



Enhancing the productivity of cereal-based cropping systems in the Indo-Gangetic Plains is essential for ensuring food security for more than 20 percent of the world's population. Such enhancement is particularly important in the relatively impoverished and food insecure regions of eastern India, Nepal and Bangladesh.

To learn more, visit us at www.CSISA.org

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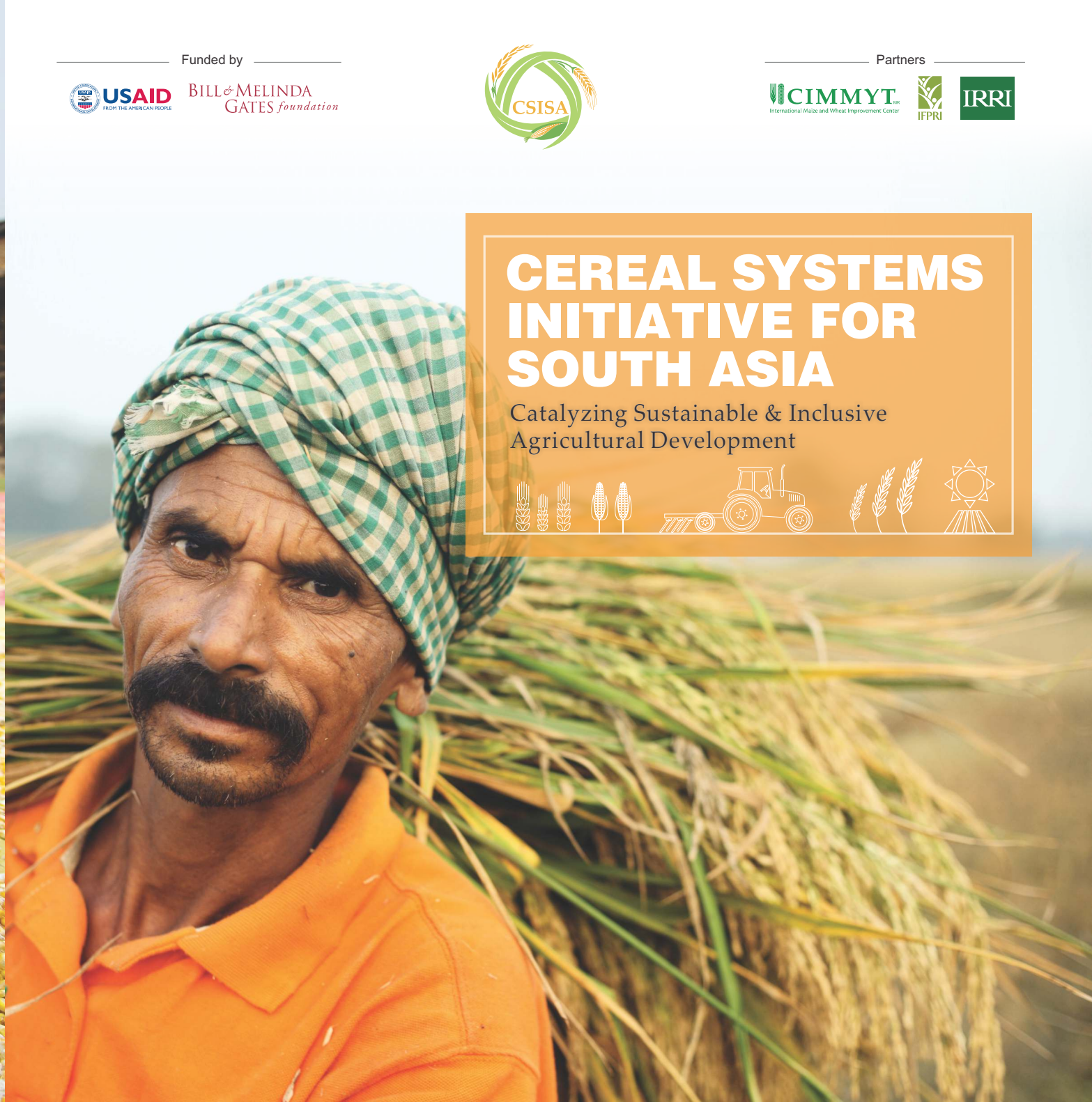


Partners



CEREAL SYSTEMS INITIATIVE FOR SOUTH ASIA

Catalyzing Sustainable & Inclusive Agricultural Development



Who We Are

The Cereal Systems Initiative for South Asia (CSISA) is a science-driven and impacts-oriented regional initiative for increasing the productivity of cereal-based cropping systems in Bangladesh, India and Nepal, thus improving food security and farmers' livelihoods. We support the widespread adoption of resource-conserving, climate-resilient technologies and practices in areas with high concentrations of rural poverty and where smallholder farmers are most vulnerable to the risks of increasingly erratic weather patterns. With the lowest staple crop yields, these areas consequently have the greatest potential for agricultural growth in South Asia.

CSISA was established in 2009 with a goal of benefitting more than 8 million farmers by the end of 2020. The project is led by the International Maize and Wheat Improvement Center (CIMMYT) and implemented jointly with the International Food Policy Research Institute (IFPRI) and the International Rice Research Institute (IRRI). The current phase runs from 2015 to 2020. CSISA's work is made possible through the continued support of the Bill & Melinda Gates Foundation and U.S. Agency for International Development.

Our Approach

CSISA serves as a catalyst within the agricultural innovation system in South Asia. Our interventions are based on the premise that transformative agricultural development requires not one single change, but the coordination of several. Our objectives include:



Strengthening national extension and agro-advisory systems



Facilitating uptake of practices that conserve resources and increase yields



Developing systems to cope with climate extremes



Creating partnerships for inclusive growth and enterprise development



Building capacity on participatory science and research



Growing the input and service economies



Supporting the commercial expansion of scale-appropriate machinery



Informing policy and investment choices supporting sustainable intensification



Bridging the gender gap in agriculture



BANGLADESH

Bangladesh has developed rapidly, and despite 70 percent of the population living in rural areas and a population of over 165 million people, it has impressively become nearly self-sufficient in rice production.

However, land holdings are small with average farming households owning just 0.2 hectares or less. Most of these small-scale farmers are yet to fully benefit from new and innovative agricultural technologies due to insufficient access to agricultural finance and low-risk bearing capacity.

In Bangladesh, CSISA focuses on adaptive technology testing, deployment of new crop varieties, farmer training and facilitating input and output markets.

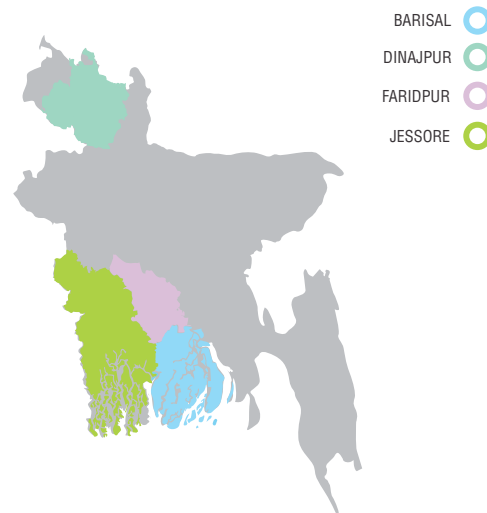
Project Lifecycle
December 2015 – November 2020

Funded by
Bill & Melinda Gates Foundation,
USAID Washington

Implemented by
International Maize and
Wheat Improvement Center,
International Food Policy Research Institute,
International Rice Research Institute

Key Partners
Bangladesh Agricultural Research Council,
Bangladesh Agricultural Institute,
Bangladesh Rice Research Institute,
Department of Agricultural Extension,
International Development Enterprises

Complementary Investment
CSISA Mechanization and Irrigation



Core Interventions

- **Direct-seeded rice to address labor and energy constraints to precision rice establishment**
Under favorable conditions, direct-seeded rice is an efficient and economically viable alternative to puddled transplanted rice.
- **Agronomic and variety recommendations to reduce the threat of wheat blast**
In 2015-16, the potentially devastating fungal disease was detected in Bangladesh – for the first time in South Asia.
- **Rice-fallows development in coastal Bangladesh**
Government policy encourages cropping intensification in Southern Bangladesh, and CSISA research shows that the largely underutilized rivers and natural canals in this region offer significant potential for irrigating coastal cropland that is currently left fallow.
- **Deployment of better-bet agronomic messaging through private sector partners and dealer networks**
The Feed the Future zone in Bangladesh is home to nearly 25 million farmers, who often have to rely on agricultural inputs dealers for advice on crop management.
- **Healthy rice seedlings for higher yields**
Healthy seedlings transplanted before they significantly age have been shown to increase yields by 0.25 to 1 ton per hectare.
- **Expansion of high-value, premium quality rice in Bangladesh**
Over 70 premium quality rice varieties are grown during Bangladesh's pre-monsoon and monsoon seasons with a 20–60 percent price advantage and 50 percent higher profit over conventional rice varieties.
- **Commercial expansion of two-wheel tractor based machinery and associated service provision models for reapers and seeders**
CSISA works to stimulate markets and train farmers. Our private sector partners are responding by expanding the commercial availability of agricultural machinery appropriate for smallholders to Northern Bangladesh.
- **Early wheat for combatting heat stress**
The yield potential for timely sown wheat can be significantly higher than that of wheat sown late, primarily due to the avoidance of terminal heat stress.



Cross-Cutting Activities

- **Precision Nutrient Management**
Many of the soil nutrient maps used in Bangladesh are dated, and rely on graphical representations of soil nutrient concentrations, rather than stocks that are crucial for developing realistic and sustainable long-term management plans. CSISA, in collaboration with Bangladesh's Soil Resources Development Institute, is working to create the country's first spectral soils library and associated digital soils map.
- **Capacity Building of NARES Partners**
CSISA is working with Bangladesh Agricultural Research Council, Bangladesh Agricultural Research Institute and the Department of Agricultural Extension to improve on-farm research, application of advanced methods, and extension techniques through the integration of advanced research methods, and through integration of participatory methods.
- **Policy Reform**
CSISA identifies policy solutions to support robust seed systems and markets, scale-appropriate mechanization, balanced fertilizer use, and risk management.

Project Lifecycle
October 2014 – September 2018

Funded by
USAID Bangladesh

Implemented by
International Maize and
Wheat Improvement Center

Key Partners
Bangladesh Agricultural Institute,
Department of Agricultural Extension,
International Development Enterprises
and numerous private sector partners



CSISA MECHANIZATION AND IRRIGATION (CSISA-MI)

Lack of access to affordable and reliable crop sowing, irrigation and reaping services significantly constrain productivity and profitability for smallholders in southern Bangladesh. CSISA-MI unlocks the potential agricultural productivity in southern Bangladesh by facilitating value chains and markets that boost the adoption of resource-use efficient irrigation and agricultural mechanization technologies and practices appropriate for smallholder farmers and delivered by a network of rural service providers.

CSISA-MI was designed as a complementary addition to the larger regional CSISA initiative. It focuses on upstream market interventions to ensure these technologies are reliably available through local markets.



Core Interventions

➤ Promote Innovative Technologies

Three core technologies are currently promoted to drive more precise, resource-conserving agricultural practices. These are the axial flow pump, power tiller operated seeder and multi-crop reaper. The machines offer significant advantages in terms of resource conservation and cropping intensification in addition to saving farmers' time, labor and money.

➤ Service Provider Networks

Entrepreneurs who purchase agricultural machinery are nurtured as local service providers (LSPs) who offer affordable access to sustainable intensification technologies for other farmers. The LSPs are also trained on operating and maintaining the machinery and on business and financial management. Additionally, linkages are created with potential customers, local mechanics, suppliers of spare parts and financial institutions to ensure sustainability.

➤ Commercialize Target Machinery

CSISA-MI catalyzes commercial import, manufacturing, marketing, sales and after-sales service of target machinery by leveraging private sector partnerships. A self-sustaining value chain for the target machine and machinery services is created through capacity building, risk mitigation, research and development, cost-shares for new investments, and access to market information. CSISA-MI also supports the wider market system, including market actors such as mechanics, workshops, and spare parts manufacturers and retailers, and works with financial institutions and the public sector to address constraints within the enabling environment.

➤ Research and Engagement

Science-based interventions are essential for creating an enabling environment for targeted technologies. CSISA-MI works closely with the Bangladesh Agricultural Research Institute to test and refine machine technologies, and uses remote sensing and geographic information systems to identify the appropriate environmental conditions and soils where the technologies can be effectively.





INDIA

Project Lifecycle
December 2015 – November 2020

Funded by
Bill & Melinda Gates Foundation

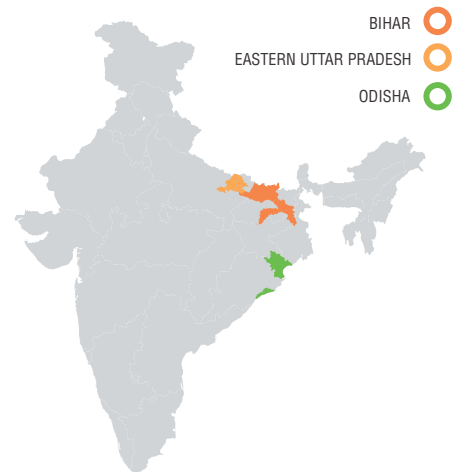
Implemented by
International Maize and
Wheat Improvement Center,
International Food Policy Research Institute,
International Rice Research Institute

Key Partners
Indian Council of Agriculture Research,
Orissa University of Agriculture and Technology,
Bihar Agriculture University,
Banaras Hindu University

Smallholder farmers constitute the majority of India's poor, with over 58 percent of the rural households in the country depending on agriculture as their principal means of livelihood. While the country has made considerable progress since the 1960s in securing food grain availability, successfully turning from a net importer to a net exporter of grains, considerable regional variation in production and yield performance still exists.

In recent years, gains in cereal productivity have slowed markedly while the rural population continues to grow. Paired with issues of resource degradation, declining labor availability and climate variability, the country faces steep challenges for achieving sustainably intensified cereal systems that meet the goals of improving food security and rural livelihoods.

In India, CSISA activities focus on areas of the eastern Indo-Gangetic Plains dominated by small farm sizes, low incomes and comparatively low levels of agricultural mechanization, irrigation and productivity.



Core Interventions

- **Early wheat sowing for combatting heat stress**
The yield potential for timely sown wheat can be nearly double that of wheat sown late, primarily due to the avoidance of terminal heat.
- **Coping with a weak and variable monsoon and avoiding kharif fallows**
Modifications to the rice phase of the cropping system can help avoid kharif fallows.
- **Zero-till wheat to tackle energy and economic constraints**
Sowing under zero tillage conditions helps farmers increase their net profits by saving on input and cultivation costs and achieving higher yields.
- **Income-generating maize production in neglected hill and plateau ecologies**
Using improved hybrids, market access and better-bet agronomy can boost economic returns for farmers by as much as US\$ 1,000 per hectare.
- **Integrated weed management to facilitate sustainable intensification transitions in rice**
Integration of new classes of safe and effective herbicides with other cultural practices is crucial for reducing profitability and labor bottlenecks in intensive rice systems.
- **Realizing the potential of mechanical rice transplanting**
Mechanical transplanting of rice offers clear advantages over manual transplanting with yield gains of 0.9 tons per hectare and profitability increase of US\$ 136 per hectare.
- **Healthy rice seedlings for higher yields**
Healthy seedlings transplanted before they significantly age have been shown to increase yields by 0.25 to 1 ton per hectare.
- **Rice fallows development in coastal Odisha**
Simple agronomic techniques to better utilize residual soil moisture can help raise and stabilize yields of rainfed crops.
- **Laser land leveling to improve rice crop establishment and reduce water consumption**
Precision land leveling can reduce irrigation costs from US\$ 37.3 to US\$ 22.4 per hectare while simultaneously increasing rice yields.



Cross-Cutting Activities

- **Precision Nutrient Management**
CSISA and NARES partners are using soil visible, near, and mid-infrared reflectance spectroscopy with spatial analytics to provide support for precision nutrient management.
- **Irrigation Scheduling**
Despite widespread availability of water resources and pumping infrastructure, investment in diesel for irrigation is increasingly cost-prohibitive for farmers. CSISA is working to develop robust information on rainfall and supplementary irrigation to help guide farmers on their irrigation investments.
- **Capacity Building of NARES Partners**
CSISA is working with selected Krishi Vigyan Kendras (KVK) to build capacity on conducting on-farm and participatory technology evaluations. These evaluations form the basis of investments and official recommendations made by the State Departments of Agriculture.
- **Policy Reform**
CSISA identifies policy solutions to support robust seed systems and markets, scale-appropriate mechanization, balanced fertilizer use, and risk management.





















BIHAR & EASTERN UTTAR PRADESH

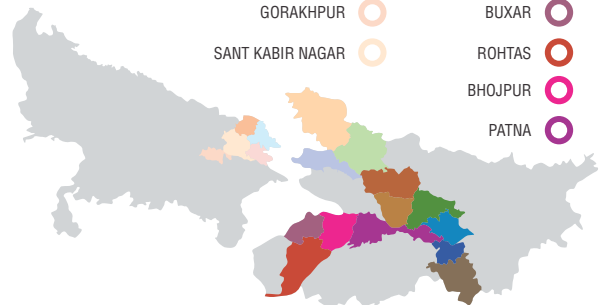
While agriculture accounts for 81 percent of Bihar's total workforce, with a contribution of nearly 42 percent to the gross state domestic product, its productivity levels remain among the lowest in the country, leading to rural poverty, low nutrition and migration of labor. Eastern Uttar Pradesh (EUP) is similarly characterized by subsistence agriculture, low irrigation intensity and low efficiency.

Farmers rely almost exclusively on rainfall to produce crops during the monsoon (kharif) season and irrigation water, where available, can be the most costly input as it is supplied by diesel pumps – in contrast to electric pumps used in the northwestern Indo-Gangetic Plains, including western UP.

Besides various biotic stresses, extreme weather conditions such as frequent droughts and floods in these regions have also contributed to reduction in yields. On average, approximately 440,000 hectares of crop land that could be cultivated are left fallow every kharif season in Bihar and EUP because of unfavorable weather.

Beyond addressing these challenges, CSISA efforts also target increased adoption of sustainable intensification technologies, which has so far been inhibited due to low availability of machines and small land holdings.

EASTERN UP	BIHAR
MAHARAJGANJ 	MUZAFFARPUR 
WEST CHAMPARAN 	VAISHALI 
EAST CHAMPARAN 	SAMASTIPUR 
KUSHINAGAR 	BEGUSARAI 
GOPALGANJ 	LAKHISARAI 
DEORIA 	JAMUI 
GORAKHPUR 	BUXAR 
SANT KABIR NAGAR 	ROHTAS 
	BHOJPUR 
	PATNA 



Core Interventions

➤ Zero Tillage

Wheat farmers the Eastern Indo Gangetic Plains face rising fuel, land preparation and seeding costs. Zero tillage (ZT) helps farmers increase their profits by saving on input and cultivation costs and achieving higher yields. Building upon its initial success towards creating a service provision economy around zero tillage in Bihar and EUP, CSISA is disseminating research findings around the benefits of ZT, supporting market development for scale-appropriate machinery, and informing relevant policies that enable the purchase of ZT machines and can help scale up the technology.

➤ Early Wheat Sowing

Wheat yields decline drastically as sowing is progressively delayed. Our research in Bihar and EUP shows that the yield potential for timely sown wheat is nearly double that of wheat sown in early December, due primarily to the avoidance of terminal heat at the end of the growing season. CSISA is collaborating with the Department of Agriculture, breeders, seed companies, input dealers and agro-advisory services to target farmers to adopt early sowing as well as enable them to fully benefit from it.

➤ Laser Land Leveling

Improper land leveling prevents uniform water distribution, causes large in-field yield variability and drives up irrigation costs. Our research shows that precision land leveling can reduce irrigation costs in Bihar and EUP from US\$ 37.3 to US\$ 22.4 per hectare while simultaneously increasing rice yields. Good land leveling is also an important entry point for mechanized sustainable intensification technologies. CSISA is developing enhanced business diagnostics to clarify the niche for the technology and identifying the required enabling environment to take precision leveling to scale.

➤ Healthy Rice Nurseries

While the window for raising kharif rice is quite wide, the time for transplanting falls during a narrow, busy window when labor is especially scarce and costly. This results in transplanting delays that reduce yields. Healthy seedlings transplanted before they significantly age have been shown to increase yields by 0.25 to 1 ton per hectare. CSISA is working closely with large-scale development partners to develop business models for rice seedling nursery enterprises, as well as popularizing them through livelihoods-oriented development organizations.

➤ Participatory Science and Technology Evaluations

India's Krishi Vigyan Kendra's (KVKs) employ strong multi-disciplinary teams of scientists who possess expertise in research and extension. However, the data generated rarely feeds into the investment priorities of the state. CSISA is piloting proof of concept development with select KVKs across Bihar and EUP showing how these centers can be leveraged to improve the quality and relevance of agricultural research science conducted in the country, and to increase their potential to boost farmer-to-farmer transfer of information on sustainable intensification technologies and practices.



➤ Integrated Weed Management

The integration of new classes of safe and effective herbicides with other cultural practices, supported by hand and mechanical weeding, is crucial for reducing yield losses and addressing labor bottlenecks in intensive rice-based systems. It is also an important enabling factor for the adoption of sustainable intensification technologies such as direct-seeded rice and zero-tillage wheat. CSISA is undertaking collaborative applied research and creating business intelligence with NARES and private sector partners to help build a critical mass of integrated weed management adopters in Bihar and EUP.

➤ Variable Monsoons and Kharif Fallows

Since 2009, monsoon rains have been consistently weak, with uneven distribution, resulting in yield reductions from late planting and in-season drought stress. CSISA has found that modifications to the rice phase of the cropping system can help avoid kharif fallows. Our strategy includes using direct-seeded rice, the adoption of rice hybrids, and the diversification out of rice to adapt to dry conditions. CSISA is also working with agro-advisory services to ensure farmers have access to accurate information based on advanced crop modeling and forecasting tools.



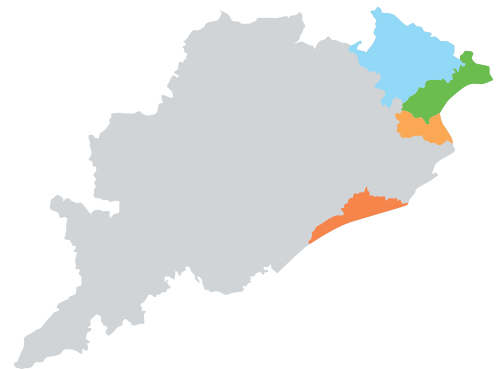
ODISHA

Nearly two-thirds of Odisha's gross cropped area is rainfed and depends on monsoons. Owing to limited irrigation facilities, as much as 84 percent of the arable farmland can remain fallow during the rabi (winter) season. The combination of erratic climatic conditions, acidic soils, declining resources and rising biotic stresses has caused agricultural production to fall.

Rice is the major crop for most farmers in the state, who practice the highly labor-, water-, capital- and energy-intensive practices of puddled manual transplanting and beushening—broadcasting rice at high seed rates and then tilling the soil to reduce weed and rice overpopulation. Low yields are exacerbated by sub-optimal nursery management, which leads to the production of unhealthy seedlings resulting in seedling mortality, poor growth and poor yields.

CSISA's interventions in the state aim to capitalize on technological and management opportunities to increase production, both from existing crop land and from arable fallow land.

- PURI 
- BHADRAK 
- BALASORE 
- MAYURBHANJ 



Core Interventions

› Mechanical Rice Transplanting

CSISA data shows a clear advantage in yield and profitability for machine transplanting compared to manually transplanted rice. The size of the opportunity for increased profitability in Odisha could reach US\$ 81.6 million per year in the state's double-rice systems if mechanical rice transplanting were universally adopted. Our efforts focus on business case diagnostics and mainstreaming training through partners to facilitate an initial area of first adopters.

› Direct-Seeded Rice

Under favorable conditions, direct-seeded rice (DSR) is an efficient and economically viable alternative to puddled transplanted rice. It is especially advantageous over beushening, which is practiced on nearly 50 percent of the rice area in Odisha. CSISA is promoting precision establishment either by line sowing using seed drills or by precision broadcasting using handheld spreaders, coupled with better bet agronomy.

› Improved Maize Production

Odisha's plateau region is often dismissed as too risk-prone and resource-degraded to support highly productive agriculture, resulting in a lack of much-needed investment for this impoverished area. Our initial efforts on improved maize production in Mayurbhanj demonstrate considerable potential to boost economic return for farmers in the region, by as much as US\$ 1,000 per hectare, using improved hybrids and better-bet agronomy and by improving market access. CSISA is working with a variety of state, private and civil society actors to catalyze adoption of maize production in this neglected niche on a sustained basis.

› Rice Fallows Development

According to government statistics, a staggering 88 percent of dry season fallowed farmland in Odisha has potential for irrigation. Even in areas not suitable for irrigation, simple agronomic techniques to better utilize residual soil moisture can help raise and stabilize yields of rainfed crops. Our two-pronged approach to rice fallows development in Odisha prioritizes achieving higher yields for cereals through higher inputs, and intensifying lower-input crops such as mung bean and mustard through improved management practices.

› Healthy Rice Seedlings

Odisha is severely affected by early incidences of abiotic stresses such as drought, flooding, and salinity. Rice seedlings are extremely sensitive to these stresses. Practices such as optimum seeding density, balanced nutrient supply, proper seedling age and careful handling at transplanting can help mitigate the adverse effects of floods and other abiotic stresses following transplanting. CSISA is working with partners to create awareness through agro-advisory services for better nursery management at the farm level, and for supporting commercial nursery enterprises as an innovative business model.



› Integrated Weed Management

Herbicide use in the state is very low and markets are at a nascent state of development. However, labor scarcity and rising wages are expected to continually drive up herbicide demand. In collaboration with the Department of Agriculture, we are working with NARES partners to demonstrate the efficacy of new molecule combinations for the control of complex weed flora present in Odisha's rainfed environments, with private-sector partners to increase the market availability of new molecule combinations, and promoting other non-chemical options such as dust mulching, fallows management, better land preparation and mechanical weeding.



NEPAL

Project Lifecycle
December 2015 – November 2020

Funded by
USAID Washington, USAID India

Implemented by
International Maize and
Wheat Improvement Center

Key Partners
Nepal Agricultural Research Council,
Department of Agriculture, KISAN Project,
International Food Policy Research Institute,
International Rice Research Institute

Complementary Investments
CSISA-Nepal Agronomy and
Seed Systems Scaling,
CSISA-Nepal Mechanization
and Irrigation

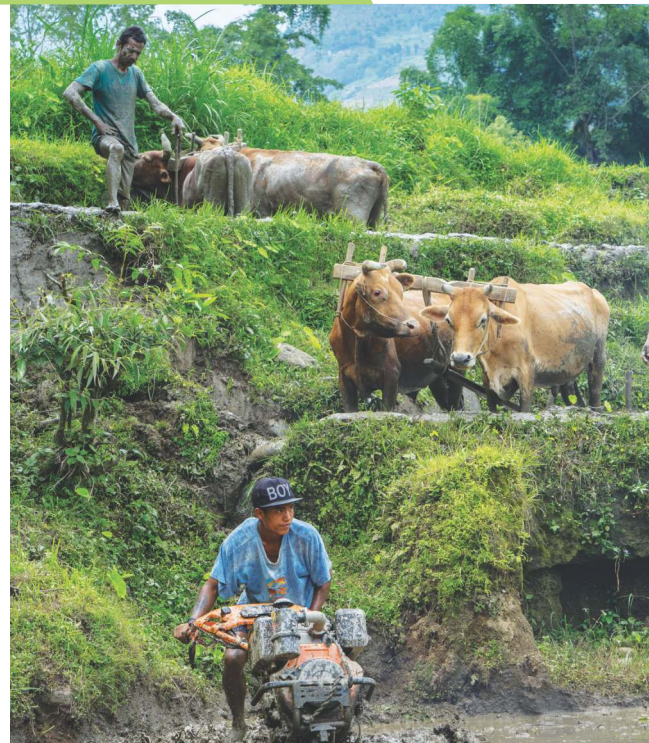
Cereal and pulse yields in Nepal fall well below the regional averages and present rates of increase won't meet long-term domestic requirements. Factors that contribute to low staple crop performance in Nepal include scarce farm labor, poor knowledge of best agricultural management practices, a lack of irrigation and mechanization and farmers' inability to take risks and invest in new technologies. Additionally, innovative applied research has long been underfunded and research benefits have rarely reached farmers.

Nepal's Mid and Far West development regions are most acutely affected by these constraints as these regions have the highest poverty and receive the lowest investment by the private sector. As a result, CSISA works in Nepal's Terai plains and mid-hills, where the scope for improving farmers' lives through agriculture is greatest.



Core Interventions

- **Commercial maize production in hill and plateau ecologies**
Many farmers rely on maize production for basic food security. Yields under current farmers' practice is 2 tons per hectare whereas good agronomic practices could yield 6.5 tons per hectare.
- **Deployment of better-bet agronomic messaging through input dealer networks and development partners**
Many farming communities in the Terai are not connected to extension services or the private sector for agricultural knowledge. On the other hand, livelihoods initiatives can be leveraged to extend better-bet management information.
- **Integrated weed management to facilitate sustainable intensification transitions in rice**
Manual hand weeding has been the most widely used approach to weed control in the Terai. Labor out-migration and off-farm employment has meant that weeds are progressively less well controlled.
- **Commercial expansion of two-wheel tractor based machinery and associated service provision models for reapers and seeders**
There are approximately 35,000 small tractors in Nepal that are only used for land preparation, but which could receive drilling attachments for precision seed and fertilizer placement and line sowing.
- **Coping with a weak and variable monsoon**
Farmers in Nepal rely almost exclusively on rainfall to produce crops during the monsoon season. However, in five of the last six years, monsoon rains have been weak with uneven distribution.
- **Zero-till wheat to tackle energy and economic constraints and to enhance crop productivity**
Sowing wheat under zero tillage provides an actionable answer to mounting fuel and cultivation costs for wheat production in Nepal's Terai plains.
- **Healthy rice seedlings for higher yields**
In the Terai, farmers on nearly all of the 1.3 million hectares upon which rice is grown could benefit from increased knowledge of methods to raise and transplant healthy seedlings.



Interventions by Complementary CSISA-Nepal Investments

- The intensification and diversification of pulses (lentil and mung bean) and their adoption at scale
- Scaling up of cropping system-based approaches for sustainably intensifying wheat and minimizing terminal heat stress
- Facilitation of efficient and low-risk strategies for the precise and productive use of nutrients
- Establishing robust seed systems that ensure timely access to elite cultivars and hybrids
- Promoting scale-appropriate mechanization and irrigation

Policy Reform

CSISA identifies policy solutions to support robust seed systems and markets, scale-appropriate mechanization, balanced fertilizer use, and risk management.

A photograph of two men in a rural field. The man on the left is wearing a striped polo shirt and is holding a tablet. The man on the right is wearing a purple cap, sunglasses, and a plaid shirt, and is pointing at the tablet. They are standing in a field with hills in the background.

POLICY INTERVENTIONS

To remove constraints to the adoption of new technologies and enhance the benefits of improved agricultural growth, CSISA's policy interventions prioritize scaling up work with national partners that address constraints and improve the environment for realizing sustainable intensification futures in South Asia's cereal systems.

By undertaking strategic policy-relevant studies, providing continuous feedback to project planning and priority setting, and informing decision makers through evidence-based policy recommendations, CSISA aims to inform policy and investment choices toward pro-poor outcomes across Bangladesh, India, and Nepal.

Ongoing interventions are targeted at specifically addressing four critical policy topics: Seed systems and markets, scale-appropriate mechanization, soil fertility management and agricultural risk management.



Seed Systems and Markets

CSISA's activities on seed systems and markets focus on communicating policy reform options for state-led seed market interventions and the tradeoffs between promoting short-term varietal replacement and long-term seed market development.

Core Interventions

- CSISA is supporting the creation of open-access information and analytics portals containing geographically disaggregated, variety-specific data on seeds and traits to guide policy and investment decisions on commercial seed system development.
- Building on rice variety release procedural harmonization, CSISA is providing a cross-country convening platform towards inclusion of wheat and other crops of interest.

Scale-Appropriate Mechanization

Our activities on scale-appropriate mechanization emphasize the design of policy incentives and investment strategies that encourage the development of localized commercial markets for the scale-appropriate machinery and equipment required for sustainable intensification.

Core Interventions

- In India and Bangladesh, CSISA organizes dialogues on better targeting of incentives, developing commercial markets and removing barriers to inclusive and equitable mechanization.

Soil Fertility Management

In India, CSISA activities on soil fertility management and fertilizer markets support policy reforms to promote balanced fertilizer use through improved understanding of the costs, benefits, fiscal burden, sustainability, and effectiveness of various public programs.

Core Interventions

- Through continued dialogue, ongoing research and developing new partnerships, CSISA improves understanding on costs and benefits of fertilizer subsidies on public expenditure priorities, balanced fertilizer use, and agricultural productivity growth.
- Using primary and secondary household data from Odisha, CSISA supports improved regulation of groundwater policy, governance, and management in water-abundant regions to improve potential for sustainable intensification.



Agricultural Risk Management

Our activities on agricultural risk management support development of investment strategies and evidence-based policy options around alternatives to costly crop insurance schemes, including innovative index insurance and credit products specifically designed for risk-prone areas in India and Bangladesh.

Core Interventions

- CSISA is investigating innovative insurance and credit products specifically designed for risk-prone geographies to help expand the evidence base around alternatives to costly crop insurance.