



GLOWA

Strategic Development of Water Resources for the Jordan River Basin

Introduction

Already today, water management in the Jordan River basin requires enormous efforts to balance water availability and multiple needs of consumers and the environment. To limit the impacts of a growing gap between demand and increasingly unreliable natural water resources will be among the greatest challenges of the coming decades. Brief outlines of four different strategies to cope with problems of water scarcity in the region are presented, covering aspects of future demand as well as supply of water up to the year 2050.

Four scenarios - four strategies

Different socio-economic conditions require different strategies of water management. Especially when a long-term perspective is taken to consider climate change, the uncertainty of different socio-economic pathways plays a crucial role for which options can be realized and which not. The Regional Development Scenarios (see Briefing 1.1) provide the framing conditions for the development of four regional water management strategies.

The water strategies were developed by Israeli, Jordanian and Palestinian experts familiar with the devastating situation in the Jordan River region. A back-casting method was applied by first identifying a wishful and plausible situation for the year 2050 and second by measures to be taken over the next decades to realize visions.

I. The "Poverty & Peace" Strategy

"Make peace and economic value" is the premise of the water strategy under this scenario. Trilateral water management can be realized very early, however, with third party involvement in the beginning. It allows for modest economic development mainly through promotion of region-wide ecotourism realized by re-allocating sufficient water to this sector and by protecting and expanding nature reserves and landscapes in general. Regional water resources are shared and can be slightly augmented through cooperation on the basis of small scale projects. Water scarcity is mainly addressed through enforcement of rules and regulations to conserve water resources and initiate efficiency improvements in all water using sectors.

II. The "Willingness & Ability" Strategy

Region wide cooperation on water issues together with the availability of financial resources help to develop an efficient and just regional water master plan. In the beginning the expectation of a rapid development of additional water resources lead to a rapid change in life styles and a steep increase of water consumption levels (see Figure 1). In the medium term regional and large scale water projects such as the Red Sea-Dead Sea Canal (RSDSC) are realized. After a few years environmental issues and conservation of resources attract attention of the broader public since the environmental impacts of the accelerated development of new water sources becomes obvious. Water planning is adapted so that measures to cope with the impacts of climate

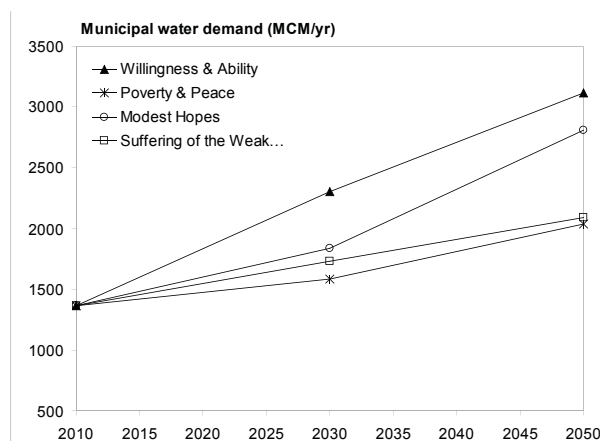


Figure 1: Regional municipal water demand up to 2050.

Teams of researchers from Germany, Israel, Jordan and the Palestinian Authority work on how best the hazards posed by global change to the future of the Jordan River basin can be faced and overcome.

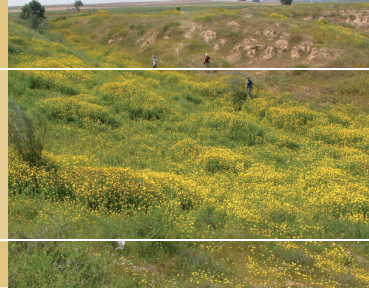
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The GLOWA Jordan River project is part of a larger research initiative launched by the German Federal Ministry of Education and Research under the title "Global Change and the Hydrological Cycle".

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extremes are taken early enough and in a cooperative way so that substantial damages can be avoided region-wide.

III. The “Modest Hopes” Strategy

The prosperity envisaged under this scenario leads to a politically stable situation in the region but only with limited cooperation on an informal level (exchange of knowledge and technologies). The focus of water management is on increasing the supply of water by large scale desalination and treated waste water re-use, all on a high technical level. Irrigated agriculture becomes very profitable and is expanding which puts increasing pressure on open land.

IV. The “Suffering of the Weak & the Environment” Strategy

This scenario represents the most vulnerable future with respect to climate change and the decrease and non-reliability of future water resources. The first ten years are perceived as critical. The development and implementation of emergency measures are seen as an essential measure to be prepared for future climate extremes. Cooperation is possible on informal/ technical level. A combination of inexpensive water options, traditional measures and especially the full use of governance options (regulations & laws to save water and protect resources from pollution) are seen as adequate strategies to cope with future water scarcity.

Cross Cutting Strategic Options

In a final step the participants agreed on three measures which are considered necessary and possible as first steps to realize a water strategy: (1) A Regional Center for Water & Environmental Research aiming at research on water and environmental issues, education,

training, and public awareness campaigns and finally technology development & transfer, including pilot studies. (2) Steps “towards harmonized planning” which cover aspects such as the identification of regional management issues, the sharing of information/data, national plans and solutions, and the establishment of a joint technical committee to discuss specific issues. (3) Projects to be explicitly realized in regional cooperation: the RSDSC and sea water desalination in general, waste water treatment and the restoration of the Lower Jordan River.

Conclusions

Stakeholders from the region elaborated a wide range of measures suitable to adapt the regional water sector to climate change including climate

extremes under varying socio-economic development pathways. Assuming a prosperous future the focus of the regional water sector will be on using large scale high-tech options to provide sufficient water in order to meet the growing demands and minimize climate impacts. Strategies under an economically stagnating future will be characterized by an increased use of governance options to influence water using behavior and efficiency of water use (complemented by small-scale measures to develop additional water). In addition, it became clear that timing is important and that particular attention should be paid to the time until large scale water projects are fully working: In some especially vulnerable areas of this region additional water is urgently needed, already today.

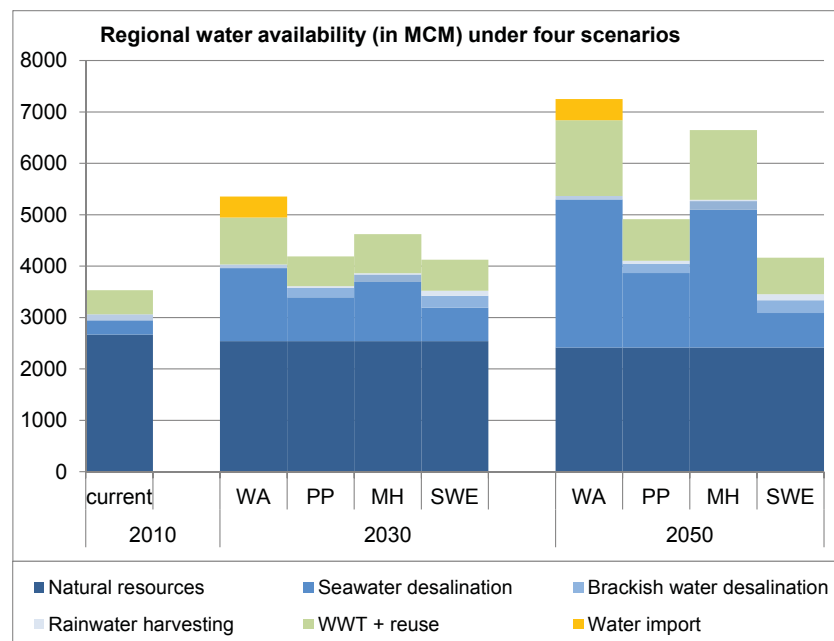


Figure 2: Regional water potentials under four scenarios.

References

Anonymous 2011: Future management of the Jordan River basin's water and land resources under climate change - A scenario analysis. Summary report, CESR, Kassel, Germany and IPCRI, Jerusalem, Israel.