Assessment of homegarden agroforestry for sustainable land management intervention in a degraded landscape in South Africa

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Abstract

Agroforestry-based sustainable land management (SLM) interventions provide opportunities for tackling land degradation and its associated socio-economic issues. Agroforestry is not a guaranteed SLM fix as every agroforestry practice is not automatically relevant to each context. It is critical to identify key considerations for ensuring a good fit between agroforestry and the receiving environment. This study identifies and analyses key factors for assessing the context-specific suitability of an agroforestry practice for SLM using a case-study of homegarden agroforestry in a degraded catchment. An analysis of biophysical and socio-economic characteristics of the catchment covering land degradation, SLM aspirations of residents, agriculture and agroforestry activities was conducted through literature review, field observations, GIS and remote sensing, stakeholder engagement and a questionnaire survey. Considerations in agroforestry practice assessment for SLM include agricultural and SLM objectives, which at our study site were increased crop production and arresting soil erosion. Availability of requisite resources, namely land, water and fencing; stakeholder interest in the tree and/or crop planting, species of interest and suitability of the species for the biophysical conditions should also be assessed. We propose a framework for systematically working through the relevant factors and assessing the suitability of an agroforestry practice for SLM intervention in a specific context. Based on the framework, homegarden agroforestry is an appropriate SLM intervention as it could meet stakeholders' SLM and agricultural objectives. Identification and systematic assessment of relevant factors are critical for ensuring the acceptability of agroforestry practice in a locality and the sustainability of associated SLM interventions.