

Farming or seasonal migration? - Potential futures of reindeer husbandry in Fennoscandia studied with Social-Ecological System (SES) approach, co-production of knowledge, and scenarios

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The area allocated for reindeer husbandry in Finland, Sweden and Norway covers approximately 40 % of each country. As the livelihood requires large, relatively unfragmented territories while being marginal in terms of direct income, land-use conflicts between various livelihoods and activities, such as forestry, agriculture, mining, energy production, tourism, and nature protection are common phenomena in the region. Simultaneously, rapid societal change, urban exodus and fading traditions as well as climate warming and subsequent ecosystem change may put the livelihood at stake. We have probed potential futures of reindeer husbandry in Northern Fennoscandia using the Social-Ecological System (SES) approach, knowledge co-production in stakeholder-scientist workshops in all three countries, and scenario building based on quantitative data and narratives. Regarding the future of the livelihood, we have identified some crucial components in the SES that are influential in determining the direction of development. We produced four potential pathways of future development and demonstrate that important factors controlling the direction of development include governance and actor relations. Governance is often considered distant and opaque by local stakeholders, fostering conflicts in land allocation, while unclear regulations at local level reinforce emerging conflict situations leading to distrust and restrained communication between the actors. Regionally, these conflicts may lead to decreased resilience and threaten the future of the livelihood altogether. Therefore, research should focus on supporting the reform process of institutional arrangements and governance mechanisms, and fostering co-design and co-production processes that ease distrust and improve resilience of the livelihood in multifunctional landscapes.