

A Future for the Dead Sea?

Towards A More Sustainable Water Management in the Dead Sea Basin.

The "Dead Sea" project (2003-2006): www.deadseaproject.org

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Pressures: Unsustainable Water Use

The per-capita water availability in the Lower Jordan valley is 1800 cm³.yr⁻¹ which is much higher than in other arid regions. However, this available water is unevenly distributed:

- Powerful social groups (such as IL settlers in the West Bank) have access to more than 10 times as much water than others.
- Nature (i.e. the Jordan River) is not granted any water.
- Agriculture receives more than 90 % of available drinking water although many people do not have access to drinking water.

It is not the scarcity of "water" that causes the apparent water shortage but the scarcity of proper management.



Figure 2: Example for the decline of the Dead Sea water level (JV Marriott Resort, JO)

Response Options:

Additional Water from Outside?

Currently, most efforts to ensure the Dead Sea water levels focus on providing "new" water, e.g. through a Red-Dead Canal. In the long run, however, a higher water availability will only stimulate a higher water demand (Fig. 3).

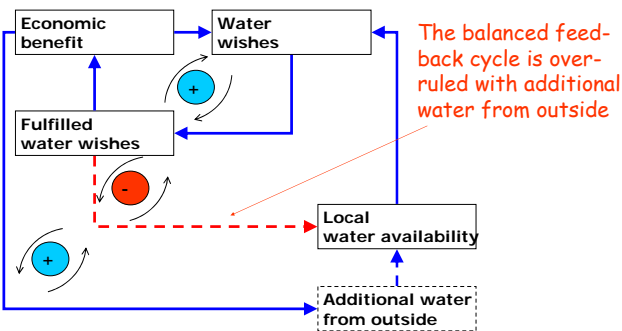


Figure 3: Causal loop diagram for the water wishes/availability system

Open Questions: Project Goals

- Establishing a harmonized regional GIS database
- Understanding the water availability/usage-system and those factors that determine the system dynamics
- Modeling effects of land use changes on water availability and water demand
- Determining alternative options for irrigated agriculture
- Estimating essential water needs of nature to guarantee ecosystem functioning

Project Team

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Project information:
www.deadseaproject.org

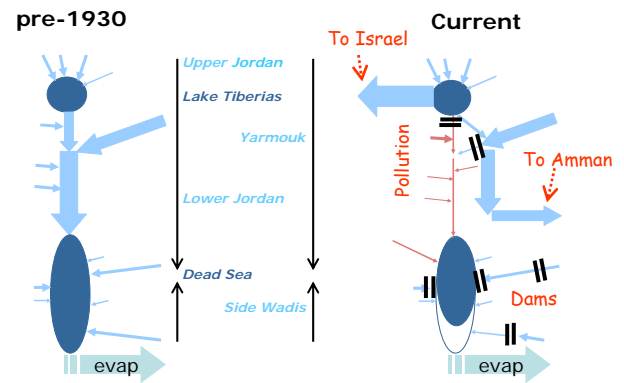


Figure 1: Water flows in the Jordan River Basin. (schematic)

Effects: Reduced Inflow & Declining Water Level

Natural inflow from the Upper Jordan River and Lake Tiberias, and from the Lower Jordan River tributaries has been diverted for urban and agricultural uses inside and outside the watershed.

- The original inflow from the River Jordan has dropped from about 1300 million cubic meters per year (MCM.yr⁻¹) of fresh-water to about 200 MCM.yr⁻¹ of saline & polluted water (Fig. 1).
- Since 1930 the water level of the Dead Sea has fallen by about 25 m (Fig. 2). The rate of the decline is even accelerating; it is currently at about 1 m.yr⁻¹
- The surface area has shrunk by about 30 %, and its north-south extent has shrunk from over 75 to 55 km. Since 1978, the Dead Sea has completely retreated from its southern basin that now consists only of artificial evaporation ponds.

Response Options:

Usage Priorities for Local Resources?

A demand-side water management would focus on establishment of proper usage priorities for the available water.

- Satisfy the domestic and urban drinking water demand.
- Fulfill water needs of nature to ensure ecosystem functioning
- Use remaining drinking water to generate income and promote the quality of life
- Adjust water use in agriculture to match the availability of urban wastewater

A "more sustainable than today" water management should also consider natural social, cultural and ecological resources.

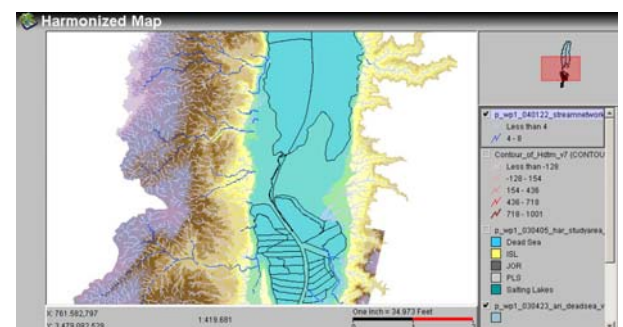


Figure 4: An example from the harmonized GIS-database

