



Sustainable and resilient farming systems intensification (SRFSI) in the Eastern Gangetic Plains (EGPs)

Overview

The SRFSI Project is a collaborative venture between CIMMYT and the Australian Centre for International Agricultural Research (ACIAR) initiated in May 2014 with the overall objective of reducing poverty in the Eastern Gangetic Plain (EGP) by improving the productivity, profitability and sustainability of smallholder agriculture while safeguarding environment and gender mainstreaming. Over 20 partners representing research, development and educational sectors are engaged (National Agricultural Research and Extension System (NARES), Australian universities, The Commonwealth Scientific and Industrial Research Organisation (CSIRO), Consultative Group on International Agricultural Research (CGIAR) Centres) to accomplish the objectives. These partners are basically expected to answer two key questions: (i) can farm management practices based on the principles of conservation agriculture system intensification (CASI) practices provide a foundation for increasing smallholder crop productivity and resilience; and (ii) can institutional innovations that strengthen adaptive capacity and link farmers to markets and support services for both women and men farmers accelerate change processes? It has 40 working locations from eight districts of EGP – two each from Bangladesh (Rajshahi, Rangpur), Bihar (Purnea, Madhubani) and West-Bengal (Malda, Coochbehar) estates of India and Nepal (Sunsari, Dhanusha) and has established 40 innovation platforms (IPs), of which 24 are functional. IP is a multi-stakeholder forum where input dealers and service providers, traders, research and development personnel work together; local knowledge and farmer-to-farmer learning are enhanced; and the public-private partnership (PPP) approach is promoted to link research and development at village, district and regional levels.

ACIAR project number	CSE/2011/077
Start date and duration (years)	May 2014 (4 years and 2 months)
Location	Bangladesh, India and Nepal
Budget	AUD7.3m

Project leader(s) and Commissioned Organisation

TP Tiwari, International Maize and Wheat Improvement Cente (CIMMYT)

Partner country project leaders and their institutions

Dr Jalal Uddin – Research Director, Bangladesh Agricultural Research Institute (BARI); Dr. B.P Bhatt, Director, Research Complex for the Eastern Region, Indian Council of Agriculture Research (ICAR), Bihar, India and Dr Apurba Chowdhury, Prof. Uttar Banga Krishi Vishowvidhyalaya (UBKV), West Bengal, India; Dr Renuka Shrestha, Chief, Agronomy Division, Nepal Agricultural Research Council (NARC), Nepal.

ACIAR Research Program Manager

Dr John Dixon, Principal Advisor

Research

The overall aim of the project is to reduce poverty in the EGP by improving the productivity, profitability and sustainability of smallholder agriculture while safeguarding environment and gender mainstreaming. The project has four objectives that will lead towards sustainable and resilient farming systems intensification in the EGP:



1. Understand farmer circumstances with respect to cropping systems, natural and economic resources base, livelihood strategies, and capacity to bear risk and undertake technological innovation. Develop, with farmers, more productive and sustainable technologies that are resilient and profitable for smallholders.
2. Catalyse, support and evaluate institutional and policy changes that establish an enabling environment for the adoption of high-impact technologies from Objective 2. Facilitate widespread adoption of sustainable, resilient and more profitable farming systems. Considerable efforts have been made to build teams representing different institutions and disciplines thereby creating a common vision and understanding through participatory multi-stakeholder consultations.

Achievements

- » Conservation agriculture based system intensification (CASI) practices that will eventually help in changing the face of agriculture in project locations through a variety of initiatives like variety change (new seeds); systems intensification and diversification; introduction of new crops like maize, wheat, legumes in certain locations; intercropping vegetables and legumes with maize; and with the introduction of mechanisation based agriculture and capacity building.
- » CASI technologies, particularly zero till wheat and maize in India and Nepal, and strip till maize and wheat in Bangladesh, consistently showing higher yield performance with reduced production costs that has resulted in higher profitability generally – depending on crop and location it ranged from AUD653 and AUD2051 per hectare, and with maize and vegetable intercropping as high as AUD 2,282 per hectare (maize and greenpea), thus creating a huge interest among participating farmers and their fellow neighbours. This has helped to cover 194.6 ha with CASI technologies and this is expected to have a higher rate of technology adoption in the future.
- » With the convergence with national partners' plans/missions, more than 10,000 hectares have been covered by CASI practices (personal communication).
- » SRFSI's implementation modality is a partnership and participatory approach, which has helped form a team work culture and NARES partners are more confident on the conduct of on-farm research and development. Some partners have included some of the SRFSI promoted activities in their regular program, which guaranteed ownership.
- » The SRFSI is trying to mainstream female farmers' participation in order to reduce drudgery and gender gaps to improve adoption of technologies and innovations. Of the total (>20,000)
- » country-level managed and centrally organized events, the female farmers' engagement was 30.9% and 11.4%, respectively, which considering the socio-political and cultural settings of the region, is quite encouraging. Additionally, SRFSI is not only focusing on numbers, it is also working to offer more benefit to female farmers by enhancing their skills, which will increase the productivity of their efforts thereby empowering them.

Impact story

Halima is an inhabitant of Ganghachara Upazilla, Lakkhitari of Rangpur district. She has only 40 decimal of land in Echilli Charland (Charland is a type of land made up of river sedimentation), which is mostly sandy with limited irrigation facilities and flood prone during summer. Until recently, she was only growing rice on her land. Most of the land remains fallow during winter, so Halima and her husband had to migrate to other places for alternative livelihood options to support her family. Before receiving orientation and support from the SRFSI project through RDRS, Halima thought her land will not be suitable for rabi crops. Through the SRFSI Project, she was briefed about the possibility of growing wheat using the strip tillage method with reduced irrigation and production cost. She and her husband had no experience in wheat cultivation before, so initially they had doubts.

Halima and her husband were encouraged to produce wheat on their land and they followed all the necessary practices they had learned from the SRFSI Project. After some time, Halima was amazed to see a happy wheat crop on her land. She was delighted to be able to harvest 420kg worth BDT7500 (AUD129), when she had invested only BDT2500 (AUD43) to produce wheat with less tillage, irrigation and fertilisers. Halima sold 320kg of wheat valued at AUD105 (BDT19/kg), kept 80kg for household consumption and 20kg (properly screened) as seed for the coming season. After this experience, Halima is interested in continuing CASI practices next season. Because of Halima's success, neighbouring women farmers are inspired to produce wheat in their charland areas. Halima and her husband are happy because last year they got nothing, but with the same small piece of land, this year they harvested 420kg of wheat that significantly contributed to her household's food security and partly supported her daughter's education and the purchase of a calf.