

Climate-Sensitive Water Resource Management in Mongolia

Context

Mongolia faces significant challenges in the management of water resource, including the safeguarding of its freshwater resources, especially in the context of climate change that is considered a major challenge for the country's water security. Most IPCC AR6 projections indicate ongoing warming in Asia, particularly in the SSP5 scenario with the highest greenhouse gas emissions. For Eastern Central Asia and Eastern Siberia, including Mongolia, there is high confidence in a temperature increase of 5°C or more by the 2090s. The country is likely to experience increased water scarcity and depletion, as well as greater variability in precipitation patterns and increased frequency of extreme weather events. Furthermore, water scarcity, droughts, and floods will be exacerbated by climate change that in addition led to a loss of ecosystems and vegetation decline. Current land-use management is not sufficiently taking ecosystem dynamics into account threatening the provision of services, notably the provision of water with potentially severe implications for agriculture, livestock, and other socio-economic objectives. Climate change is emerging as an additional pressure on ecosystems, increasing the risk that they shift their state further towards patterns with highly reduced ecosystem functions and services available for a broad range of economic activities and human wellbeing.



Mongolia must prepare to adapt to the potential impacts of climate change on its nomadic herder communities also, which depend heavily on water and vegetation resources for their live-

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lihoods. Too much livestock contributes to an immense overgrazing and can be a critical impact on the aquatic ecosystem. Furthermore, overgrazing cause a vegetation shift and ecological catastrophe. The previously abundant species rich pastures and grasslands have undergone a regime shift towards the predominance of annual herbs or plants, e.g., *artemisia*. A legislative solution is needed that leads to improved pasture management and regulation of livestock numbers by matching with pasture carrying capacities in the area. In addition to the nomadic herding communities, Mongolia's socio-economic development is also jeopardised by climate change, and it is necessary to strengthen the integrated management of water resources in the river catchment areas. A sound water resources management model must be adapted to climate-sensitive parameters and consider all aspects relevant to catchment management, e.g., agriculture and artificial irrigation, households, energy, and industry.

Main Objective

In Mongolia, DIAPOL-CE aims to support the Ministry of Environment and Tourism of Mongolia (MET) and its subordinated bodies, such as the Water Authority. The project shall particularly contribute to the review-, update-, and development-process of the Integrated Water Resource Management Plan (IWRMP) of Tuul river basin, which has expired since 2021. The coordination process was preceded by discussions and meetings on possible areas of cooperation.

Approach

In December 2023, a new methodology to update all IWRMP was adopted by the Minister of Environment and Tourism of Mongolia. DIAPOL-CE will support and provide guidance to the Mongolian Water Authority in transforming the IWRMP of the Tuul River Basin towards a more climate-sensitive one. Spotlight will be geared towards two sub-catchments of Tuul River – Selbe river basin and the Gachuurt. “The methodology of the integrated water resources management plan of the river basin” shall be followed as methodological framework. DIAPOL-CE is aiming to enhance its partners’ capacities to monitor and evaluate adaptation measures in water resources management. Climate change related impacts towards the Tuul River Basin shall be made visible and integrated in an adapted management model that encompasses climate-sensitive parameters, particularly linked to water and vegetation management. While piloting at Tuul River Basin and applying the new methodology and existing data means building on previous work to support a climate-sensitive IWRM and ecosystem-based solutions for adaptation to climate change at river basin scale. DIAPOL-CE will engage national and international expertise and employs a national advisor.



Capacity development, advisory services, trainings, technical studies shall also have a specific view towards

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- Surface, groundwater, and fossil water and its interdependencies with vegetation and grassland ecosystems
- Update of the expired Tuul River Basin Integrated Water Resource Management Plan
- Legal and institutional recommendations
- Strengthening of already existing river basin institutions, e.g., Tuul River Basin Administration
- Improvement of existing monitoring and assessment approaches

Natural Resource Management is Key for Economic Development

Water and vegetation are circularly interdependent. A diverse and species rich vegetation cover retains water better. Deep rooted plants, herbs, and grasses enrich depleted soils. An abundant vegetation cover is also more resilient to climate change scenarios as it absorbs shocks better, such as higher temperatures, heavy rainfall, and flooding. As it also provides more nutrients and qualitative food to livestock, it has positive effects on the herder's socio-economic situation. Better fed animals can be sold to higher prices, amongst other positive economic potential such as a better quality of natural products. If the carrying capacity of pastures is not adequately considered, excessive livestock numbers will lead to a decline in vegetation, soil erosion and disastrous consequences for nature, infrastructure, and people.

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