Vulnerability and Resilience of Mongolian Rangeland and Pastoral Systems: Key Findings of the Mongolian Rangelands and Resilience Project (MOR2)

Introduction

The MOR2 (2011-2015) had two central questions:
1) How are climate and socio-economic changes affecting pastoral social-ecological systems in rural Mongolia?
2) Does formal community-based rangeland management (CBRM) lead to increased social and ecological outcomes compared to traditional non-CBRM groups?

The study covered 142 communities: 77 CBRM and 65 non-CBRM in 36 soums in 10 aimags across four ecological zones (Fig.1). We surveyed 706 herder household members, conducted focus groups and interviewed group leaders. We sampled 3 plot locations in winter pastures of each group (n=428 plots).

Across all ecological zones 80% of winter pasture plots experienced no, slight or moderate degradation: 18% severely degraded, and 1% very severely degraded. Livestock effects were greatest in the steppe, moderate in the mountain & forest and desert steppes (Fig. 2a & b).

Excessive forage use was pervasive on 37% of rangelands with 11% experiencing consistent overgrazing. Overuse is more widespread in mountain & forest steppe and steppe than in desert steppes (Fig. 2a).

These results suggest that Mongolia’s rangelands are resilient but at risk, with areas in the mountain steppe and steppe most vulnerable to the combined impacts of climate change and heavy grazing.

Vulnerability and Resilience of Mongolian Rangeland and Pastoral Systems: Key Findings of the Mongolian Rangelands and Resilience Project (MOR2)

Figure 1. Study sites—18 paired soums with and without formal CBRM

Results of Ecological Study

- Social outcomes of formal CBRM were significantly greater compared to non-CBRM including more diverse information resources, opportunities for knowledge exchange, and stronger leadership contributing to higher levels of pro-active actions in addressing rangeland problems.
- CBRM households used significantly more traditional and innovative management practices associated with improved environmental conditions and reduced vulnerability to winter disasters (dzud).
- CBRM households were better prepared for dzud having less livestock mortality. Some CBRM herders learned from 1999-2003 dzud so that they were well prepared for 2009-2010 dzud indicating that CBRM can help reduce vulnerability and increase adaptive capacity of pastoralists.
- The evidence for livelihood benefits was mixed. CBRM and non-CBRM households did not differ in their livestock holdings, but CBRM households had more productive assets and diverse income sources.

Policy Recommendations Towards SDG15

- Improve and coordinate soum, aimag, and national-level rangeland assessment and monitoring using consistent methods across soums.
- Improve and expand professional training for rangeland management specialists, outreach for herders, and opportunities for peer-to-peer knowledge exchange and learning.
- Immediate focus of improved management and monitoring should be on summer and fall-grazed pastures, as winter-grazed pastures appear relatively healthy, and grazing during the growing season has the greatest impact on future rangeland productivity.
- Special attention is needed in steppe winter pastures.
- Strengthen local institutional capacity to implement rangeland management changes in response to monitoring results (adaptive rangeland management).
- On-going technical support for CBRMs is needed, with a focus on promoting practices that have clear conservation as well as livelihood benefits.
- CBRM outcomes may take time to achieve, especially when they depend on a series of linked feedback, each of which is also affected by exogenous factors such as climate, weather and markets.