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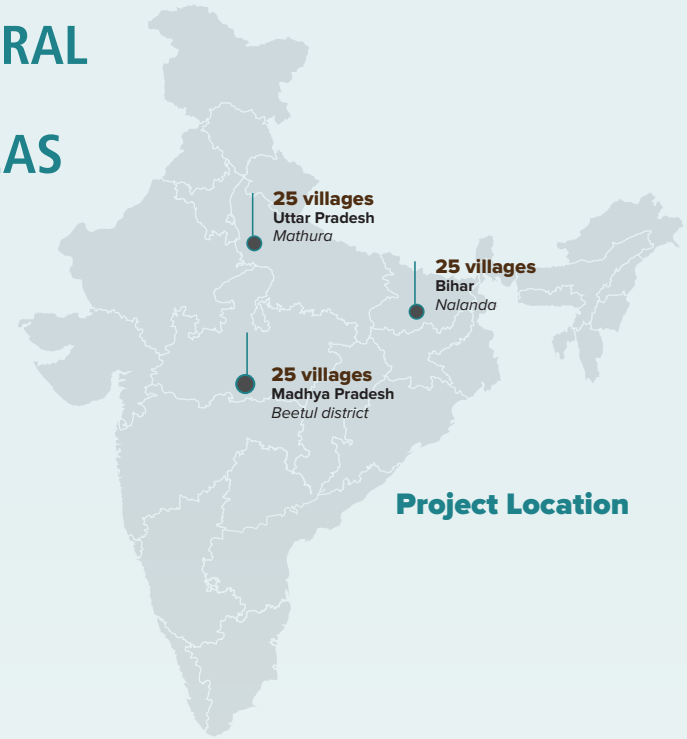
CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS

SCALING UP RESILIENT AGRICULTURAL PRACTICES, TECHNOLOGIES AND SERVICES IN THE VULNERABLE AREAS OF INDIA



Project Location

Project Goal

Use global and regional knowledge and skills to scale out weather-resilient agricultural interventions in food insecure and vulnerable areas through the Climate Smart Village (CSV) approach. The focus is generally on a basket of synergistic options, rather than on single technologies.

Major Objectives

The project has four major objectives:

i. To implement the CSV program in 75 clusters of villages in eastern India (Bihar, Uttar Pradesh, and Madhya Pradesh) to build additional evidence for scaling out weather-smart agriculture;

ii. To develop new business and institutional models on the CSV approach involving local organizations, agriculture departments and the private sector (input suppliers, insurance and ICT companies, and agri-business entrepreneurs) to reach scale;

iii. To reach scale by strengthening the capacity of farmers-producers' groups (FPOs), local organizations (community based organizations and NGOs), agencies dealing with CSR funds, national and international weather adaptation funds, local governments involved in adaptation to weather change in implementing the CSV approach; and

iv. To promote South-South cooperation to enable other developing countries (especially Nepal and Bangladesh) to adopt and learn from lessons in India for reaching scale in their own countries on weather resilient agriculture.

CSV Framework

Addressing the need for proven and effective weather smart agricultural options, CCAFS has developed the Climate-Smart Village (CSV) approach as a means to agricultural research for development (AR4D) in the context of increasing weather risks. It seeks to fill knowledge gaps and stimulate scaling of climate-smart agriculture (CSA). The CSV approach is founded on the principles of participatory action research for grounding research on appropriate and location/context-specific enabling conditions, generating greater evidence of CSA effectiveness in a real-life setting and facilitating co-development of scaling mechanisms towards landscapes, subnational and national levels.

In establishing a CSV-AR4D site, the very first step is to build trust and partnerships amongst diverse stakeholders; and to attain agreements and buy-in to a common approach. Once partners have agreed on the establishment of a CSV site, the major steps include baseline assessment, identification and context specific prioritization of CSA interventions, evaluation and development of portfolios of weather resilient interventions, and scaling up through policies and institutions, and scaling out to large areas through farm-to-farm and ICT-based approaches.

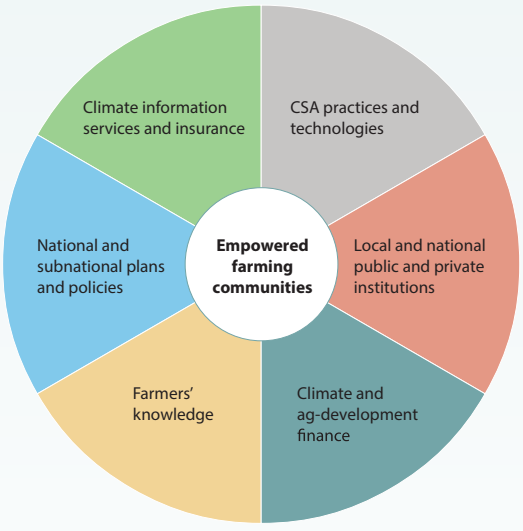


Figure 1: Components considered in the CSV-AR4D sites

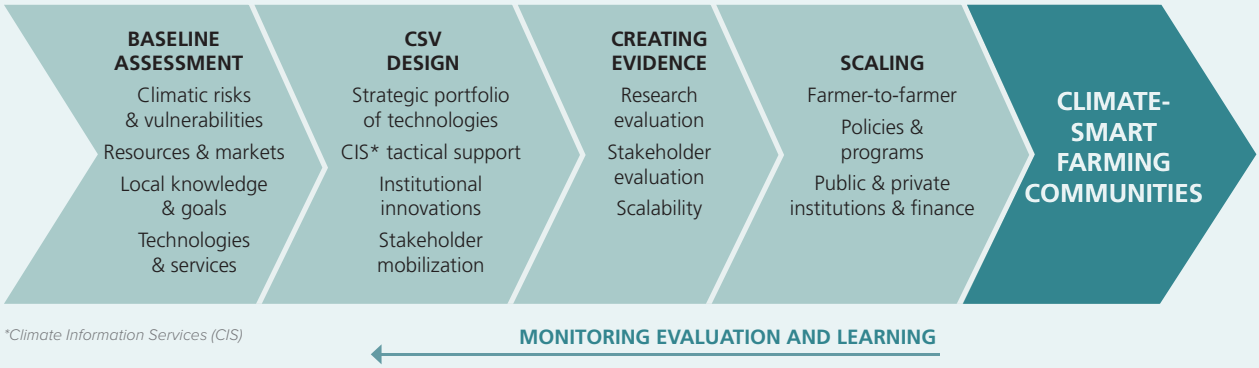


Figure 2: Steps for the implementation of the CSV-AR4D approach. Implementation steps are based on stakeholder engagement and seldom follow a simple linear model

Type of Farmers

Total direct beneficiaries: 11,175 | Total indirect beneficiaries: 50,000

State	District	Super Champion Farmers	Champion Farmers	CSA Farmers
Bihar	Nalanda	25	350	3350
Uttar Pradesh	Mathura	25	350	3350
Madhya Pradesh	Betul	25	350	3350
Total		**75**	**1050**	**10050**

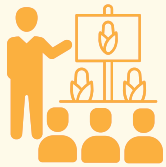
Technology

Technology	Which Type of Farmer? [i]	Crop/Livestock	Potential Impact[ii]	Gender & Social Inclusion[iii]
Alternative Wetting and Drying (AWD)		Rice		
Conservation furrow, Line sowing, Raised bed		Pulses, Soybean, Maize, Pearl Millet		
Crop insurance		Rice, Soybean, Pulses		
Direct Seeded Rice (DSR)		Rice		
ICT based climate information and agro-advisory services		Agriculture systems		
Improved seeds (drought/heat/disease resistant)		Major crops		
Integrated Nutrient Management (based on LCC, Green Seeker)		Major crops		
Integrated Pest Management (IPM)		Major crops		
Laser land levelling		Rice, Wheat		
Minimum tillage (zero-tillage)		Wheat, Maize, Soybean		
Rain water and irrigation management		Agriculture systems		
Solar pump		Agriculture systems		
Crop diversification		Agriculture systems		
Agroforestry, Fodder management		Livestock		
Bio-gas		Livestock		
Weather-smart housing for livestock		Livestock		
Concentrate feeding for livestock		Livestock		
Mineral mixture for livestock		Livestock		
Stress tolerant high yielding breeds of livestock		Livestock		

Productivity *Resilience* *Emission mitigation* *Helpful for Female Farmers* *Helpful for Small Holdings*

Implementation

A. CAPACITY BUILDING - Capacity building on weather risks management in agriculture via trainings, field visits, demo-plots, and South-South learning (e.g. taking lessons from other countries).

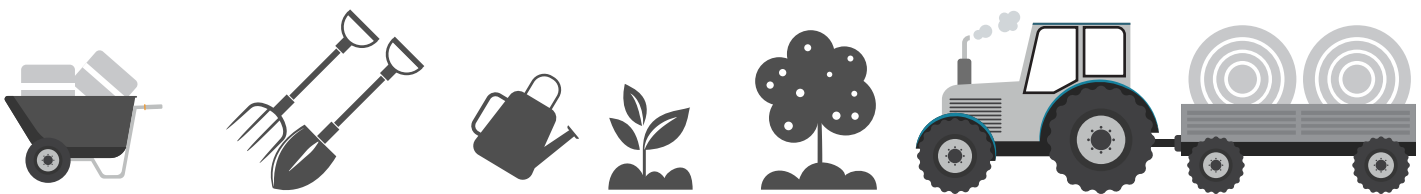


B. INSTITUTION – Formation of women's groups, farmer groups and community based organizations.

Women's participation	Role
Self Help Group (SHG) and Women's Cooperatives	• Group based approaches enable improved decision making and access to resource and information for women • Provision of inputs or capacity building. A number of government schemes also provide financial support for SHGs • Women Farmer-to- Farmer knowledge sharing
Individual farmer participation	• Implementation of weather resilient technologies with champion and other CSA farmers • Access to services such as agro-advisories and market information can be targeted at individual women farmers as well • Participation in capacity building exercises.
Community based organizations (i.e. farmers group, watershed management group)	• Women farmer field schools or women farmer led demonstrations are an effective way to influence wide adoption of a technology within the community members (champion or CSA farmers)
Entrepreneurial (i.e. Farmers-Producers Organizations, Custom Hiring Centers)	• Postharvest management and value addition in agricultural produce • Service provision to other farmers (farm machinery and equipment)

C. PRIVATE SECTOR

	Technology	Private sector involvement	Type of involvement
1	Improved and stress resistant seeds/ breeds	Retailers and suppliers	Indirect as a supplier
2	Farm machinery	Retailers and suppliers in market Custom hiring center managed by farmers group	Direct through Custom Hiring Centers
3	Micro-irrigation (drop, sprinkler and other)	Retailers and suppliers in market	Indirect as a supplier
4	Leaf color chart/Green Seeker	Retailers and suppliers in market	Indirect as a supplier
5	ICT based weather information, value added agro-advisory and market information	ICT companies	Direct through ICT based service provision
6	Sustainable value chain	Farmers-Producer Organizations Daily product company	Direct through FPOs (strengthen existing FPOs or formation of new FPOs) Indirect through milk collection from farmers
7	Weather index based agriculture insurance	Insurance companies	Direct through provision of insurance to the farmers (government identified insurance company in each state)
8	Solar irrigation system	Solar company	Direct through provision of solar technology
9	Bio-gas	Bio-gas company	Direct through provision of bio-gas technology



Input-Output and Impact

INPUT

- Number of farmers/farm households who have implemented CSA technology and practices
- Number/amount of technologies or management practices under research, under field testing, or made available for transfer as a result of project assistance
- Number of hectares of land under CSA technology and practice with project assistance
- Number of trainings, workshops, farm visits, farm fairs provided to farmers as well as stakeholders organizations
- Number of farmers or farm households have access to weather based agro-advisory, market information and agriculture insurance

OUTPUT

- Average change in yield (ton) and net income (Rs.) per hectare of crop land
- Average change in emission intensity (CO_2 /ton of food production) from the CSA interventions
- Number of farmers who have seen improvement in yield and income per hectare of agricultural land
- Number of hectares of land showing improvement in yield
- Average change in water, nutrient and energy use per ton of crop production.

IMPACT

Food Security
Poverty Reduction

This project is funded by USAID to build resilient agriculture in the vulnerable areas of India.

The CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS) is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT).

CCAFS defines and implements a uniquely innovative and transformative research programme that addresses agriculture in the context of climate variability, climate change and uncertainty about future climate conditions.

The programme is carried out with support from governments and aid agencies, both through the CGIAR Fund and bilaterally.

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