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Experimental Exploration of Institutional Transition Options for Sustainable Management of Common Watershed Infrastructure in India

THOMAS FALK, SHALANDER KUMAR, SRINIVASA SRIGIRI

International Crops Research Institute for the Semi-arid Tropics (ICRISAT), India

Abstract

In the context of India, water is historically stored on the surface in small reservoirs which also recharge shallow groundwater aquifers. There is a strong evidence that such structures have the potential to achieve a wide range of societal goals. Nevertheless, despite its obvious potentials, many communities fail to manage structures sustainably. In the context of watershed projects the water infrastructure works well as long as there is external facilitation but cooperation in maintenance often breaks down as soon as projects come to an end.

This experimental study helps to better understand cooperation patterns in Rajasthan communities using and managing small village reservoirs. In addition, this study is intended to create awareness amongst farmers for the cooperation challenge and encourage discussions related to it. Experimental approaches have the potential to facilitate dialogue, shared learning, collective decision making, and strengthening the adaptive management capacity of local communities.

We played framed public good experiments with 300 community leaders and other local stakeholders. We introduced communication and social information in terms of revealing the players' decisions. The discussion was a critical element of our game as it allowed the players to start negotiations and propose rules. We further introduced institutional mechanisms as additional treatments.

Our results suggest that participants were able to generate solutions that are substantially better than the predictions of standard economic theory even under private decision making without communication. Introducing information and revealing the individual behaviour increases investments significantly. Players who agree to rules but also those who propose a punishment invest higher amounts. Introducing the opportunity to sanction fellow players also increased investments even though those who were punished reduced their contributions.

The discussions showed that the players connected the game to their real life experiences. They highlighted challenges but gave also examples where cooperation in the community is working well. The game sessions were a revelation for the community that led to a learning process.

Keywords: Common property resource, economic experiments, India, irrigation, water management