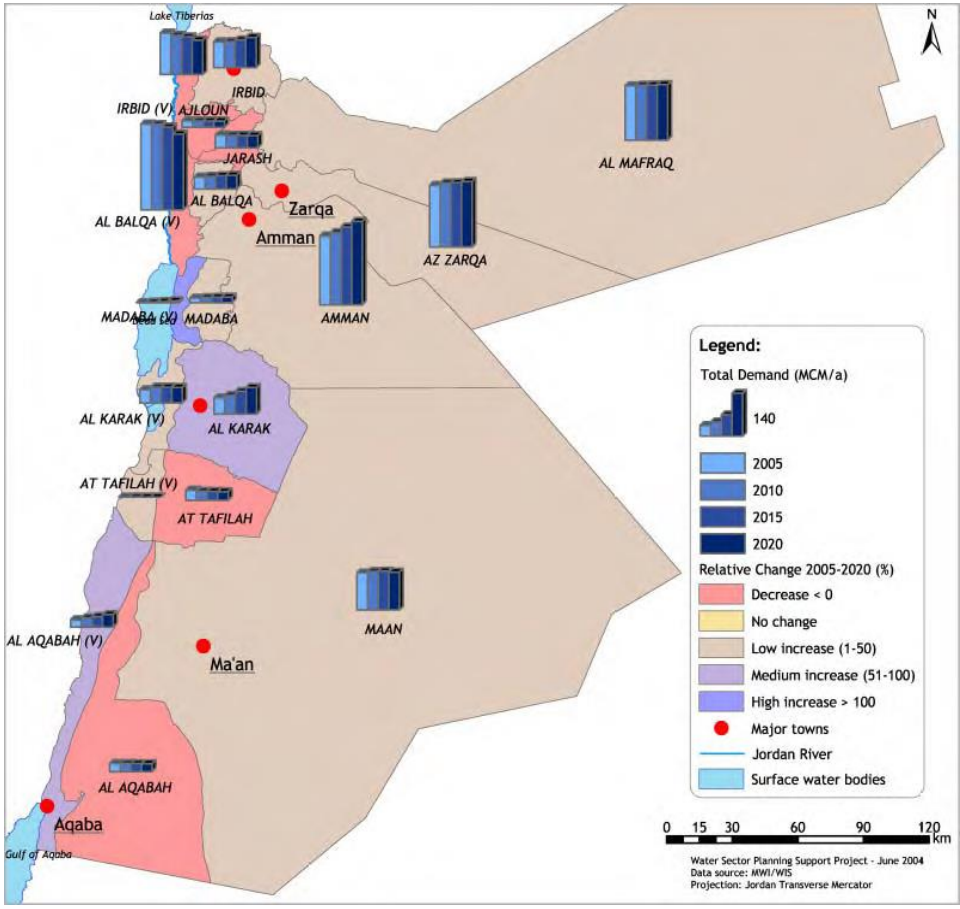
Capacity Building for the Rehabilitation of the Zarqa River Project

Jordan Overview, continue:-

- More than 80 o % f the area of Jordan is indicated as desert receiving a rainfall of less than 100mm/a.

- *Jordan is considered to be one of the 10 poorest countries worldwide in water resources*

- *The annual per capita share of 120 m3, is among the lowest in the world.*



Factors causing such decrease:-

- ***steep population growth (3,1 %).***

- ***sudden influx of refugees due to political instability in the region (1.6 M Syrian refugees since 2011) .***

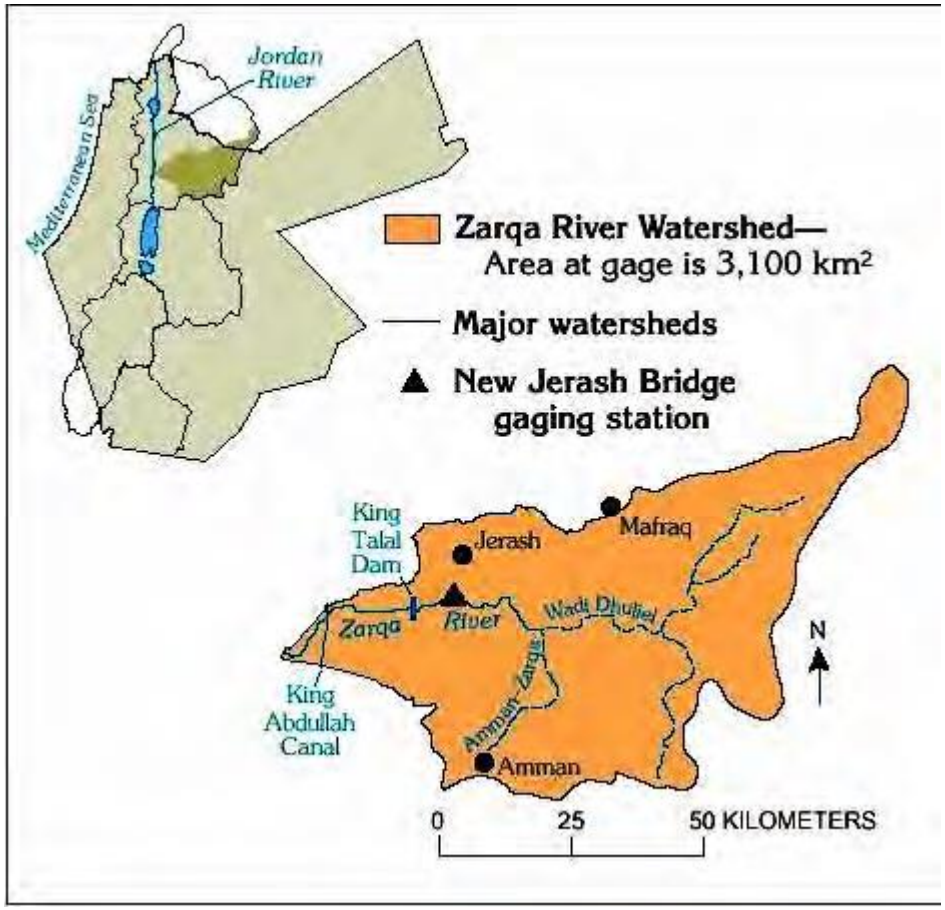
- ***Competition between demand sectors on limited fresh water quantities is increasing.***

- ***The expanding population and the climatic and topographical conditions of the country have caused enormous pressure on the limited water resources.***

Zarqa River Description

The Zarqa River is the third largest in Jordan and flows through five governorates with watercourse length 70 KM.

The most densely populated area in Jordan which is the catchment area of Zarqa river comprises around 65% of the country's population and more than 85% of its industrial and economical activities.



River Flow

- ***Withdrawals for water supply from aquifers in the upper Amman-Zarqa groundwater basin have reduced the natural base flow of the Zarqa River.***

- ***The flow characteristics have been further affected by the discharge to the river of treated domestic and industrial wastewater that compose nearly all of summer flow and substantially degrade the water quality.***

Environmental situation of Zarqa River Basin

All environmental components are at risk in the Amman- Zarqa Basin:

- ***High air pollution due to the surrounding industrial areas (thermal power plants, oil refinery, industrial stack emissions).***

- ***Over pumping of groundwater for agriculture, drinking and industrial uses.***

- ***Surface and groundwater resources pollution caused by wastewater from partially operated treatment plants.***

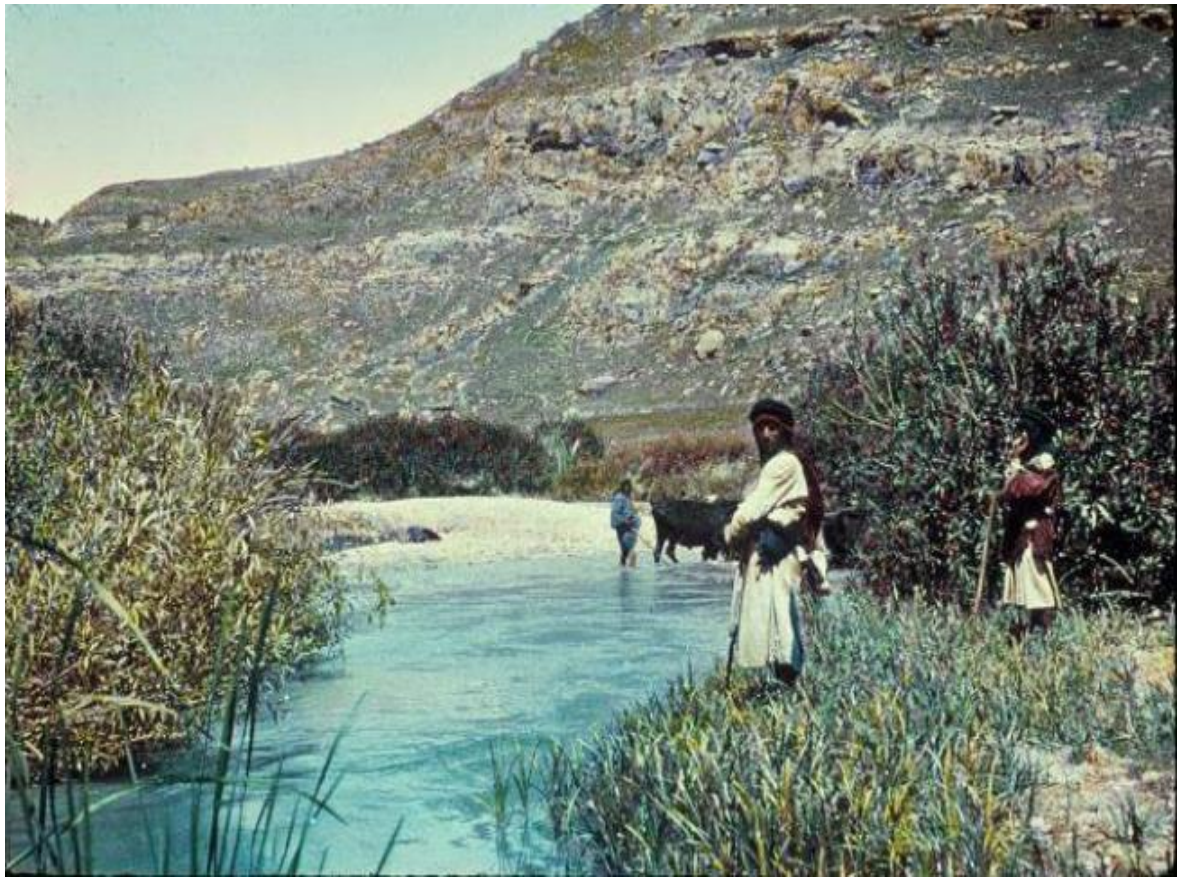
Environmental situation, continue-

- The process of rehabilitation of Zarqa river is considered as an urgent national demand, even under the current condition of deterioration that require high investment in rehabilitation.

- Any concerted effort that starts now will be less costly than any efforts in the future. Moreover, the cost of mitigation measures that can be implemented rapidly is less than the cost of the loss of environmental services in the Zarqa river.

Project Objective

The project overall objective is to strengthen the national institutional capacities in the domain of rivers rehabilitation and integrated water resources management and raise the awareness of end – users towards more sustainable approaches to the management of natural resources.



Project Description

The project is considered to be the initial step in a long term strategy for the rehabilitation of the Zarqa river basin.

The project attempts to build national capacities and initiate a concerted national response to the severe levels of degradation to which river basins in Jordan are subjected.

Rehabilitation Strategy and Rehabilitation principles

Rehabilitation of the river is envisioned to be a long-term endeavor, requiring a decade or more of commitment to rebuilding the functions of the river and its ecosystems. The project is based on the following rehabilitation principles derived from proven experience in river basin management:

-Integrated Water Resources Management (IWRM).

-Participatory Planning.

-Protecting Ecosystem Services.

-Maintaining Environmental Flows.

Key Players

- International Union for Conservation of Nature (IUCN).

- Ministry of Environment (MoEnv).

- Ministry of Water and Irrigation (MoWI).

- Zarqa Municipality (ZM).

- Communities within the river, farmers, CBO's, industries, …, etc.

Great Issues

- At the institutional level, it is vital to institutionalize the national efforts for Zarqa River rehabilitation. This can be done through the establishment of a special unit which is mandated by the law to protect and sustainably manage the various ecosystems in Jordan. To make this system sustainable a charter for the protection and rehabilitation of Zarqa River can be adopted by the government, the civil society and all relevant institutions.

- Proper legislation should be developed. The first priority is to enact a legislation that covers all gaps in the specification of river basin ownership and regulating the urban and developmental activities in a way that does not impact the efforts to rehabilitate the River basin and protect it from pollution. The River course should be mapped and zoned as protected from urban expansion with focus on forestation and reintroduction of green cover.

- Any restoration program should be implemented within a framework of partnerships with local community. This can be done in two actions. First is the implementation of a series of community based rehabilitation projects through the development of local strategic plans in hotspots along the river. The second is the establishment of a coalition of environmental NGOs or the creation of a specialized civil society organization that is specialized in the conservation and rehabilitation of Zarqa River Basin to act in awareness, education and advocacy.

Flood as a Disaster

Unplanned urbanization on both banks of rivers and upper reaches of the basin has a major role in the rising cost of floods. For Prevention of flood risks a thorough risk analysis provides the base for an integrated approach to flood risk management, including pre-flood prevention, risk mitigation and flood preparedness.

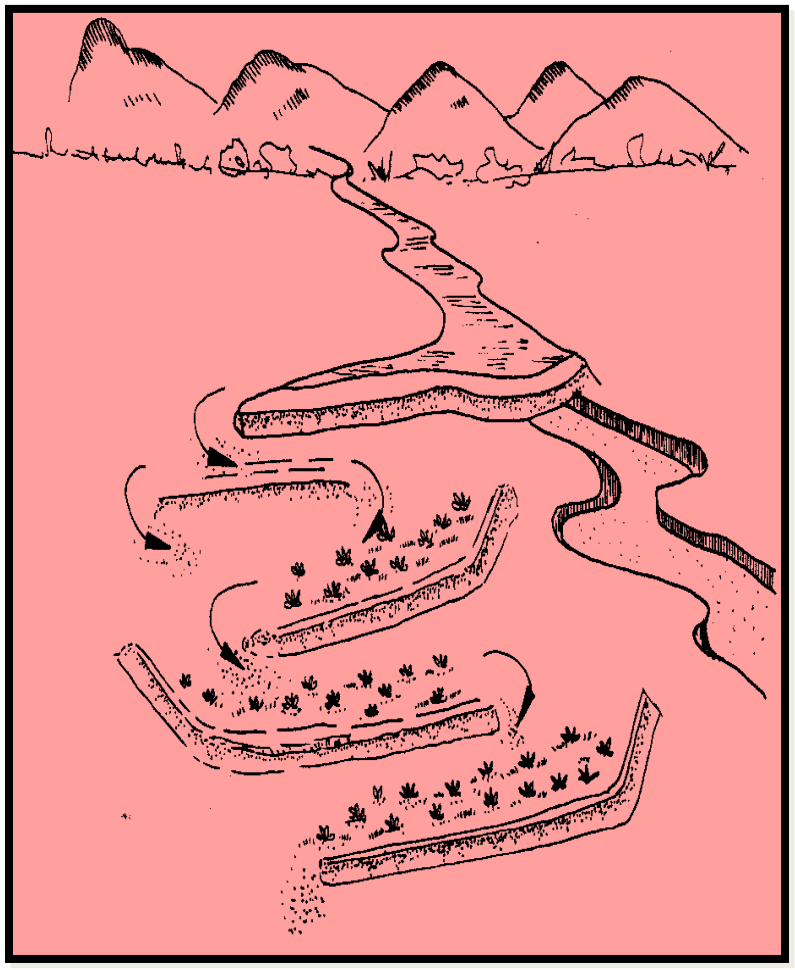
Flood Water Harvesting

- Collection of excess water flood from a major valey (wadi).

- Large catchment upstream.

- Stone terrace or earth dam structures and water distribution networks.

- Storage of water in soil horizon ponds or reservoirs.



Achievements

- Capacity building program about river restoration for a technical team was conducted.

- Field visits and experience exchange with other countries were conducted.

- Areas of special protection status managed by local community with the objective of rehabilitation was established.

- 16000 cubic meters (2700 meter) were constructed on the banks of the river.

- Stone terrace and earth dame structure on the main valley was constructed.

- A national level steering committee was established. -

- Urban development activities within the river catchment area and reduction of flash flood hazards are the main layers in the Zarqa new master plan.