

Impact of watershed development programmes on productivity and efficiency of crops in Rajasthan

GEORGE PAUL¹, P.S. BADAL* AND PRAMOD KUMAR²

Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, VARANASI (U.P.) INDIA

ABSTRACT

Watershed development (WSD) programmes have been reckoned as an instrument to bring the second-generation Green Revolution through, increasing productivity in rainfed areas. The present study examined the productivity gains and the technical, allocative and economic efficiencies in cultivation of two major rainfed crops *i.e.*, wheat and pearl millet at farms within and outside watershed projects. It was found that implementation of WSD programmes led to significant gain in productivity of all the crops. However, farmers opted for more water intensive crops without adopting water saving technologies of irrigation, which could be counter productive. The technical efficiency for wheat was found to be more within watershed villages (0.83) than in non-watershed village (0.47). The allocative efficiency was also found to be higher within watershed (0.63) than outside watershed (0.49). Since economic efficiency is a product of the two, it was concluded that wheat farmers within watershed were economically more efficient (0.52) than their counterparts outside watershed (0.22). In case of pearl millet, no significant difference was observed in technical efficiencies between the two regions. However, farmers outside the watershed area were found to be allocatively more efficient (0.71) than their counterparts within the project (0.51). This was due to the fact that the scarcity of water makes farmers adopt a strategy that minimises risk rather than maximises production. Educational level of farmers was the most significant variable influencing technical efficiency in case of wheat. Allocative efficiency was found to be affected by farmers' access to credit, distance of the market and extension contact. Hence, it was concluded that provision of better education and training, greater credit access, providing linkages between production and marketing and providing farmers technical and market information through better extension services would lead to a greater level of economic efficiency.

Key words : Socio-economic impact, Watershed, Economic efficiency.

INTRODUCTION

Participatory watershed development programme has become a good example of the so-called community-based and community-driven approaches that have become one of the fastest growing mechanisms for channelising development assistance (Mansuri and Rao, 2004). Scaling up of watershed development programmes has been reckoned as an instrument to bring the second-generation green revolution through increase in productivity in rainfed areas (John and Reddy, 2003). Though these programmes were initiated five decades ago, the vigor and seriousness came only after the worst drought of 1987. After 1994, participation of local communities in implementation of these programmes was made compulsory. However, evidence of the extent to which community-based approaches have lived up to the expectations is scarce (Mansuri and Rao, 2004). The economic evaluation of participatory watershed programmes in Rajasthan highlighted the fact that apart from irrigation-induced improvement in productivity as well as net returns, there were improvements in the water table, fodder and fuelwood availability, employment on farms and reduction in the drudgery of women (Badal *et al.*, 2004). Improvement in farm-level economic efficiency

is an important aspect of development impact evaluation, particularly in areas where resources are scarce and pace of technological development is low. Most of earlier studies have, however, failed to address the issue of changes in technical and allocative efficiencies at the farm level due to implementation of watershed development projects. The primary objective of this paper is to examine the effect of watershed projects on the technical, allocative and economic efficiencies at the farm level. The secondary objective is to examine the linkage between efficiency in crop production and producers socio-economic characteristics in order to provide information that could be useful in designing the efficiency enhancing development policies.

MATERIALS AND METHODS

Sampling framework:

Jaipur district of Rajasthan was purposively selected for the study as it comes under semi arid region of the state and provides a representative agro-climatic case for rainwater harvesting. Two villages namely Bapugaon and Dhaupura covered under watershed projects and a non-watershed village namely Dahami Khurd were selected to make a comparative study of efficiency

* Author for correspondence. ^{1&2} Division of Agricultural Economics, Indian Agricultural Research Institute, NEW DELHI (INDIA)