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"Competing pathways for equitable food systems transformation: Trade-offs and synergies"

Local community preferences for ecosystem services: Tradeoff analysis for a biosphere reserve in southwestern Ethiopia

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Abstract

Climate change and land degradation have contributed to the deterioration of the overall health of the earth undermining its ability to function in a sustainable manner. The increasing demand for agricultural products has been partly met by increasing cultivated land leading to competition between different land uses and users. In such circumstances the available supply of ecosystem services (ESSs) can dwindle, and the system will not be able to support the demand of the growing population. Such a notable example is being experienced in the Yayo Coffee Forest Biosphere Reserve (YCFBR) of southwestern Ethiopia. Large parts of the YCFBR rainforests and their wild coffee populations have been modified or destroyed due to rapid deforestation, conversion to agricultural land, introduction of new settlements and timber extraction in the past decades. These led to a huge loss of rich biodiversity undermining the benefits associated with the forest and wild coffee resources and impacting people's livelihoods as well as local and national economy. Developing participatory land management options involving the needs and aspirations of the local communities is essential to protect the biosphere and sustain its use. In addition, there is a need to balance the management and utilisation of the inherent natural capital and the associated demand of the community to ensure long-term sustainability. Such knowledge can enable the development of targeted and context specific land use and management plans for the YCFBR. This can be supported by understanding the perceptions, preferences and expectations of land users related to the ESSs and their distributions within the YCFBR. This study integrated earth observation and socio-economic survey tools to (a) analyse the supply of ESSs across the biosphere and its surroundings; (b) evaluate the preferences of local communities towards major ESSs across the biosphere continuum (demand; (c) analyse the tradeoffs and synergies between ecosystems services in relation to community needs and preferences, and (d) develop an optimal land use and management plan for the YCFBR and its surroundings. Such study is essential to guide informed decision making considering the available resource potential in relation to the needs and priorities of local communities.

Keywords: Ecosystem services, Ethiopia, land use optimisation, tradeoffs

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