

Changing Water Regimes and Biodiversity in High-Altitude Wetlands

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For the 250 million people living on the valley floors and plateau areas of the Himalayas, wetlands are central to their livelihoods. Lakes, floodplains, and peat lands support agriculture and industry in these areas. Rice cultivation, grazing, fish farming, collecting fuel and building materials, and tourism, together with local spiritual and religious activities are vital to the region's poorest communities.

The one and a half billion people in lowland regions depend on services provided by high-altitude wetlands. The wetlands maintain water quality, regulate water flow (floods and droughts), and, in the case of high-altitude peat lands, regulate the global climate (storage of greenhouse gases in peat). They also support both regional and global biodiversity. Many species depend on the wetlands for their survival; in particular the migratory species for which the wetlands provide important stopping points for refueling and rest en route.

Wetlands in the Himalayan region are rapidly becoming degraded: in some areas as many as 30% of the lakes and marshes have disappeared because of overexploitation of wetland resources and climate change during the past few decades. The consequent loss of ecosystem services and biodiversity is hampering sustainable development. Many species dependent on the wetlands are in decline and there is a rise in the number of issues related to degraded wetland services: diminishing drinking water supplies, loss of local livelihoods related to wetland produce, and increased flooding downstream.

The close correlation between poverty and wetland degradation commences when wetlands are not accounted for in development planning. Poor planning

leads to the degradation of wetland services and increases the vulnerability of local livelihoods. Unsustainable practices lead to an increase in siltation and lakes cease to regulate hydrological regimes properly. Increasing populations and economic development also pose distinct challenges to the maintenance of wetlands, ecological characteristics, and livelihoods.

Wetlands are part of the water cycle. Sustainably managed, their services are important tools for water management. Integrated water resource management

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is the key to balancing the competing uses and exploitation of wetlands and to ensuring that wetland services and values are considered when constructing infrastructure and regulating rivers. Within the region, however, the capacity for assessing how intersectoral linkages can be integrated into water resource planning and management is poor, and this is limiting the harmonisation of these sectors. Another limitation is the poor understanding of the relationship between high-altitude wetlands and basin hydrology. Until recently, high-altitude peat lands were regarded as grazing lands



High altitude wetland in Shangrila, PR China

without much realisation of their role in water regulation. Recent work shows that wetlands are, in fact, peat systems that store and release water; and, since they are located at the head of some of the region's major rivers, they play an important role in river regulation.

Wetlands International's role in supporting biodiversity conservation and regional cooperation

Wetlands International works at all levels from global to local to achieve the conservation and wise use of wetlands as a contribution to sustainable development. Its mission is "to sustain and restore wetlands, their resources, and biodiversity for future generations". Wetlands International is working in partnership with ICIMOD and WWF and other local NGOs to support governments in the region to establish the 'Himalayan Initiative' within the framework of regional cooperation under the Ramsar Convention on Wetlands. The initiative is aimed at establishing a regional forum for integrated wetland conservation and wise use, and at providing a basis for regional cooperation. This cooperation

has led to the development of a regional strategy for conservation of wetlands and is the driving force behind development of the capacity-building framework, tools for wetlands, and the wetland information system.

In the HKH region there is limited experience in planning for management of wetlands or of integrating it into wider development planning measures. Management plans based on extensive inventory collection and assessment are needed, but these should also involve stakeholders, particularly local communities, and integration of the traditional local knowledge base. At the same time, restoration measures to rehabilitate and re-establish lost wetlands or lost wetland services need to be carried out. An example of measures being undertaken is the innovative approach promoted by Wetlands International for local-level restoration of peat lands on the Tibetan plateau. This work has been carried out with local materials and communities to block gullies and drainage ditches as a means of preserving rangelands and biodiversity. In India, Wetlands International has developed integrated management plans for the restoration of Wular Lake Rudrasagar Lake, and Loktak Lake.

The Central Asian Flyway experiences many issues in relation to threats to wetlands and their biodiversity, including threats to migratory water birds. International collaboration to address this and to work towards maintaining interconnected and healthy wetlands in

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the flyway is currently poor, and this undermines the effectiveness of conservation efforts undertaken by individual countries and stakeholders. The region will

need technical and strategic support for the conservation and sustainable use of wetlands and their biodiversity resources, including migratory water birds. Wetlands International has been at the forefront in providing this much-needed expertise: furthermore, as a leading member of the Task Force on avian Influenza and Wild Birds, it will coordinate the activities on avian influenza for the region.

Scientists and experts on climate change are still debating exactly how climate change will impact Himalayan wetlands; however, since climate change cuts across all aspects of ecosystem services and biodiversity, wetlands will not be immune to it. Wetlands International is now focusing on how to improve wetland resilience to climate change as a means to both biodiversity conservation and to safeguarding the wetland services that are important assets for the resilience of local people's subsistence systems, health, and safety.

Effective use and management of wetland in promoting ecotourism, Shangrila, PRChina

