SUSTAINABLE LAND MANAGEMENT IN MOUNTAIN REGIONS OF BOLIVIA AND NEPAL IN THE CONTEXT OF OUTMIGRATION, CLIMATE CHANGE AND DISASTER RISK REDUCTION

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FINAL ABSTRACT

Worldwide land users are facing the challenge of producing from the land while minimizing natural resources degradation. The mountain ecosystem can be particularly sensitive to the dynamics of human activities, such as migration, but also to changing climatic conditions. Although climate change and environmental degradation as drivers of migration have been widely studied, there is a gap in the literature on how migration impacts on land management, and the implications climate change and increasing disaster occurrence have on sustainable land management. This project thus focused on understanding the impact of migration on land and water degradation, especially with regards to land abandonment and the impact of migration on land management practices. This includes interrogations about the use of remittances for agricultural purposes and implementation of sustainable land management practices.

The comparative study integrated bio-physical and socio-economic data through a case study as well as a mapping approach *in Quillacollo District of Bolivia and Panchase region of Western Nepal.* The study areas were selected considering the following criteria: out-migration, harsh environmental conditions, and land management issues; but also where local partners had experience from previous projects to facilitate channels of communication with local the people and building on their past experiences.

Findings illustrated that the question of sustainable land management practices is crucial in both areas but potential solutions differ. In our study areas of Bolivia, land abandonment was not confirmed due to the highly sensitive nature of land tenure questions, but a lack of labour force has led to changed agricultural and land management practices. However, drought and wind erosion appear to be increasing due to a lack of land management. In areas studied in Nepal, results demonstrated that land abandonment is causing *less* erosion, except during the transition period before natural regeneration occurs after the first two years. In both areas, remittances were mainly used for purchasing food, household items, education and repaying loans.

Migration has led to both negative and positive consequences in the areas studied. Positive consequences include strengthening of coping capacities, higher household income due to remittances, access to education and employment, in addition to possibly greater women empowerment and expanded opportunities for marginalized low caste groups in Nepal. However, out-migration appears to have negative consequences on the social fabric, where the elderly were traditionally cared for by younger families. Migration is also leading to a loss of local knowledge about land management, and land abandonment, thus not necessary exerting a positive influence on sustainable land management practices. In both locations, climate change is increasing the frequency and magnitude of extreme weather events, by shifting crops (and invasive species) upslope and making less certain the traditional planting season due to more erratic temperatures and rainfall.

In light of these trends, the challenge for the populations studied and for policy makers will be how to manage land considering changing demographics, uncertain climatic conditions, less available labour and lower food production in mountain areas. There is an obvious shift from local food production to greater reliance on remittance income and food importations. Some of the most important policy issues that emerged include promoting local employment creation, creating an enabling environment for migration – both for out- and in-migrants – and addressing climate change impacts and disaster risk reduction on sustainable land management through approaches such as Integrated Water Resource Management to increase the resilience of rural populations.