

Interdisciplinary Research Project for the Preparation of a Research Cluster within the Excellence Initiative II

Topic: Global Change and Globalization. Interdependencies, Adaptations, Risks, Risk management

Applicants: Prof. Dr. Timo Goeschl (Environmental Economics), Prof. Dr. Hans Gebhardt (Anthropogeography), Prof. Dr. Ulrich Platt (Environmental Physics)

Duration: April 2009 to March 2012

Finance: Wissenschaftsministerium Baden-Württemberg (Ministry of Science), University of Heidelberg

Size: 1.25 m. Euro

General Topic: Currently global change and globalization are the main challenges of our time. Both are in close connection. Economic or technological development, political decisions or even epidemics can activate globally effective processes and can be fed back with them again. At the same time, globalization of politics and markets opens up chances to meet the global change. Therefore modern global change research is closely connected with globalization processes.

Key questions are the interdependencies between anthropogenic globally effective decisions/interferences and natural systems, the study of adaptation strategies of social and natural systems, their resiliences and reactions and the identification and prevention of risks and dangers for the human being and society within the “system earth“ connected with it.

In this project the social and human sciences work together with the natural sciences on selected topics within three research clusters:

Cluster I „Water in sensitive areas – Handling limited water resources in sensitive regions of the Middle East (Egypt, Jordan)”

Cluster II “Global change and the energy system: assessing options and their impacts”

Cluster III “Element cycles and socioeconomic dynamics - understanding global processes on a local scale (Canary Islands)”

Cluster IV “The psychology and neuroeconomics of ageing societies managing complex climatic systems: Hotter and greyer”

Altogether, the cluster comprises 15 dissertation projects from a wide range of social and natural sciences.

Cluster I: Handling limited water resources in sensitive regions of the Middle East (Egypt, Jordan)

Werner Aeschbach-Hertig (WAH), Institute of Environmental Physics,
Thomas Braunbeck (TB), Department of Zoology,
Olaf Bubenzer (OB), Department of Geography,
Lothar Erdinger (LE), Department of Hygiene,
Hans Gebhardt (HG), Department of Geography,
Ute Mager (UM), Faculty of Law,
Travis Warziniak (TW), Environmental Economics, Alfred-Weber-Institute

Background

Above-average population pressure and land use change, i.e. due to migration, the expansion of irrigated areas, the construction of industrial areas, but also in consequence of increasing tourism, currently lead to obvious physical and economic water shortage in many dry regions of the world. Climate change will often exacerbate this trend. Particularly the southern and eastern mediterranean region is threatened by a distinct decrease in water availability. However, people currently exploit not only the near-surface hydrological system by storing or diverting water but also drill deep for non-renewable fossil groundwater. Originally, these water resources were generated in remote areas with sufficient rainfall or during ancient humid climatic periods. Hence, transboundary water use and - due to frequent transport over great distances - water losses (evaporation, dilapidated pipes, and illegal water extraction) are common. Financial, technical or social constraints (tradition, education) and, nevertheless, low water prices often lead to inefficiency or even waste of water. Adapted traditional and efficient water use and collection techniques, which are sustainable but labor-intensive and in the short term less profitable, fall into oblivion or the water is no longer useable due to lowering of the groundwater table. As an additional source of conflicts, changing industrial usage of water and increasing user of chemicals in agriculture frequently results in substantial loss of water quality, which reduces the potential (re-)usability of water resources. The competition for water in the contradictory contexts of environment, economy, society and politics results in conflicts on different spatial and social scales and sometimes on an international level. Therefore, the water problem is closely connected with global change and globalization (climate change, food, energy, biodiversity, internationalized industrial production, international trade, modified agricultural practices, environmental and public international law). However, the consequences arise rather on the regional than on the global level and can be analyzed in comparative case studies, i.e. by developing interdisciplinary ideas in terms of an integrated socio-ecological water management considering all impact factors and actors.

Partial project Human geography: The research project of Prof. Gebhardt is part of cluster I and deals with the topic:

Water conflicts, actors and discourses concerning water supply in Jordan

Researcher: Dipl.-Geogr. Thomas Bonn, M.A.

Introduced by Thomas Homer-Dixon in the early 1990ies and further developed by Leif Ohlsson, upcoming problems due to water scarcity are not mainly because of the inability to provide enough water but rather because of a lack of 'social adaptivity' to cope with the physical scarcity of water (HOMER-DIXON 1995, OHLSSON 1999). This concept is by now widely adopted within scientific research and policymaking. Hence, issues of proper water allocation touching social spheres and going beyond engineering-solutions for supply management, imply that water must be understood as a resource with a partly 'constructed' value: There exists a political and social charge of denotation that exceeds the immediate value of water (ALLAN 2001, MÜLLER-MAHN 2006, cf. ZIMMERMANN 1951).

What has been a major shift of paradigm within the community of development politics and related professionals, is a well comprehensible notion within scientific disciplines such as the 'New Cultural Geography' that apply constructivist theories within their research frameworks: Consumption patterns of resources are directly linked with the resources' values, as basic economic theory shows. If 'value' is something that goes beyond the mere intersection of supply and demand curves and is rather formed by perception, knowledge, 'truths' and 'falsehoods', societal structures and power relations, it is those which have to be understood and affected to exert influence on consumption patterns of a certain resource.

New Cultural Geography offers a variety of approaches to 'deconstruct' and understand these additional aspects of water valuation of which some will be applied within this present work. It is about to reveal often unquestioned and taken-for-granted patterns of culturally constructed powerful and dominant conventions, narratives or discourses that frame societal structures in a subtle manner. Within the present PhD-project the 'deconstruction process' will consist of three major focal points:

1. Governance und Institutions: In Jordan water is used as strategic instrument of power by the political elites. It serves as a means for rent-seeking (funds and foreign aids) and for securing and maintaining positions of power. In this context existing interweavements and hierarchies as well as structures of favouritism and corruption shall be explored. What does this system mean for the creation of social adaptive capacity? What will be the dynamic effects of changing population and/or water prices on the balanced system of governance and institutions?
2. Actors: To assess the above topic properly, an exact analysis of involved actors is necessary. Only a disentanglement of actor-networks and an understanding of the single underlying interests and aims allow a deep insight. Besides 'classic' actors such as ministries, multinational organizations and companies as well as NGO's, also conglomerates of actors such as Private-Public-Partnerships (PPP) will be focused.
3. Discourses: The reasons for water scarcity and therefore the necessary measures for alleviation are seen very diversly by different groups of actors. These 'strategic resource truths' are based on their perceptions of this resource and the respective discursive framing. The study will investigate the purposes and effects of this discourse production.