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On the relevance of climatic change on water management in developing countries, the Nile case.

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Recently the OECD (Organisation for Economic Co-operation and Development) publishes documents how to mainstream responses to climate change within economic development planning and assistance policies, with natural resource management as an overarching theme. This clearly shows that climate change becomes an issue in the water resources management in developing countries. In water management it is important to prioritize the important issues before putting effort to solve possible problems or mitigate the most undesired effects. As financial sources in developing countries are limited this is even more true in these countries. In this paper we projected climate change scenarios on the Nile basin and assessed the effect on the water management for Egypt. Consequently we compared the effects on the water supply and demand with the effect of other upstream developments as well as with the effect of population growth.

The analysis shows that the sensitivity of the Nile to a climate change is very large, meaning that relatively small changes in rainfall and evaporation can lead to large changes in runoff. Using the results of climate models three scenarios were determined for the discharge of the Nile, a wet, a central and a dry scenario. Based on state-of-the-art climate change research it can be assumed that there is a 66% probability that the future changes will fall within these results. The results show that for the central scenario the annual natural flow into Lake Nasser would lead to an increase of the water supply to Egypt. However, the uncertainties are large. The projections for the end of this century suggest a doubling of the current the Nile flow according to the wet scenario, while the dry scenario envisages a reduction to less than 50 percent.

The effects of climate change are large. However, the effects of inflow changes as a result of developments that are currently planned by the Nile basin countries in the coming decades are larger than those caused by climate change. Only after 2050 the effects of climate surpass the effects of the upstream developments. When compared with the effect of population growth, even under the most wet climate scenario the water availability per person will decrease.