

Eastern Pamirs of Tajikistan.

Potentials and Challenges for Sustainable Pasture and Rangeland Use

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The dissolution of the USSR and the independence of Tajikistan resulted in significant structural changes in the political and socioeconomic frame conditions. In particular the Eastern Pamirs, as a peripheral and ecological disadvantaged region, has been affected in all its socio-economic exchange patterns. The Pamir region was especially dependent on subsidies provided by the economical integration into the Soviet supply system. Animal husbandry has been the allocated task and one of the few economic activities feasible. Fossil energy, basic food and other commodities for daily and episodic use have to be imported. In consequence of the political changes the market access for meat and related products has been partly lost. Presently imports occur under competitive free market conditions. The results of changed frame conditions are shortages in the food and energy supply causing an increased vulnerability of the people. Besides strong external factors with severe effects on local livelihoods internal reasons contribute to insecure living standards and possible negative ecological effects as well. The main reason is the transition from a collective, state-controlled to an individual or cooperative use of the pastures. Traditionally, the Eastern Pamirs were utilized by Kyrgyz herdsmen breeding yaks and ruminants. Adapting to the prevailing climate, herds were moved to high elevation pastures (4,000-4,800 m) in early summer and remained until September when they were moved back down to winter pastures (3,500-4,000 m). Winter fodder was grown and harvested in the lower pastures while animals grazed at higher elevation. Main grazing resources in winter are small shrubs, mainly Teresken (*Krascheninnikovia ceratoides*). Due to the conversion from public to private control and management land access rights are under negotiation and the irrigation of winter pastures has collapsed. This leads to a probable degradation of pastures which might be enhanced by a growing and unsustainable collection of Teresken as firewood.

The presented study chronicles land use practices in the Eastern Pamirs through direct field observation and mapping using satellite images and Digital Elevation Model (DEM). The objective is to generate data about the grazing capacity for the whole region in a scale which allows to establish management strategies and to understand degradation processes, disturbances of the vegetation and its resilience against them. Field measurements of vegetation cover and biomass are used to calibrate empirical models to assess the biomass directly through satellite data. The expected correlations will allow determining the biomass in the

region covered by satellite data. In combination with the classified vegetation it allows to determine the available forage quantity for each vegetation unit.

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