



Jeroen Kool



Sustainable Development in the Jordan Valley

Final Report of the Regional NGO Master Plan



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Preface

The *Jordan River*, the river with the lowest elevation in the world, originates on the slopes of Jabal al-Sheikh (Mount Hermon) on the Syrian–Lebanese–Israeli border, flows southward through northern Israel to the Sea of Galilee, and then divides Israel and the Palestinian West Bank on the west from the Kingdom of Jordan on the east, before flowing into the Dead Sea at an elevation of about 427 m below sea level.

The *lower part of the Jordan River* is the section of the Jordan River that flows between the Sea of Galilee and the Dead Sea. As it flows out of the Sea of Galilee, intercepts with the Yarmouk River and next meanders for 200 km through the Jordan Valley down to the Dead Sea. The Jordan Valley, the focus of this report, is shared by Jordan, Israel, and Palestine and is renowned around the world for its remarkable geographic features, its ancient civilizations, and its religious relevance. The environmental and ecological values of the valley have declined drastically during the last sixty years: Its water has been diverted; its ecological systems demised; and its natural absorption capacities have been pushed to the limits. Large flows of untreated wastewater and saline water are discharged directly into the valley, and substantial parts of the valley are no longer accessible for the inhabitants who live there.

Water and Environment Development Organization (WEDO) under the umbrella of EcoPeace Middle East in partnership with the Stockholm International Water Institute (SIWI) and the Global Nature Fund (GNF) has assigned Royal HaskoningDHV and its partner MASAR in Jordan, CORE Associates in Palestine, and DHVMED in Israel to develop this Regional NGO Master Plan for Sustainable Development in the Jordan Valley. The overall objective of this project is to promote peace and prosperity within the Jordan Valley. The specific objective of the plan is to identify feasible interventions that will restore the valley's environmental and ecological values within a realistic financial and economic framework, in which a future State of Palestine will be recognized as one of the three riparians to the Jordan Valley, side by side with Israel and Jordan with all three nations entitled to an equitable share of the valley's resources. The plan assumes furthermore free access to the valley for all people within appropriate and negotiated security arrangements. This plan will be used as an advocacy tool toward Jordanian, Israeli, and Palestinian decision makers and the international community for the implementation of the proposed interventions.

An estimated 500,000 Jordanians, 49,000 Israelis, and 56,000 Palestinians live today on both sides of the Jordan River. This Master Plan provides first a summary of the current status of the valley in terms of its land use and its natural and cultural resources; next it describes the people living in the valley, including their socioeconomic circumstances and the different economic sectors and related water demands; and it describes the current governance of the valley. Next, this Master Plan shows projected population and economic figures for the years 2025 and 2050 and related land and water requirements, and it identifies the major challenges to be addressed.

Next, it presents a series of strategic objectives for the valley including related interventions that aim at restoring the basin's water, environmental and ecological challenges within a realistic financial and economic framework, leading to a sustainable and economic prosperous region within a safe and politically stable environment, and a healthy and lively Jordan River.

Finally, it described the organizational, financial, and planning aspects related to these interventions. This Master Plan has been developed in close cooperation with a number of important stakeholders in the valley. During a series of workshops, these stakeholders have been consulted and participated in discussions to identify the major problems in the valley and to formulate and prioritize the appropriate interventions to address these problems.



Royal HaskoningDHV
in partnership with:



MASAR Jordan
CORE Associates
DHVMED



EcoPeace Middle East / WEDO / FoE*
in co-operation with:



SIWI – Stockholm International Water Institute



GNF – Global Nature Fund



European Union's
Sustainable Water
Integrated
Management
(SWIM Program)

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* The future scenarios and strategic objectives for the Jordan Valley Master Plan presented in this report reflect the vision of EcoPeace Middle East, and do not necessarily reflect the opinion of the European Union, project partners or the individual consultants and their sub-consultants

Executive Summary

The overall objective of this NGO Master Plan for Sustainable Development in the Jordan Valley is to promote peace, prosperity, and security in the Jordan Valley and the region as a whole. This plan identifies feasible interventions that will restore the valley's environmental and ecological values within a realistic financial and economic framework. The Plan assumes that a future independent State of Palestine will be recognized as one of the three riparian states to the Jordan River, side by side with Jordan and Israel, with all three nations entitled to an equitable share of the valley's resources. Furthermore, the plan assumes free access to the valley for all people within appropriate and negotiated security arrangements.

As a regional and civil society led effort, this plan was designed to help create political will toward its full or partial implementation by the Jordanian, Israeli, and Palestinian governments and also by donor states and the broader international community and public and private sectors. All these parties are invited to cooperate, invest, and help secure funding, in support of the governance and implementation of the proposed interventions for the sustainable development of the Jordan Valley. It is foreseen that the proposed Israeli interventions are to be funded by the Israeli government, while the international donor community is encouraged to support the proposed Palestinian, Jordanian, and Regional, multi-country interventions.

This NGO Master Plan focuses on the Jordan Valley and provides general outlook for the national water balances of Jordan, Palestine, and Israel in particular. Detailed water assessment at a national level or at a wider Jordan River Basin level including Syria and Lebanon is outside these scope of this study.

In the framework of this study, assessments were made of the existing national plans in Jordan, Palestine, and Israel. However, these national plans generally do not include projections to 2050, and they do not specifically separate the actions required in the Jordan Valley. These aspects are specifically taken up in this NGO Master Plan.

This NGO Master Plan provides a baseline status of the basin in terms of land use, natural and cultural resources, the people living in the basin, their socioeconomic circumstances, the different economic sectors and related water demands, and the current governance of the basin. The Master Plan then delivers a projection of population and economic figures for the years 2025 and 2050 and related land and water requirements, and it identifies the major challenges to be addressed.

Strategic Planning Objectives

The key challenge for sustainable development in the Jordan Valley is to strike the right developmental balance between a healthy economic developmental path for the valley and its people on the one hand, and a Jordan River with sufficient environmental flows to sustain a healthy ecosystem on the other hand. To meet this objective, the river will need to serve as a natural water conveyor and source for water supply for residents in and outside the valley. Sustainable development is seen as a catalyst to peace building between Israel and Palestine and the deepening of cooperation between Jordan, Palestine, and Israel as a means to achieving prosperity, stability, and security for their residents in the valley and beyond. A key condition for meeting this challenge is that Palestine is recognized as a full riparian state in the

Jordan River, entitled to have access to its fair share of water resources and sovereignty over its lands in the valley.

The objective in terms of pollution control is to eliminate all sources of environmental pollution in the Jordan Valley by 2025. This requires full and adequate treatment and reuse of all wastewater flows in the valley and to embark on fully integrated solid waste management. In terms of sustainable water management, the key challenge clearly is to overcome the water scarcity-related problems in the Jordan Valley. This means creating a sustainable water supply system that meets current and future domestic and agricultural water demands and at the same time preserves the water resources for future generations and for the environment.

Sustainable agriculture development is one of the most important pillars of the Jordan Valley Plan as it provides livelihood and prosperity for all the people in the valley. The strategic agricultural objective for the study area is improving water use and irrigation efficiencies and economic outputs per unit of water used.

The institutional challenge will be to strengthen land cooperation among the responsible authorities, including JVA, WAJ, IWA, and PWA, drainage authorities, municipalities, and other related ministries and authorities in their role as authority over and regulator of the Jordan Valley. Improvements are required in areas such as water data collection and management water planning; and water storage and distribution operations, including IT and wireless data transfer, economic and land use planning, and related support services. This will also require improved coordination and cooperation between various stakeholders involved in water management, to enable a more efficient and beneficial water economy.

One of the key challenges in the Jordan Valley is to restore the good ecological status of the Jordan Valley and the role of the Jordan River as a strategic water conveyor (Green Infrastructure), in line with earlier recommendations of EcoPeace's Environmental Flow Study. This also includes restoration of the floodplain and the ecological (flora, fauna) status of the river, based on environmental flows and good water quality; design and implementation of dedicated ecological restoration projects and eco-parks along the borders of the Jordan River; expansion of currently assigned nature reserves, based on important flora, fauna and bird areas, also in accordance with the Ramsar Convention; and design and development of dedicated nature recreational areas for the urban population.

Development of the tourism sector and the cultural heritage in the Lower Jordan Basin is a major challenge with the main focus on saving the intrinsic cultural heritage values in the Basin, as well as for boosting the economy and creating jobs in the area. This requires investment planning for major sites such as Pella, the proposed Bakoura National Park, Naharayim, Old Gesher and Jericho, developing transboundary sites, creating free tourism areas at the northern head of the Dead Sea between Jordan and Palestine, and the Jordan River Peace Park between Jordan and Israel. It may also include linking the Baptism Sites to other tourism sites and trails in the valley and creating synergies and stronger economic development opportunities.

To facilitate the anticipated population and economic growth in the Jordan Valley, it will be crucial to develop sufficient urban housing and infrastructure facilities in the valley and meanwhile increase traffic safety and public transport capacities. This is specifically relevant for the new State of Palestine and for Jordan. This may include improvement of main north-south roads through the valley, including bypass roads around major urban areas; improving traffic safety through traffic lights, lining, and public signs; establishment of sidewalks and bicycle trails; preparation for urban planning and housing projects to accommodate the foreseen growing population and its welfare; and development of transboundary infrastructure facilities, such as opening up of the Damya Bridge and the Abdullah Bridge over the Jordan River.

Meeting the Planning Objectives

A total of 127 interventions have been identified with a total investment value of 4.58 Billion USD until the year 2050. The full set of interventions is presented in Annex 1 and grouped

around the various strategic planning objectives. The proposed measures have been divided between Israeli (ISR), Jordanian (JOR), Palestinian (PAL), and Regional (REG) interventions. It is assumed that the Government of Israel will finance all Israeli interventions and might cofinance regional interventions.

For every set of interventions, a separate regional coordination intervention plan has been formulated, setting up a regional coordination structure, or steering committee, among key Jordanian, Israeli, and Palestinian governmental stakeholders for the implementation of the proposed national and regional interventions in the Jordan Valley. The objective is that this steering committee will eventually be embedded in the structure of the proposed River Basin Organization for the Jordan Valley.

The proposed pollution control-related interventions focus on eliminating all sources of environmental pollution in terms of wastewater and solid waste in the Jordan Valley by 2025. This includes full and adequate treatment and reuse of all wastewater flows in the valley and to embark on fully integrated solid waste management. Proposals have been made to include waste collection; transportation; transfer; reuse and recycling of solid waste streams; sanitary landfilling; and closing of existing non-sanitary dump sites.

The sustainable water management-related interventions focus on establishing efficient domestic and agricultural water supply within a basin-wide water balance. It also includes an integrated water resources management approach for the whole lower part of the Jordan River, based on international cooperation among Israel, Jordan, and Palestine, supported with adequate water management tools (like WEAP) to ensure sustainable water supply and an increase of the base flow and rehabilitation of the ecological values of the Jordan River.

The agricultural-related interventions focus on improving water use and irrigation efficiencies and the economic outputs per unit of agricultural water used. It is assumed that the total water demands for the agricultural sector in the Jordan Valley will remain stable and that adequate tariff policies on water used for irrigation will be implemented, including enforcement, to stimulate more efficient use of water through, for instance, greenhouse drip irrigation.

The governance-related interventions include setting up a Palestinian Basin Authority, strengthening the Jordan Valley Authority and establishing a trans-national Jordan River Basin Organization (Israel, Jordan, Palestine) that will address water management-related issues from the valley perspective to the benefit of all stakeholders and inhabitants in the valley. It is proposed that a regional coordination structure, or steering committee, will be set up to implement the suggested interventions. These steering committees shall consist of the key Jordanian, Israeli, and Palestinian governmental stakeholders. As stated above, the objective is that these sector-related steering committees will eventually be embedded in the structures of the overall River Basin Organization for the Jordan Valley.

The ecological interventions focus on improving the ecological status of the Jordan Valley in general and the Jordan River in particular. This includes restoration of the floodplain and the ecological (flora, fauna) status of the river, based on environmental flows and good water quality; design and implementation of dedicated ecological restoration projects and eco-parks along the borders of the Jordan River; and expansion of currently assigned nature reserves.

The proposed interventions in terms of tourism and cultural heritage focus on restoration and saving the intrinsic cultural heritage sites in the valley and on boosting the tourism economy in the area, including parks, hotel facilities, museums and touristic routes through the valley, as well as tourism branding and promotion. The interventions aim at creating basin-wide synergies and stronger economic development opportunities for the valley as a whole. The proposed interventions in terms of urban and infrastructure development focus on developing sufficient urban housing and infrastructure facilities in the valley towards the year 2050, and meanwhile increase traffic safety and public transport capacities.

What Can Move Forward Now?

Within the total set of interventions, a series of *short-term actions* have been identified, which can be initiated as soon as possible, pending the final peace accord between Israel and Palestine. They represent a total investment value of 495 MUSD, including 165 MUSD of Israeli interventions and 330 MUSD of Jordanian and Palestinian interventions to be funded by the donor community. The interventions will cover pollution control, water management, tourism and cultural heritage development, and agriculture and ecological restoration. In addition, the preparation for the Jordan Valley Regional Coordination interventions on all strategic objectives can be advanced at this time. This investment will aim at improving the baseline situation in the Jordan Valley substantially, particularly in Palestine and Jordan, resulting in a strong foundation for the establishment of the independent Palestinian State and for effective regional cooperation among the three riparian states as geopolitical conditions allow.

The short-term actions mentioned above cover the following projects:

2020 Target: Remove major pollution sources from the Jordan Valley

P01	ISR	Fish Ponds Short Term Pollution Control Improvement Project
P02	ISR	Mine Fields Removal Project
P03	ISR	Sustainable Fish Farming in the Jordan Valley
P04	ISR	Betanya Tertiary Wastewater Treatment
P05	ISR	Betanya Desalination Plant and Afikim Reservoir Project
P01	JOR	Solid Waste Management
P02	JOR	Environmental Management and Public Awareness Program
P03	JOR	Agricultural Pollution Control Project
P04	JOR	Separate Waste Collection and Reuse Pilots
P01	PAL	Solid and Hazardous Waste Management Plan
P02	PAL	Environmental Management Project
P03	PAL	Wastewater Collection and Treatment
P04	PAL	Fish Farm Pollution Control Project
P05	PAL	Land and Water Quality Protection Project

2020 Target: Prepare for sustainable water management and supply in the Jordan Valley, including ecological rehabilitation of the Jordan River

W01	ISR	Yarmouk River Dredging and Cliff Protection Project
W02	ISR	Western Drainage Basins Flood Management
W03	ISR	Northern Sewerage Expansion Project
W04	ISR	Springs Rehabilitation Project
W01	JOR	Improved Lower Jordan River Basin Management Project
W02	JOR	Wastewater Collection, Treatment and Reuse project
W03	JOR	Emergency Wastewater Management Project
W04	JOR	Waste Water Reuse Pilot Projects
W02	PAL	Rehabilitation and Protection of Springs
W03	PAL	Rehabilitation and Construction of Domestic Water Networks
W04	PAL	Desalination of Brackish Wells
W05	PAL	Rehabilitation of Al Auja Spring
W06	PAL	Development of Water Tariff structure
W07	PAL	Utilization of Al-Fashkha Spring
W10	PAL	Artificial Recharge Scheme
W11	PAL	Construction of Water Networks
W12	PAL	Hydro-Geological Assessment of the Study Areas

2020 Target: Development of a framework for sustainable development of the agricultural sector in the Jordan Valley with an efficient water use

A01	JOR	Jordan Valley Greenhouses Expansion Project
A02	JOR	Jordan Valley Extension Services Improvement Project
A03	JOR	Jordan Valley Drip Irrigation Improvement Project
A04	JOR	Jordan Valley Post-Harvesting Support Project
A05	JOR	Jordan Valley Irrigation Efficiency Improvement Project
A06	JOR	Jordan Valley Authority Support Project
A03	PAL	Water Right Policies and Regulation (internal issues to Palestine)
A08	PAL	Support to Women's Organizations and Bedouin Communities
A10	PAL	Strengthening of Extension Services
A11	PAL	Promotions of Farmers Cooperative
A12	PAL	Jordan Valley Credit Program
A13	PAL	LEISA Research Certification

2020 Target: Development of a sustainable ecological management and restoration framework in the Jordan Valley

E05	REG	International Accreditation of the Lower Jordan River Valley
E01	JOR	Ecological Corridors around Valleys and Dams
E02	JOR	Wetlands and Aquatic Fauna Restoration Project
E03	JOR	Ecological Monitoring and Management Project

2020 Target: Development of a sound foundation for protection of cultural heritage and tourism development in the Jordan Valley

C01	ISR	Tsemach to Naharayim Tourism Development Project
C02	ISR	Gesher to Bezeq Stream Tourism Development Project
C01	JOR	Pella Tabaqat Fahel Site Improvement Project
C02	JOR	Abu Ubaydah Tomb Improvement Project
C01	PAL	Cultural Heritage Protection and Management Plan
C02	PAL	Tourism Branding and Promotion
C04	PAL	Rehabilitation of the Catchment of Ancient Jericho
C05	PAL	Rehabilitation of Salt Industry Sites, Rusheideyeh
C06	PAL	Rehabilitation of Ancient Jericho
C07	PAL	Rehabilitation of Hisham's Palace
C08	PAL	Rehabilitation of Tel Abu El Alayek
C09	PAL	Rehabilitation of Khirbet El biyadak or Tel Ouja
C10	PAL	Rehabilitation of Khirbet El Makhrouq
C11	PAL	Rehabilitation of Tel El Hamma
C12	PAL	Archaeological Landmark Features
C13	PAL	Spa, Thalasso Therapy and Balneo Therapy Center
C14	PAL	Jesus Village