

## **Polarisation in (post-) nomadic resource use in Eastern Morocco - a conceptual approach to study social-ecological systems of pastoralism**

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Until recently, pastoral systems in the High Plateaus of Eastern Morocco were characterized by highly mobile pasture use patterns based on collective forms of land use. Various transformation processes have changed these in the past decades: the establishment of cooperatives, the intensification of livestock production systems (use of trucks for animal and water transport), increased supplementary feeding and the rising cultivation of pasture land. These transformations were partially shaped by development projects initiated by the Moroccan government and international agencies, aiming at strengthening pastoralists' livelihoods and at slowing down ecological degradation.

Moreover, these changes coincide with processes of socio-economic polarisation between pastoral households. On the one hand, wealthy pastoralists have adopted 'entrepreneurial' livestock production systems with increased mobility, the use of trucks, selective fattening and use of supplementary feeding. On the other hand, the number of poor and less mobile pastoralists is constantly increasing. They have become particularly vulnerable to environmental shocks such as droughts.

The aim of our study is firstly to identify drivers for such social changes among pastoralists and secondly to detect policy measures which may counteract polarisation and help to ensure a livelihood for all pastoralists. In this context, we want to understand the influences of global change as expressed by (a) liberalisation processes in the fodder and animal markets and (b) the influence of climate change.

In order to do so, we present a conceptual approach to analyse the interlinkages between resource portfolios of pastoral households, their grazing strategies, the resilience of pastures, and socioeconomic and institutional settings.

This concept is the basis for an agent-based social-ecological model which is used to study our hypotheses about the drivers for polarisation and the consequences for ecological pasture condition in a systematic and dynamic way. Such a simulation model allows taking into account the complex dynamic interactions and feedbacks of the social and the ecological system.