

Identifying ecosystem service hotspots for targeting land degradation neutrality investments in south-eastern Africa

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**ABSTRACT:**

Land degradation response actions need motivated stakeholders and investments to improve land management. In this study we present methods to prioritise locations for degradation mitigation investments based on stakeholder preferences for ecosystem services. We combine participatory and spatial modelling approaches and apply these for Zambia, South Africa, and Tanzania to: i) prioritise ecosystem services in each country; ii) to map the supply of these ecosystem services in each country, and; iii) prioritise areas important for investment for the continuous delivery of these ecosystem services based on their vulnerability to land degradation. We interviewed 31 stakeholders from governmental and non-governmental organizations to select the most important ecosystem services per county. Stakeholders were also asked to indicate on national maps the hotspots of these ecosystem services and locations with a high degradation risk. We then assessed the supply of the stakeholder-selected ecosystem services and land degradation risk using GIS-based spatial models. We found that for each country the spatial extent and magnitude of ecosystem services supply and land degradation based on GIS data coincides with stakeholder knowledge in some locations. In the context of supporting national level policy to achieve land degradation neutrality as proposed by the United Nations Convention to Combat Desertification we argue that the correct representation, the level of acceptance, and use of modelled outputs to support decisions will be greater when model outputs are corroborated by stakeholder knowledge. Ecosystem services that are identified as “important” by diverse stakeholder groups have a broader level of awareness and could therefore drive motivations, commitments, and actions towards improved land management, contributing to land degradation neutrality