as such has been an important tool in FoEME's advocacy efforts within Israel. Most recently, the Israeli Ministers of Environment and Tourism announced that they will bring the issue of the LJR to Cabinet and request that the river's rehabilitation become a project of national priority, as well as the allocation of hundreds of millions of shekels from the Treasury for this purpose. FoEME is seeking similar decisions in the Jordanian Parliament and Palestinian Legislative Council. Advancement in peace negotiations between Israel and the PA and the end of Israel occupation of the West Bank will help accelerate these efforts.



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## International Champions

International support for regional action to rehabilitate the LJR has increased in recent years. In November of 2007, the U.S. Senate unanimously approved Resolution 387, which urges Jordan, Israel, and the Palestinian Authority to work together to protect the Dead Sea and Jordan River. Similarly, in September of 2010, the EU Parliament called upon leaders in the region to address the state of the Jordan River and called on the European Commission to consider allocation of financial resources to help rehabilitate the river. A special report by UNESCO on the situation in the LJV encourages Jordan, Israel, and Palestine to work together to solve common water problems in the valley, particularly in regards to the LJR. The United States Environmental Protection Agency recently launched a toolkit to support best practices in integrating public participation into environmental projects, highlighting FoEME's Jordan River Rehabilitation Project as a model. This level of international interest in the LJR helps secure funding and technical assistance for river rehabilitation and puts pressure on local and national governments to cooperate regionally.





## 6. ROLL, RIVER JORDAN: FOEME'S RECOMMENDATIONS AND NEXT STEPS

All of FoEME's work in the region promotes fair share of resources between people and nature, cross-border water justice, and national environmental activism. This vision is central to FoEME's strategy for the LJR. Currently, an estimated 96% of the LJR is diverted for human use and less than 4% is left for the natural ecosystem. FoEME advocates for the return of water to the river to sustain its natural diversity and processes. Palestinians have no access to the river and are entitled to a fair share of the system's water. In the interest of water justice, FoEME advocates for more equitable sharing of the water among the peoples of the region. Finally, FoEME advocates at the national level in Palestine, Israel, and Jordan for better water conservation policies focused on domestic, industrial and agricultural use that will reduce the demand for water and allow fresh water to flow into the LJR.

### Ecological Rehabilitation of the LJR

FoEME's 2010 study on the current state of the LJR identified a regional strategy to determine the quantity and quality of water required to rehabilitate the LJR. In the resulting report, called "Towards a Living Jordan River: An Environmental Flows Report on the Rehabilitation of the Lower Jordan River," FoEME calls for the return of 400-600 million cubic meters (MCM) of fresh water to the river in order to allow the LJR to function as a healthy ecosystem.<sup>47</sup> The riparian countries are responsible for the return of water to the river, and FoEME identified estimates for allocation for each country to meet the regional rehabilitation goal. The amount diverted by each country as well as socioeconomic criteria were used to conclude that Israel should be responsible for returning 220 MCM (54% of 400) to the LJR, Syria should be responsible for 100 MCM (24%), and Jordan should be responsible for 90 MCM (22%). Palestine should not be asked to contribute water as it currently does not receive water from the LJR and all water allowances are controlled by Israel.<sup>48</sup> Salinity levels of the LJR are recommended

not to exceed 750 ppm of Chloride.<sup>49</sup> In addition, at least one flood each year is needed to improve the ecological health of the LJR.<sup>50</sup> Currently, all flood waters during the rainy season are caught and stored due to the regulation of dams on the river. Floods provide flushing and renewal of sediments and nutrients in the river, defense against invasive plant and animal species, and cues for species' migration and breeding. Experts from Yale University have proposed an "experimental flood" of the LJR to create a flow of 100 m<sup>3</sup>/sec for a 24 hour period from the Alumot Dam.<sup>51</sup> FoEME supports this proposal, which would require a total of less than 9 MCM of water each year.

A report prepared in 2011 by DHV MED for FoEME proposes specific measures to reintroduce water and reduce salinity in the river from the Israeli side for LJR rehabilitation. Similar reports will be published for Palestine and Jordan as part of the FoEME Master Plan studies currently underway. Researchers used Water Evaluation and Planning (WEAP) software

to analyze three scenarios: Current Accounts representing the current situation, Zero Scenario for the years 2011-2041 if current plans proceed normally, and Rehabilitation Scenario based on the Zero Scenario with added measures to further rehabilitate the LJR. For each scenario, the software used flow data of all the water sources, reaches, and demand sites to calculate flow and salinity in a monthly resolution at different points on the LJR and its tributaries.<sup>52</sup>

The main recommendation from the report is the controlled release of 125 MCM/Yr on average from the Degania dam when the levels of the Sea of Galilee are higher than the dam. Additional recommendations include ceasing pumping from the Lower Yarmouk when the Sea of Galilee is higher than the bottom red line,<sup>53</sup> transferring saline effluents away from the LJR, and decreasing usage for irrigated agriculture. Over a ten year proposed implementation period, these measures would improve the LJR's condition to a level that would likely sustain the recovery of the ecological system.<sup>54</sup>



## Economically Feasible Rehabilitation

In order to demonstrate the feasibility of returning water to the LJR, FoEME joined with expert economists from Palestine, Israel, and Jordan to analyze policy options for water conservation. These three national reports identified opportunities to reduce water demand or increase supply at less than the marginal cost of water. Water saved could be used, in part, to rehabilitate the LJR and to restore Palestinian water rights.

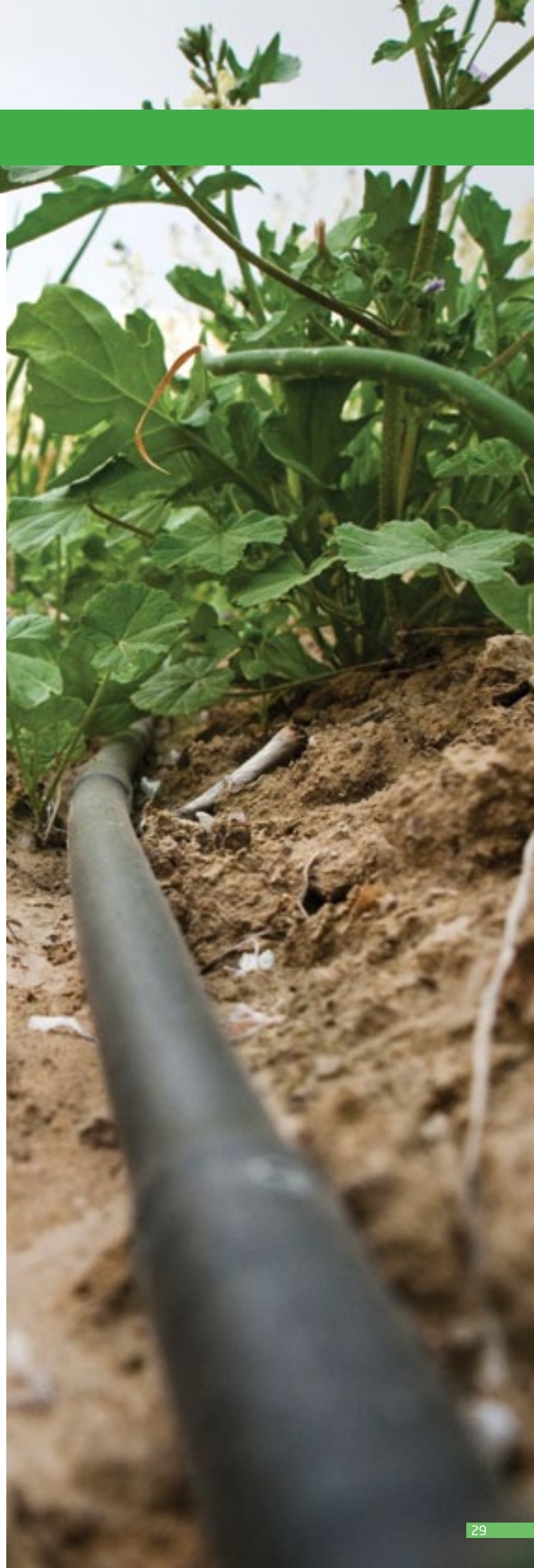
Despite water scarcity in each country, the study identifies cost-effective measures for water saving in domestic, municipal, and agricultural sectors. Each national report recommends a range of policy options that reduce water consumption such as the use of double flush toilets, rooftop rainwater collection, and use of water-conserving plants in gardens. Through these studies, FoEME identifies over a billion cubic meters of water that can be saved. Ninety per cent of the study's identified water savings are less expensive than the marginal cost of water, making these options solid environmental and financial policy.

In Jordan, five strategies are suggested to increase the water supply, including municipal rainwater reclamation in agriculture, municipal rainwater catchment, reduction of water conveyance loss, farmland renting by JVA, and accountability of supplied water. Similarly, five strategies are identified to curb demand for water, namely, public awareness, gardening reform, grey water for domestic use/double flushing toilet systems, improved efficiency of irrigation, and reform of agricultural water tariffs. Savings from these ten strategies are estimated to save 288MCM of water in Jordan.<sup>55</sup>

The Palestinian analysis focuses on supply-side strategies for water conservation as usage is already low with the per capita municipal consumption of water estimated between 73 and 102 l/d.<sup>56</sup> The most cost-effective measures are roof rainwater harvesting for domestic and agriculture use, desalination, artificial recharge of groundwater, reduction of water conveyance loss, reclamation of municipal wastewater for use in agriculture, and reclaiming Palestinian water rights from Israel, especially from the LJR and Mountain Aquifer waters. Strategies identified to curb demand include public awareness, improved efficiency of irrigation, and introduction of new technologies to generate domestic water savings. The use of these measures can provide an estimated 108.5 MCM in water savings each year in Palestine.<sup>57</sup>

Three supply management water conservation strategies are identified in the Israeli analysis: reducing water losses from leakages, reducing evaporation losses from reservoirs, and rooftop rainwater collection. Demand management is emphasized with six identified strategies, including raising awareness, garden reform, price increases or reduced allocations in the agricultural sector, grey water use in irrigation and for toilets, and removal of trade restrictions. In all, the study identifies 690 MCM/Yr of water as the highest possible savings by 2020 according to the 2007 consumption rate.<sup>58</sup>

These economic studies are significant because they demonstrate to decision makers the possibility of reducing consumption and improving efficiencies, thereby freeing up fresh water that can be redirected to the LJR. The reports provide solid economic analysis to support FoEME campaigns to advance best water management practices and adoption of domestic and agriculture water demand management strategies in the region.





## Measuring Shared Benefits

Palestine, Jordan, and Israel can share the economic as well as ecological benefits of a rehabilitated LJR. FoEME's Regional Benefits Study provides information to local stakeholders, decision makers, donors, and regional actors about development opportunities that would result from a rehabilitated LJR, specifically with regards to ecosystem services and potential for tourism development. In addition to measuring the economic benefits associated with different phases of river rehabilitation, the regional study proposes and explores national sites with particular value to increase tourism in the LJR including pilgrimage routes, migratory flyways, and sites for water recreation. The benefits of restoration for the various scenarios evaluated are substantial, ranging between 50-350 million dollars annually depending on the specific scenario. This is attributed both to the fact that the Jordan Valley represents the most popular and accessible location for domestic tourism and to the fact that it is an area rich in attractions for international tourists.<sup>59</sup>

FoEME has promoted sustainable development through eco-tourism in the LJR since the early 2000s. The Sharhabil ben Hassneh EcoPark in Jordan was created as a pilot project to encourage the rehabilitation of the Ziglab Dam area and to bring together beneficiaries and visitors of the LJR in a way that respects the valley's natural environment. Likewise, the Auja Environmental Center in Palestine was developed in a similar model to serve as a focal environmental education facility to spread awareness of the ecological importance of Wadi Auja and the LJR as a whole. In Israel, FoEME's Ein Gedi EcoCenter teaches students to reduce their environmental impact through a unique collection of demonstration stations. All three facilities educate visitors about sustainable techniques, including solar cooking, composting, mud building, grey water irrigation, rain water harvesting, and double flush and composting toilets.

These three centers are expansions from the Neighbors Path Tours, which are touristic trails that highlight the natural and cultural heritage of each of FoEME's Good Water Neighbors Communities. Neighbors Path Tours were created in 2007 with the goals of raising public awareness of shared water and environment concerns of the communities, promoting cross-border cooperation for solving environmental problems, and developing potential for tourism. Since 2007, FoEME has led over 800 tours involving more than 23,500 people.



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## Regional Master Plan Development

Ecological rehabilitation of the LJR is only possible with the coordination of authorities in Jordan, Israel, and Palestine. In 2010, the Israeli Ministry of Environment together with the Ministry of Regional Cooperation allocated funding for the preparation and development of a comprehensive master plan for the Israeli section of the LJR.<sup>60</sup> The Israeli master plan will determine coordinated regional flow regimes, set water quality standards, identify solutions to treat all pollution sources, launch restoration and preservation programs, establish ecological corridors, and identify opportunities to expand ecotourism infrastructures in the LJR, including the preparation of regional heritage routes.

Building on these important developments, FoEME received European Union financial support in 2012 to launch a process to create the first ever comprehensive regional master plan for the LJR system. The “FoEME Master Plan: A Vision for the Lower Jordan River” aims to harmonize the Israeli plan with plans under development in Jordan and Palestine.

The master plan will propose specific recommendations for the rehabilitation of the LJR and include a framework for planning, policy, and implementation of these recommendations. FoEME will use the plan as an advocacy tool for national stakeholders and the international community to build political will for the adoption of the recommendations. In Palestine, the Minister of Water Shaddad Attili issued a letter of support for the rehabilitation of the LJR and for securing Palestinian water rights.

## Regional Management Mechanism

In 2014, FoEME intends to release a proposal for a Model Basin Commission for the LJR based on best practices from basin commissions around the world. This proposed commission will act as a coordinating and governing body for riparian countries of the LJR, fostering cooperation over water resources through a coordinated, transparent, and democratic process.

The planning process for a Model Basin Commission requires a strong partnership between basin stakeholders to effectively link water resource development with conservation of the basin’s ecology. The Model Basin Commission for the LJR will be designed to help the riparians achieve their mutual goals of economic prosperity, environmental sustainability, and social equity.





## Summary of FoEME Recommendations for the Lower Jordan River

### **FoEME's recommendations to rehabilitate the Lower Jordan River include:**

- The return of 400-600 MCM of primarily fresh water to LJR (the highest quality of effluents may be permitted for up to 25% of the LJR's base flow), with Israel contributing 220 MCM, Syria contributing 100 MCM and Jordan contributing 90 MCM, maintaining salinity below 750 ppm;
- Right of access and right to a fair share of water for Palestine;
- At least one flood for the LJR each year of 100 m<sup>3</sup>/sec for a 24 hour period;
- The release of 125 MCM/Yr from the Degania Dam, the ceasing of pumping from the Lower Yarmouk when the Sea of Galilee is higher than the bottom red line, transferring saline effluents away from the LJR, and decreasing usage for irrigated agriculture; and
- Implementation of national policy strategies in Jordan, Israel, and Palestine to manage demand for water in the agricultural and domestic sectors.

### **FoEME's next steps to pursue rehabilitation of the LJR include:**

- Spearheading the development of the FoEME Master Plan for the Lower Jordan River and creating a planning, policy, and implementation framework for the study's recommendations to be released in the spring of 2014;
- Publication of a Model Basin Commission for the LJR through a framework that ensures the reasonable and equitable use of the LJR system for all riparians with an equal consideration to conserve river ecology to be released in the fall of 2014;
- Conducting national educational campaigns to promote water

conservation policy options in Jordan, Israel, and Palestine;

- Disseminating the use of FoEME's faith-based tool kits that are geared toward engaging congregations from each of the three Abrahamic religions concerning river rehabilitation;
- Raising awareness of the potential benefits that a rehabilitated river will bring to national and local economies with specific regards to ecosystem services and potential for tourism development based on FoEME's Economic Benefits Study; and
- Engaging stake holders and decision makers to influence policy towards river rehabilitation through continued top-down and bottom-up advocacy work.

### **FoEME's additional recommendations to rehabilitate, promote prosperity, and help bring peace to the LJR include:**

- Creating peace parks along designated sites of the LJR;
- Developing rural tourism by identifying opportunities to assist and train local residents and farming communities to improve existing or establish new guesthouses in the valley; developing small business plans for the creation and improvement of tourism facilities across the river valley;
- Promoting cultural events such as festivals and concerts in the old Roman amphitheatres and other sites in Beit Shean, Umm Qais, Jericho, and Pella;
- Restoring and promoting the archeological, religious, and cultural sites that cross the valley in a manner that encourages tourists to visit and compare sites across the valley; and
- Preparing and implementing training programs, model farms, and business plans to promote organic, local variety, and sustainable agriculture in the valley.

## 7. JORDAN RIVER I'M BOUND TO CROSS: WHAT YOU CAN DO TO REHABILITATE THE LOWER JORDAN RIVER

The LJR is an important global icon that is part of the shared natural and cultural heritage of many people around the world. Whether or not we live in the region we all have a role to play in restoring this renowned river to an ecological state that is healthy enough to sustain the valley.

### Here are some ways that you can get more involved:

- Read more. FoEME provides extensive publications and resources about the LJR on our website, [www.foeme.org](http://www.foeme.org).
- Save and recycle water. FoEME has developed and launched national education campaigns to promote change in water consumption practices. Brochures and position papers on our website are designed to inform you how to use scarce water resources more wisely.
- If you live in the region, contact a local or national decision maker. Call or write a letter to your mayor, Member of Parliament or Knesset, or other city or government official and ask them to commit to rehabilitating the LJR. Make reference to the policy opportunities for conservation identified in FoEME's national education campaigns.
- If you live outside the region, contact your Member of Parliament or Congress, or other representative and ask them to prioritize the rehabilitation of the LJR. The European Parliament and United States Senate passed Procedure 2775 and Resolution 287, respectively, supporting a regional effort to rehabilitate the LJR. Attention from the international community encourages decision makers within the region to put the LJR at the forefront of their national agendas.
- Visit the Lower Jordan River. Your visit to the Lower Jordan River Valley will give you a firsthand look at an ecologically unique and culturally rich region. A personal visit makes you more informed and equips you to raise awareness about the state of the Lower Jordan River Valley in your home community. In addition, your visit can provide income to the residents of the Valley and encourage sustainable development. Try a few of the Neighbor Path Tours or spend a weekend at FoEME's Sharhabil ben Hassneh Eco Park, Auja Environmental Center, or Ein Gedi EcoCenter. More information is available on our website.
- Donate. FoEME is supported by private individuals, foundations and government grants. Your financial contribution helps us fulfill our mission to facilitate cooperative efforts to rehabilitate the LJR.
- Keep up to date with FoEME's monthly environmental peacemaker newsletter or by following us on Facebook and Twitter. Our blog [www.foeme.wordpress.com](http://www.foeme.wordpress.com) is updated weekly with articles about environmental issues in the region.





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