



Climate related natural hazards management in the vulnerable regions of Uzbekistan – experiences in the frame of projects Climate Risk Management in Uzbekistan (CRM-Uz) and Water in Central Asia (CAWa)

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Increased frequency of natural hazards under conditions of observed climate change in Uzbekistan has become a challenging concern and shows the need to develop more effective climate risk mechanisms towards improving the security of society and sustainable development. In the framework of the presented study, the importance of drought monitoring and methodologies for early warning for such purposes in Uzbekistan are demonstrated.

For the conditions of Uzbekistan, droughts are the most dangerous climate-related natural phenomenon. Therefore, the CRM-Uz Project on Climate Risk Management was established with a focus on reducing climate risks, strengthening adaptive capacity for stimulating the development of early warning mechanisms, as well as to build up the basis for long-term investments. This serves to increase resilience to climate impacts in the country.

In the frame of the CRM-Uz Project, the Drought Early Warning System (DEWS), has been developed and implemented in one of the southern provinces of Uzbekistan (Kashkadarya). The main task of DEWS is to provide the population with information on the possibility of an upcoming drought season in advance. DEWS is used for the assessment, monitoring, prevention, early warning and decision making in this region. Such an early warning system provides the required information to undertake appropriate measures against drought and to mitigate its adverse effects to society.

It is clear that during years with expected drought the hydrological forecasts become much more important. A complex mathematical model which simulates runoff formation as a basis of DEWS provides the seasonal hydrological forecasts that are used to inform all concerned sectors, especially the agricultural sector on water availability during the vegetation period. In the frame of cooperation with the German Research Centre for Geosciences (GFZ) within the CAWa Project, the DEWS was extended through the implementation of MODSNOW – the operational tool for snow cover monitoring at the Drought Monitoring Centre at UzHydromet. The upgrade of the DEWS with MODSNOW strengthens DEWS's capacity in terms of improving the hydrological forecasting. Moreover, based on climate scenarios provided within the CAWa project by the University of Würzburg, the regional hydrological model AISHF was used to assess medium and long-term water availability in the Kashkadarya River which indicates a reduction of water resources in the selected basin in the future.