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Multiple Impact of Integrated Watershed Management in Low Rainfall Semi-Arid Region: A Case Study from Eastern Rajasthan, India

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ABSTRACT

The agriculture in low rainfall areas of eastern Rajasthan, India is characterized by high risks from drought, degraded natural resources and pervasive poverty, food insecurity and malnutrition. In this region, water is the main limiting factor for upgrading rainfed agriculture. For such areas integrated watershed management is recognized as a potential approach for agriculture growth and rehabilitation of fragile and degraded lands. At Gokulpura-Goverdhanpura village in Bundi eastern Rajasthan, India an integrated watershed project was implemented using the holistic systems approach. This paper discusses the impacts of this watershed program on bio-physical, socio-economic, environmental and ecological parameters. Results indicate that due to watershed interventions the groundwater availability has substantially increased which brought changes in cropping patterns with high value crops. Significant increases in irrigated area, cropping intensity along with diversification of crops from traditional to commercial cash crops were recorded. The watershed program also significantly improved the socio-economic status of the watershed community. It has increased the income and reduced poverty of the people in the watershed. The watershed interventions generated good employment opportunities and significantly reduced the migration of both skilled and unskilled labor from the watershed village to urban areas. It has also improved the environmental quality and ecological status in the watershed. The watershed interventions increased the vegetative index or greenery, reduced runoff, soil loss, and land degradations and improved the bio-diversity in fragile ecosystems. Overall, the integrated watershed program at Gokulpura-Goverdhanpura provided resilience by ensuring continued and sustainable multiple outputs, besides soil and water conservation and other positive environmental effects.

KEYWORDS

Groundwater Management; Bio-Physical Impact; Socio-Economic Impact; Environmental and Ecological Impact; Semi-Arid Tropics

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