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Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains

Overview

The Eastern Gangetic Plains, which include the Nepal Tarai, Bihar and West Bengal regions, is one of the most densely populated and poverty-stricken belts in South Asia. Behind this persisting poverty are deeply entrenched social structures of class and caste, with a high incidence of inequitable landlord–tenant relations. This is combined with poor access to irrigation in the dry season, limited irrigation capacity and low agricultural innovation.

There are strong linkages between poverty and access to water. At present technical, social and economic constraints have limited the effective use of groundwater and ponds for irrigation, and large areas of land remain fallow during the dry months. Access to year-round water for irrigation would significantly promote the productivity of agriculture, improving incomes and food security.

Sushila Devi Ram stands next to a solar pump used to bring groundwater to the surface for the farmers that are part of the ACIAR water project in the Terai of Nepal.

ACIAR project number	LWR/2012/079
Start date and duration (years)	September 2014 (5 years)
Location	India (West Bengal and Bihar), Nepal (Tarai) and northwest Bangladesh
Budget	AU $2,510,000

Project leader(s) and Commissioned Organisation

Erik Schmidt, University of Southern Queensland

Partner country project leaders and their institutions

Dr Mohammed Mainuddin (CSIRO), Dr Alan Nicol (IWMI), Dr Fraser Sugden (Birmingham University), Dr Rupak Sarkar (UBKV, West Bengal, India), Mr Dhananjay Ray (CDHI, West Bengal, India), Dr Santosh Mali (ICAR, Bihar India), Mrs Suman Singh (Sakhi, Bihar India), Mr Basudev Lohani (Department of Irrigation, Nepal), Mr Surendra Shrestha (GWRDB, Nepal), Dr Luke Colavito (iDE Nepal), Dr Md Maniruzzaman (BRRI, Bangladesh)

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Research

This project is improving the livelihoods for women, marginal and tenant farmers in the Eastern Gangetic Plains through improved dry season irrigated agriculture. The key elements of the project are to:

- determine existing water resources and sustainable utilisation for irrigation from tanks and groundwater;
- determine the socio-economic, structural and institutional constraints to sustainable water use;
- determine and evaluate approaches for access to water for irrigation focusing on using renewable technologies and alternate approaches to land tenure and their impact on livelihoods and resilience; and
- facilitate long term up-scaling and out-scaling of approaches and alternative opportunities.

Achievements

- Engagement in 30 pilot sites across 10 villages in Saptari (Nepal), Madhubani and Cooch Behar (India) and northwest Bangladesh.
- Established 17 farming collectives in Nepal and India practicing new dry season cropping systems and irrigation practices.
- Capacity development of local communities through training events, farmer group and stakeholder meetings.
- Changes in community knowledge, attitude and skills with regards improved irrigation management and collective farming arrangements.
- Adoption of a range of models providing farmers with a greater capacity to work collectively at various levels.
- Adoption of new agricultural, water and technological management practices moving participants from predominantly rice based cropping systems to multi crop systems, including vegetables.
- Improved confidence in water management approaches and irrigation practice change.
- Demonstrated increase in income from new cropping systems and irrigation practices, and increased food security.
- Strong participation by woman who are now making decisions about farming, asking about finances and accounts and are marketing vegetables themselves.
- Engagement with higher level government and private sector agencies creating opportunities to link with government programs.
- Implementation of interdisciplinary and cross-institutional scientific program across twelve partner organisations and three countries.

Impact story

Dhologuri village is located in the Cooch Behar district of West Bengal, India and is dominated by lower caste marginal and tenant farmers. At the site Karjeepara, the project is working with a collective farmer group comprising eight members, including three landless women. The project has supported the installation of a shallow tube well, diesel pump, solar irrigation pump, and drip irrigation in a protected structure.

Farmers have assisted in crop planning and management and through community mobilization their wellbeing has been transformed. Previously only rainfed paddy and some winter potato was cultivated, with most land fallow in the dry season. Cropping intensity has increased with introduction of more than ten irrigated vegetable crops.

Farmers have been empowered socially and economically. For example, the benefits of cooperative farming are now visible to women like Jharna Karjee who are now responsible for managing their finances and crop management. As a result of increased productivity and appropriate market linkage, their income has increased.

Access to land and water impacts the success of farming, and the project has positively influenced outcomes for farmers. Successful cooperative farming approaches have built the confidence of group members, augmented livelihoods, generated cohesiveness and are supporting a sustainable community.

Jharna Karjee (third from left) and collective farmers inspect irrigated vegetable production at the Karjeepara site, Dholaguri Village, Cooch Behar, West Bengal.