



## **Strategies for flood hazard adaptation in drought affected regions of Afghanistan**

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The development and management of water resources in Afghanistan are critically important for the economic development of the country. But Afghanistan presents a number of specific challenges in terms of water resource management and climate change impact assessment. Political instability and war has caused widespread devastation, insecurity, displacement, poverty and severe environmental degradation. Recent droughts have led to the collapse of many livelihoods, and poor national security restricts structured fieldwork. The recent restructuring and rebuilding of the state can be seen as opportunity to integrate climate change mitigation and adaptation measures into national, regional, and local planning. Governmental organizations are responsible to integrate climate change related issues and pro-active planning processes in water management and environmental considerations into relevant legislations, ministry and sector strategies. Integrated water resource management has been practically nonexistent during the last decades and consideration of climate change impacts are widely ignored in regional planning processes.

However, flooding, landslides, drought, and extreme heat and freezing weather are already threatening the population. Climate models suggest that Afghanistan will be confronted by an increase of these events. Desertification and land degradation but also floods due to untimely rainfall are expected to broaden. Studies show that the impact of increasingly frequent flash floods may be amplified due to more rapid spring snow melt as a result of higher temperatures, combined with the downstream effects of land degradation, loss of vegetative cover and land mismanagement. It is further exacerbated by drought, which has the effect of hardening soils and reducing their permeability. In 2007 heavy floods already destroyed fields and harvests, killed livestock, damaged buildings, and claimed many lives.

The intensified climatic conditions in Afghanistan will continue to impact upon society by creating stresses for specific vulnerable groups. This study discusses and compares existing policies, legislations and strategies considering flood adaptation planning in Afghanistan. It reviews available Flood Hazard Maps and reflects on regional adaptation options. Present and future vulnerability to flooding is assessed through a GIS-based model by using scenario techniques. A strategy is developed how to implement measures into regional and integrated water resource management planning. In general, not a single but the selection of multiple measures will be successful in pro-active planning for climate change adaptation. In this regard a continuous consultation with stakeholders needs to take place to address their demands. Thus the results of this study cannot give solutions but might build the basis for recommended active planning processes.