

Collective action and participation in irrigation water management: A case study of Mooi River Irrigation Scheme in KwaZulu-Natal Province, South Africa

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ABSTRACT

In line with the current focus of most developing countries to transfer management of communal irrigation schemes from state to users, an understanding of the determinants of farmer participation in collective activities forms the basis to improve the management of previously government-funded schemes, which are characterised by poor maintenance and performance when farmers are left to manage the schemes on their own. Cross-sectional data collected from 307 respondents in the Mooi River Irrigation Scheme (MRIS) in KwaZulu-Natal were used to identify the determinants of farmer participation in collective activities. The results of the Tobit and Ordered Probit models suggest that collective activities are negatively affected by low farmer-literacy levels. Number of consecutive days that farmers spend without access to irrigation water per week was used as a proxy for water scarcity, and was confirmed to be a significant determinant of farmer participation. The existing incentives for water-users in the MRIS need to be improved to encourage farmer participation in collective water management. This calls for strengthening of local water management systems and institutional policies to ensure maximum benefits from participating in collective activities. The study noted the complexity of managing common pool resources at a localised level, and pointed to the need to further understand the institutional dynamics in which smallholder irrigation farmers operate.

Keywords: Collective action, participation intensity, smallholder irrigation scheme, South Africa

INTRODUCTION

Small-scale irrigation is key to rural livelihoods and food security in developing economies (Sinyolo et al., 2014), particularly in regions associated with low and erratic rainfall and high evaporative demand, which limits dryland crop production (Hassan, 2011). However, despite the huge government investments in the establishment and refurbishment of smallholder irrigation schemes, some schemes face collapse soon after the withdrawal of state support (Cousins, 2013). Many countries have therefore embarked on a process to transfer the management of state-managed irrigation systems from government agencies to water users through implementing irrigation management transfer (IMT) and participatory irrigation management (PIM) policies (Perret, 2002; Arun et al., 2012; Gomo et al., 2014). The rationale for embarking on IMT is to relieve the government of the financial burden of funding recurrent expenditures for irrigation, improve the maintenance of irrigation facilities and the irrigation service, promote a culture of self-reliance among farmers in irrigation schemes and enhance the productivity of irrigated land and water (Hassan, 2011).

The implementation of IMT policy in most countries has been confronted with numerous challenges. For instance, Fujjie et al. (2005) noted that service of national irrigation systems deteriorated after the reduction in state agencies' operation and maintenance activities because irrigators in south and southeast Asia could not meet all the costs of operation

and maintenance from their farming activities. Similarly, smallholder irrigation schemes in South Africa were planned and established following a centralised state design system (Fanadzo et al., 2010). High levels of dependence on government support among smallholder irrigation farmers, accompanied by weak local institutions, lack of information regarding farmers' production strategies, low participation as well as poor maintenance and performance when farmers are left to manage previously government-funded schemes, are recurrent problems in South Africa (Perret, 2002; Mnkeni et al., 2010; Fanadzo, 2012; Reinders et al., 2013). The aforementioned challenges of managing SISs have given rise to the need to explore the level of participation in collective activities at scheme level, as a basis for ensuring effective smallholder irrigation management. The collective action concept coined by Olson (1965) is popularly applied in the management of common pool resources like irrigation schemes. However, due to institutional failures and lack of compliance to rules governing schemes, some schemes degenerate into open access resources, a problem defined by Hardin (1968) in the tragedy of the commons model. Hardin's model assumes the inability of individuals to cooperate to achieve outcomes superior to those achieved by individual actors. Hardin's theory was strongly contested by Ostrom through the collective action theory. The underlying assumption about collective participation is that those who participate have a stake in the final outcome (Ostrom, 2010). Therefore, it can be argued that customary rules and agreed norms in rural communities result in CPRs that are well preserved and utilised through the collective action of local appropriators (Ostrom, 1991; Ito, 2012). According to Wade (1987), canal water is a common-pool resource with a potentially high transaction cost of excluding a landowner with commandable land.

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