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Assessing the Sustainability of Leasehold Riverbed Farming for Landless and Land-Poor Households in the Terai, Nepal

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Abstract

Rural poverty remains an urgent problem in Nepal, leading to male migration to urban centres of Nepal and India. Riverbed farming is practised in the pre-monsoon season in the Indo-Gangetic plains (the Terai) of Nepal by landless and land-poor farmers. By using marginal land, riverbed farming can decrease the already high production pressure on arable land. However, little is known about the sustainability of farming in riverbeds that generally host fragile ecosystems. Also, there is a dearth of literature on the impact riverbed farming has on male out-migration.

The aims of this study are to assess the sustainability of riverbed farming and to analyse riverbed farming's impact on adopters' livelihoods. The analytical framework of SATNET Asia evaluates the sustainability of agricultural technologies according to their economic, environmental, social, and technological sustainability. The Sustainable Livelihoods Approach (SLA) offers a holistic model to assess riverbed farming's impacts on adopters' livelihoods.

Semi-structured interviews with riverbed farming groups were used for quantitative and qualitative data collection. Factors enabling or constraining the adoption of riverbed farming were determined. Income generated, how it was used, and source and amount of inputs were documented. Changes in household health, social status, and male out-migration from the community were recorded.

To evaluate the sustainability of the technology, a composite indicator based on the SATNET framework was calculated from the primary quantitative data. Using primary qualitative data and SLA, riverbed farming as a transforming process was analysed as to its impact on adopters' livelihood assets and strategies as well as their vulnerability context.

Riverbed farming was found to be sustainable economically, environmentally, socially, and technologically. Its composite sustainability indicator is presented and discussed. Riverbed farming made a significant positive contribution to household income generation. This raised the household's social status within the community, contributed to increased opportunities for children's education, and decreased vulnerability to environmental shocks. Male out-migration to cities was reduced. The study found opportunities for stronger linkages to markets and to related sectors like community seed banks. Riverbed farming is strongly recommended for diffusion as a sustainable, livelihood-enhancing technology that decreases rural out-migration while maximising marginal land use.

Keywords: Composite sustainability indicator, impact assessment, marginal land use, sustainable agriculture, vegetables