



BRIEFING / 1.1

June 2013



GLOWA

Scenarios of Regional Development under Global Change

Introduction

Uncertainty is a key challenge when developing water management strategies for the long-term future. Three highly uncertain factors determining the future water situation in the Jordan River valley were identified: economic development, the potential for regional cooperation in water management and climate change. These factors shape the range of the four “GLOWA Jordan River Scenarios of Regional Development under Global Change”.

The “Story and Simulation” (SAS) approach was applied to integrate qualitative information, i.e. narrative scenario storylines, and quantitative information resulting from scientific model simulations. Across several Scenario Panel meetings, experts (scientists and decision-makers) from the region gathered to design four plausible and contrasting scenarios leading up to the year 2050.

The Scenarios

I. The “Poverty & Peace” Scenario

In this scenario, an increasingly peaceful political situation is accompanied by economic stagnation. Although water resources are shared, water stress remains an issue: Immigration increases population which results in a higher demand for water. The necessary adaptation of waste water treatment capacities cannot be realized so that health problems reach epidemic proportions in parts of the region. Climate change reduces natural water availability. High

prices of fossil fuels together with increasingly severe droughts weaken the economy so that there is not enough financial capacity to effectively address water scarcity.

Political stability leads to a sharing of water, of best practices and a slow but steady spread of technology throughout the region. Since an agreement on free movement and access comes into force, all-day life becomes easier, especially for the Palestinians. But the cooperative projects on water remain small-scale and the continued shortage combined with a lack of financial means to sufficiently increase waste water treatment capacities results in a slowly deteriorating environment in which soil erosion and water quality problems

cannot be adequately addressed. While joint management of water resources becomes a reality, this is not enough to solve the problems posed by a variety of adverse factors.

II. The “Willingness & Ability” Scenario

This scenario reflects the most optimistic and desirable scenario in which peace and economic prosperity reign. All parts of the society profit from the economic improvements, the unemployment rate sinks below 10%. Due to immigration the population is growing fast. Together with changing lifestyles this leads to a rapidly increasing demand for all kinds of resources including water. Naturally available water supplies are reduced and increasingly unreliable as a result of global climate change.

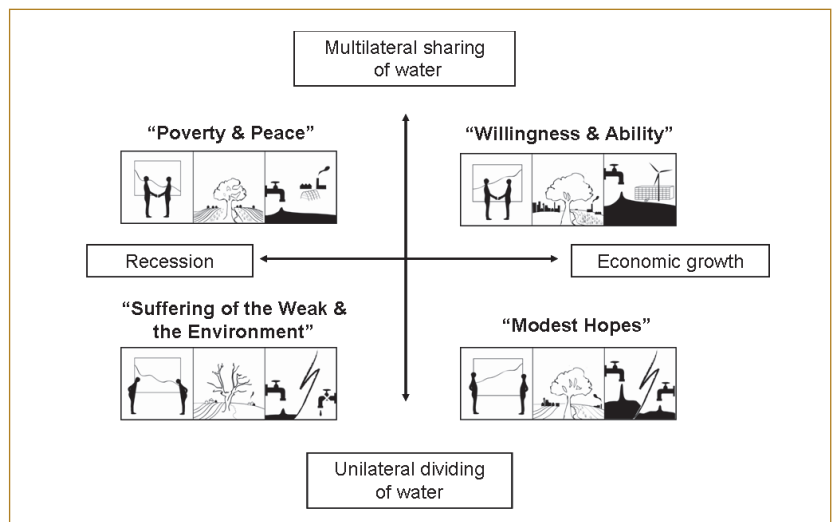


Figure 1: The scenario logic of the GLOWA JR Regional Development Scenarios.

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.

www.glowa-jordan-river.de

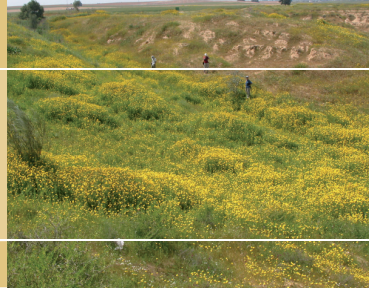
The GLOWA Jordan River project is part of a larger research initiative launched by the German Federal Ministry of Education and Research under the title “Global Change and the Hydrological Cycle”.

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Innovative industries, including water and renewable energy technology industries are thriving. Stakeholders are engaged in productive, on-going collaboration. Although the pressure on the environment increases due to a growing population and tourism industry, the availability of financial resources, the level of cross-border collaboration and public awareness counteract these effects by promoting sustainable development. Harmful behaviors and practices are reduced, including overgrazing and intensive agriculture.

III. The "Modest Hopes" Scenario

This scenario assumes that no peace agreement can be reached, but that economic prosperity prevails, kindled by international donors. This results in

fairly stable conditions in the region. Education, training and capacity development make up for some of the lack of cooperation by ensuring knowledge-transfer and improved practices. In order to counter the effects of climate change, high-tech solutions, such as seawater desalination and irrigation with properly treated wastewater, account for diminished natural freshwater resources.

Agriculture becomes highly productive and generally more industrialized. Although the sector is booming, fewer people can live from farming. Pressure on open land is increasing. Because of continued political disagreement states refuse to let more water flow into the Dead Sea, resulting in continued depletion of the water table.

IV. The "Suffering of the Weak & the Environment" Scenario

This scenario is a worst-case scenario in which neither peace nor economic growth become reality. Unilateral decisions make it impossible to solve regional water problems and water is rising in cost. Agriculture is particularly negatively affected. Donor-funded rural projects fall away because of the tumultuous political situation. Many small farmers give up their land since an increasing frequency and severity of droughts prevent even rain-fed agriculture. They move to the growing urban centers where they swell the increasing number of unemployed. There is a continuous decline in irrigated agricultural area and a complete collapse in some areas.

The overall instability negatively affects investments and, ultimately, the infrastructure collapses in many parts of the region. The socio-economic situation becomes extreme as the middle class disappears, and the poor suffer the consequences of a deteriorating environment the most.

Conclusions

The focus of the scenarios is on the general socio-economic development in the Jordan River basin. They provide a wide but plausible range of different framing conditions to develop various strategies to manage water resources in order to cope with the impacts of socio-economic and climatic changes in the region. The resulting strategies can be found in Briefing 1.2.

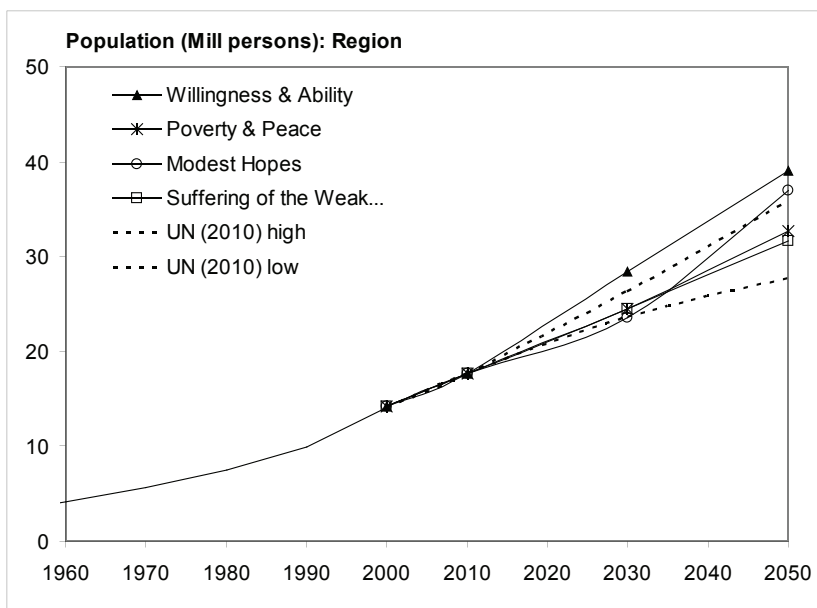


Figure 2: Regional population development under four scenarios and high / low estimates of United Nation's Population Division.

References

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- 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.