



# Cereal Systems Initiative for South Asia- Mechanization & Irrigation (CSISA MI)



Semi-annual Progress Report  
(October 2018 to March 2019)

Submitted by  
International Maize and Wheat Improvement Center  
(CIMMYT)

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## LIST OF ACRONYMS

ACI	Advanced Chemical Industries
AFP	Axial flow pumps
AIRN	Agro-Input Retailers Network
AOR	Agreement Officer Representative
ASA	Association for Social Advancement
BADC	Bangladesh Agriculture Development Corporation
BARI	Bangladesh Agricultural Research Institute
BDT	Bangladeshi taka
BINA	Bangladesh Institute of Nuclear Agriculture
BMDA	Barind Multipurpose Development Authority
BRAC	Bangladesh Rural Advancement Committee
BRRRI	Bangladesh Rice Research Institute
CA	Conservation agriculture
CIMMYT	International Maize and Wheat Improvement Center
CLA	Collaborative Local Agreements
COR	Contracts Officer Representative
CSISA III	Cereal Systems Initiative for South Asia Phase 3
CSISA MI	Cereal Systems Initiative for South Asia Mechanization and Irrigation
DAE	Department of Agricultural Extension
DEMs	Digital Elevation Models
DIP	Detailed Implementation Plan
EC <sub>a</sub>	apparent electrical conductivity
FFD	Farmers' Field Day
FOC	Filed Office Coordinator
FtF	Feed the Future
GIS	Geographic information system
GJUS	Grameen Jano Unnayan Songstha
GoB	Government of Bangladesh
iDE	International Development Enterprises
iQ	Innovation and Quality
IR	Intermediate results
JCF	Jagoroni Chakra Foundation
JVA	Joint Venture Agreement
KMP	Krishi Machine Porichiti
LLA	Local Level Agreement
LoA	Letters of Agreement
LSP	Local Service Provider
LSPN	LSP network
M&E	Monitoring and evaluation
M&EO	Monitoring and Evaluation Officer
MDO	Machinery Development Officer
MEL	Monitoring Evaluation and Learning
MoA	Ministry of Agriculture
MRM	Monitoring and Results Management
MSME	Micro, Small, and Medium Enterprises
NGO	Nongovernment organization
OBF	Officers-Business Facilitation
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PNGO	Partner nongovernment organization
PSP	Private Sector Partner
PTOS	Power Tiller Operated Seeder
Q4	Quarter 4
RFL	Rangpur Foundry Limited
SAAO	Sub-Assistant Agriculture Officer
SDC	Society Development Committee
SKS	Shombhabbo Kreta Somabesh
SME	Small and Medium Enterprises
SOP	Standard Operating Procedures
SWOT	Strengths, Weaknesses, Opportunities and Threats
TMSS	Thengamara Mohila Sabuj Sangha
USAID	United States Agency for International Development
USD	United States dollar
USG	United States government
WEA	Women's Empowerment Activity
WEP	Women's Empowerment Program
WT	Wheeled Tractor

## EXECUTIVE SUMMARY

CSISA MI, funded by USAID, led by the International Maize and Wheat Improvement Center (CIMMYT), in partnership with iDE global under the Feed the Future (FtF) Initiative since 2013. It has transformed agriculture in southern Bangladesh by unlocking potential productivity through irrigation, small-scale agricultural machinery and agricultural services provision. The project developed and trained local agricultural service providers (LSPs), created an entire agricultural mechanization value chain and scaled-out agricultural machinery services across the FtF zone. Farmers received mechanized services from LSPs with Axial Flow Pumps (AFP), Power Tiller Operated multi-crop Seeders (PTOS) and harvesters at a reasonable cost and with improved productivity. The private sector dealers and manufacturers invested in and introduced in the machinery with the technical support of the project.

The CSISA MI team re-visited its implementation plan, methodology and interventions in year 4, to rectify and adapt to farmer and value chain actors, through; re-engineering, business development training, tight focus on potential markets, mechanisation pilots and alternate agronomic solutions, which appears to have addressed any concerns held on meeting year final year targets.

Sixth year results strongly indicated that the project was well on-track and strategic decisions made under difficult financial constraints at the end of year 4 to year 5 were warranted and necessary to meet scaling expectations. Sales of 438 power tiller operated direct seeders (PTOSs), and 181 multi-crop reapers by CSISA MI's private sector partners were indicative of the increased mechanisation development in the last implementation year. Contributing factors to CSISA MI's overall success in the reporting term include: the improved availability of agriculture machinery and spare parts, facilitating financial services from MFIs and the increasing presence of highly trained LSPs. Additionally, geo-specific targeting enabled refocussing on areas of greater potential, with a view to eclipse the theoretical tipping point well before the project end date. CIMMYT and iDE MEL teams gathered sales and intervention data and conducted a mapping exercise to reduce number of *Upazila* from 105 to 69 in 19 districts in year 5, in year 6 this was further reduced to 15 districts and 46 upazilas. This reduction in operational area led to improved impact and commercialisation through adopting a surgical approach and a synergy of partnerships to increase sustainable productivity.

Against a training target of 5,523 individuals, the project has trained 3,993 farmers, among them 33% were women (26% last year). The project has intensively extended training to 369 private sector actors and 39 participants from civil society. In the last year, 52 LSPs received USD 60,809 for 52 machines, which was a 108% achievement against the annual target, of this; twelve women LSPs received USD 18,095, which was more than four times the number of women in year 5. Against a target of 76,125 farmers that had utilized or applied new agricultural technologies, the overall achievement for this indicator was 124% at 94,661. Against a target of 35,000 ha of land under improved technologies or management practices, CSISA MI achieved 34,697 ha bringing the project total near to 137,000 ha. The project provided technical assistance to 607 informal firms (LSPs) and 11 formal firms, (mainly agro-machinery dealers), against a target of 580 firms for Year 6. At the end of this period a total of 3,474 LSPs, classified as informal firms, were developed. In the reporting year (Oct'18-March'19), private sector investment achieved USD 639,000. The largest investment was in harvesting and post harvesting technology at USD 540,000. Combined private sector investment of USD 3.3 million over the last reporting period, within and outside the project, gave a strong indication that the promoted technology was scaled across the FtF area and broadly across the country.

TML (Pvt.) Ltd (TML), Janata Engineering, and RK Metal remain key private sector partners in year 6 as the project re-engineered existing machinery, improved quality and imported new machines for piloting. Janata Engineering closely collaborated with CSISA MI and continues to expand its business and range of agricultural products especially after several trips to China. RK-Metal, with close technical support from CSISA MI engineers, developed the Jute reaper, modified the 4WT ZT drill and 2WT strip-till seeder and numerous other minor modifications/adaptions, in support of mechanisation generally in Faridpur. TML continued to assist CSISA MI with access and technical support for reaper binders and medium sized multi-crop combine harvesters that were piloted in the FtF Zone in year 5 and 6. Other projects with TML include; the ride on sulky for reapers, AFP manufacturing, redevelopment and digital enhancements, collaboration with Hello Tractor for fleet management and spatial econometrics, and the conceptualisation of QR Cash; a digital financial solution for agricultural

input purchases and credit using mobile technology. Other PS collaborators have supplied the project with; modified and improved seed meter components, calibration keys and seed grading tools. However, beyond engineering, our private sector partners had a lead role in developing the market system of the selected technologies and CSISA MI continues to build bridging capital in market development with the private sector. Consequently, the private sector, for the most part, has been driving the marketing activities during 2019. As part of this initiative, the project has signed 11 local level agreements with dealers to facilitate their capacity to engage sub-dealers and commissioning agents to expand their market, better distribution of products, and provide faster after sales service to LSPs.

iDE continues to drive innovation in A2F by collaborating with STEPS to digitised financial transactions to determine LSP and farmer credit worthiness. A credit history will help facilitate formal lending by commercial banks to these newly “bankable” LSPs, and provide them the opportunity to avail themselves of agent banking services. Other initiatives include asset mapping i.e. the searchable “database of market actors”, and the LSP network. The concept of LSP networking exists in a few upazilas and will expand to other areas over the next six months. On a similar note, the CSISA MI management information systems (MIS) database is a daily management tool database that has several geo-specific reporting facilities like Q-GIS, Google earth and Bing Map, which provides historical map generation to resolve and display implementation strategies. The desktop-based app, linked to the online database, generates near to real time reports, with which one can see the achievement against the yearly FtF target, facilitating prioritization of activities and time to completion. Over the last reporting period the project has refocussed its energy on re-hosting the MIS and working on public sector access to the network of LSPs, and value chain actors (mechanics etc.) contained within.

CSISA MI's gender focus has been ramped up in year six, resulting in 139 women LSPs up from 75 last year. International women's day took on special significance in the regional offices of CSISA MI during which champion women discussed challenges and successes. A study on the impact of mechanizing harvesting services on women's daily time distribution in harvesting season emphasised that time for leisure, childcare and sleep increased, whereas cooking time for field labours decreased significantly from 9% to 1%. The project has engaged Winrock's Women Empowerment Project and CFNA's AIRN project from where it plans to reach a further 1,200 women entrepreneurs of whom at least 30% are already engaged in agriculture related businesses.

CSISA MI continues to be at the forefront of Bangladeshi agricultural engineering innovation, improving machine management, operation, longevity, utility and demand. The innovations include log books, machine tracking and management systems, 4WT ZT drill furrow closing devices, seed metering systems for large and small grains and calibration tools, 2WT strip tillage rotor and blade design, jute reaper, axial flow pump manufacturing, setup and operations and self-propelled reaper ride-on sulky. In collaboration with TML, the project has introduced a Medium Multi-Crop Combine Harvester (MMCCH), which is a full feed version, quite dissimilar and superior in speed and performances to that of the half-feed rice/wheat mini combine harvesters entering the market through ACI and Alim Industries. The MMCCH can harvest wheat, rice, maize, rapeseed and soya bean etc., at greater than 3 ha per day. Rice harvesting at BADC this year was successfully undertaken by this machine, whereas all other machine types were unable to cope with the wet and muddy conditions.

Cultivation practice trials to enhance maize yield, such as planting pattern, row spacing, and plant population were conducted across three hubs. Crop management (fertilizer, irrigation, weeding) was the same for all treatments and sites. In these replicated trials, alternate narrow wide planting with high plant populations; yield was much improved by ~12%. The results have spurred the team on to determine the impact of other simple agronomic better-bet management practices to better adapt maize to the wet southern Bangladesh conditions.

All training manuals have been under review for wider publication and the new “train the trainer manuals” for conservation agriculture, farmer field day, MMCCH and reaper binder are nearing completion. A cartoon book that explained the fundamentals of CA at the farm level, was completed and distributed to the field offices.

CSISA MI continues to work with and engage with AIP, AEP, WEP, and RDC projects funded by USAID, as well as World Vision, Blue Gold, Practical Action, SAARC, Appropriate Scale Mechanization Innovation Hub (ASMIH), Post-Harvest Loss Reduction Innovation Lab (PHLIL)-Bangladesh and others.

Other collaborative efforts include working with the wheat blast team, BARI on cost sharing engineering support, Alim Industries on training the trainer, USAID Gender working group for inclusive mechanisation development and Blue Gold on machine training and mung bean cultivation in Patuakhali, south central Bangladesh.

Under the guidance of the CSISA MI management team, coordination and cooperation between all project partners in the field offices were stepped up enormously by largely refocussing on SWOT analysis outcomes from year 4. Newly introduced, rotating bi-monthly learning workshops at the field office level has increased interaction among field level staff, GoB agencies, PNGOs, specialists and private partners which have been extremely effective in adapting, by providing feedback, discussion challenges, taking opportunities, strategizing and developing staff capacity. Filling vacancies resulting from the “funding-uncertainty”, remained a challenge, as the shortened tenure was not attractive to good candidates.

**Successes:** Key to CSISA MI's success has been the evolution of farmers into entrepreneurial LSPs, some of which are now machinery and spare parts dealers. Over one quarter of all new LSPs now learn from others and so far, the project has developed 3,374 LSPs of which 4.1% are women, with the exception of the garment industry, this is a common women participation rate in Bangladesh. The development of dealers (193), engineering workshops, and local repair workshops and mechanics (753) and pivotally, spare parts shops (79) have ensured after sales service, and last mile sustainability. What is very apparent is that technology adoption tipping points was achieved in 33 of 48 upazila (analogous to USA state county), which among other successes, demonstrated that the private sector remained motivated to invest on agricultural machinery and thus comprehends the market potential. The Government also recognizes CSISA MIs mechanization initiatives and continue to popularize agriculture mechanization in concert with the project. From an agronomic sustainable intensification stand point and in the interest of creating mechanization demand, we have unlocked potential production on fallow land by introducing annual triple cropping such as rice maize-wheat/mung bean-jute, as well as other vegetable commodities in rotation.

**Challenges:** CSISA MI, as with other programs in Bangladesh, found it difficult to involve women in machine-related activities, as this is a non-traditional profession for women. However, we have risen to the challenge and tripled participation rates in this last year. Related to this, is limited access to finance for many value chain actors (especially women), due to their inability to comply to credit worthiness criteria, as agriculture and related service sectors are not viewed as viable businesses by the formal banking sector. Agricultural mechanization in Bangladesh is decades behind developed nations, which in part can be contributed to inadequate machine quality (domestic and imported), untrained operators, limited manufacturing capacity, cultural norms, and climate and agronomic complexities. These complexities, such as inclement weather, negatively impacts Bangladesh's low-lying terrain and restricts adoption of cropping practices and related mechanization.

**Lessons Learned:** Agricultural machinery and its employment needs to be adapted to women users and should include business development skills to develop entrepreneurship in a very conservative society. Entrepreneurism is not restricted to marginalized groups as a way forward, mechanic recruitment and training is critical, as well as the creation of spare-parts shops to connect the value chain and create a functional after-sales service environment to ensure sustainability. Acute scarcity of agriculture labor and rising input costs were important drivers for the implementation of CSISA MI and they remain important motivators for farmers to mechanize through affordable agricultural service provision. However, mechanization for mechanization sake should be tempered with appropriate and tested machinery. Most harvesting machinery is not designed for waterlogged (muddy conditions) found in Bangladesh. Imported reapers and seeders need considerable modification and Combine Harvester type (size) and capability selection, is critical. To that and other ends, CSISA MI must remain nimble, adaptable and be able to pivot with the private sector and the changing mechanization landscape. Additionally, engagement with the high density of local NGOs to take forward the activities of MI, especially on the areas of promoting CA and facilitating LSPs to lead CA activities and mechanized agriculture is a key scaling ingredient.



# 1 INTRODUCTION

## 1.1 Background

The Cereal Systems Initiative for South Asia – Mechanization and Irrigation (CSISA MI) is a five-year (July 2013 – September 2018) project funded by USAID under its Feed the Future (FtF) initiative, solely operational in the Feed the Future (FtF) zone of Southern Bangladesh. After completion of its fifth year, the project was extended for another year (Oct'2018-Sept'2019). The International Maize and Wheat Improvement Centre (CIMMYT) leads this project in partnership with the International Development Enterprise (iDE). Through this partnership, CSISA MI transformed agriculture in rural Bangladesh by unlocking its potential productivity through increased adoption of agriculture

### **CSISA MI Core Program Activities**

- Promote innovative technologies
- Develop and strengthen local service provider network
- Leverage private sector investments to commercialize and scale agricultural technologies
- National Research entities and private sector engagement

mechanization technologies and services. By augmenting the local service provider network for machinery services it considerably strengthened the agriculture system to be more productive and profitable, with increased employment and entrepreneurship in the value chain.

CSISA MI focuses on commercial pathways and technical issues to achieve sustainable and scalable results. The dynamic project drives change by working with private sector actors and in collaboration with the Government of Bangladesh (GOB), primarily the Bangladesh Agricultural Research Institute (BARI) and the Department of Agricultural Extension (DAE).

CSISA MI adopted a collaborative learning and adaptive management approach in order to stay nimble and effective as the market for agricultural machinery evolves. In first six month of Year 6, CSISA MI has capitalised on reflection and adaption and continues to over-achieve in sales (107%) and adoption against targets for each of the technologies.

In Year 6 (Oct'18-March'19), CSISA MI management refocused on areas where cropping intensity and sales potential were considerable for all three technologies. During DIP and SWOT meetings in year 4, iDE and CIMMYT determine the final operational areas for the fifth year of the project. For year 6, streamlining the geographical coverage to focus on 49 Upazila (rather than the previous 105) in 16 districts (Annex 1) that had immediate and significant potential for mechanization development across the 3 field offices of Jashore, Faridpur and Barishal. The increase in sales of agricultural equipment and the willingness of the Joint Venture Agreement (JVA) partners (and others) to enhance imports and manufactured equipment locally, was a major indication of achievement of this project. This indicated that all market actors with direct and indirect project connections see the potential of these agriculture machines and technologies introduced by CSISA MI. Sales of agricultural machinery increased broadly through “crowding-in” and opportunities for LSPs to provide services to farmers expanded. This signified that the technologies introduced by CSISA MI were effective, generally profitable and were gaining in popularity, largely through a boost in crop production, especially during the winter season, when many farmers’ fields were usually fallowed.

Table 1: Sales of Agricultural Technology by Project Year

Technology	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
AFP	134	168	434	152	118	11	1,017
PTOS	72	101	233	410	597	438	1,851
Reaper	28	27	75	218	360	181	889
Total	234	296	742	780	1,075	630	3,757

## 1.2 Project Objectives and Operational Area

CSISA MI increases sustainable productivity by unlocking agricultural potential in 46 Upazila of 15 southern districts of Bangladesh (Figure 1) through increased adoption of improved irrigation and agriculture mechanization technologies and practices, delivered by an augmented local service provider network for machinery services. This was realized through three broad objectives:

**Strategic Objective 1:** To sustainably intensify and diversify agricultural production in Southern Bangladesh through surface water irrigation to increase household income.

CSISA MI promotes Axial Flow Pumps (AFPs), as well as other efficient surface water irrigation and conveyance machinery, and works to integrate them into local markets by building public private partnerships that address key components of the supply chain.

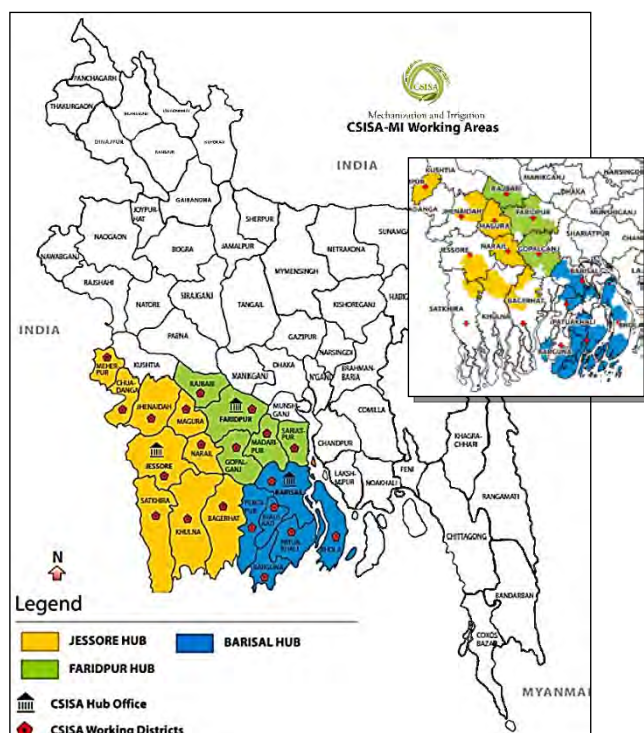


Figure 1: CSISA MI Geographical Coverage (inset: YR 5 coverage area)

works with public and private sector partners to promote their familiarity with machinery engineering, manufacturing, sales, distribution, and their use in the field. CSISA MI works closely with the key government stakeholders such as the Bangladesh Agricultural Research Institute (BARI), the Bangladesh Agricultural Development Corporation (BADC) and the Department of Agricultural Extension (DAE). The project was largely designed to build bridging capital in a way that Private Sector Partners (PSP) will play a key role (investment) to carry forward the project learnings and it's been evident that PSPs i.e. TML (Pvt) Ltd. have been playing a significant role, by operating CSISA MI style field office in selected sectors of the FiF Zone. Other PSPs like ACI, RFL, Janata Engineering, RK Metal, Alim Industries and many more outside the project, follow the project activities and promote similar technologies and implement skill development.

## 1.3 Project Management Approach

### 1.3.1 Project Management

The CSISA MI project falls under the umbrella of the larger multi-national CSISA program. Through increased use of adaptive management, CSISA MI has also been able to implement project activities effectively and efficiently, none more so in the last 2 years. This is based on USAID's adaptive management approach<sup>1</sup>, which is reflected as continuous and iterative and measured under the monitoring and results management (MRM) system. Using this approach, CSISA MI has more than stepped up coordination and communication between technical and field teams among CIMMYT and iDE. As a result, the scope of sharing observations and feedback from the field team to technical team is regular and simultaneously, enables CSISA MI to promptly generate consensus and speed the decision-making process. The internal feedback together with the MEL system (section 4.2.6), Salesforce

**Strategic Objective 2:** To sustainably transform agriculture in Southern Bangladesh through broad-based access to agricultural mechanization services.

Following the same comprehensive supply chain approach as in Strategic Objective 1, CSISA MI strategically collaborates with the private sector to introduce efficient technologies that enable farmers to cultivate successful dry season crops. CSISA MI further supports the supply chain for agricultural mechanization products by facilitating the development of targeted financial services.

**Strategic Objective 3:** To develop new models for public and private institutions to support irrigation and agricultural mechanization in Southern Bangladesh.

To assure the durability of strategic objectives 1 and 2, and to increase employment and entrepreneurship, CSISA MI

<sup>1</sup>USAID KDMD Project. 2013. "Learning about Learning: Lessons on Implementing a KM and Learning Project from the USAID KDMD Project: Adaptive Management," p. 2. USAID Learning Lab.

and Dashboards reports, feeds updated and tangible information to the CSISA MI team, providing informed decisions on required and prioritised adaptive measures.

CSISA MI operates three remote field offices under the leadership of a Field Office Coordinator (FOC) as the local CIMMYT representative. Early career scientists designated as Agricultural Development Officer (ADO) work directly with the farmers and LSPs by advising on agronomy and implementation of conservation agriculture. Agricultural Engineers designated as Machinery Development Officers (MDO) in each field office support both LSPs and Mechanics in machine operations and maintenance. The implementing partner organization iDE operates from the same field office structure through Field Coordinators who guide/manage market development activities locally. Farmers, LSP, Mechanics, input suppliers and machinery dealers are supported by Officers-Business Facilitation (OBF) and Business Development Manager (BDM) in each field office, in agriculture machinery business development, micro financing and awareness raising.

Partner NGOs (3 NGOs in 3 field offices) (TMSS, SDC and BDS) work under CIMMYT FOC to assist in implementation of all project activities at the field level. Technical Facilitators (TF) with Diplomas in Agriculture, facilitate various trainings, farmers' field day etc. The PNGOs assigned a CSISA MI Coordinator to guide the relevant TFs and coordinate day-to-day activities in the field and project planning phases. As the PNGO staff remained involved in the field during the peak seasons prior to mid-year, the field activities were successfully completed on time.

### 1.3.2 Basis of CSISA MI's Project Approach

CSISA MI's theory of change is partly built on Roger Everett's diffusion of innovation theory, which is based on the premise that innovation is communicated to market actors through the process of diffusion over time and that the adoption of a given technology is influenced by the innovation itself, communication channels, time and the social system.

Figure 2 shows a segmented bell curve and accompanying cumulative adoption distribution where the different categories of adopters are illustrated. Following an initial effort to build markets, as more people adopt the innovation, the total number of adopters increases at an exponential rate, producing an "s-curve" of adoption. There is a "tipping point" between the 15 and 20 % adoption rate, after which, diffusion of innovations is expected to spread independently or with less effort.

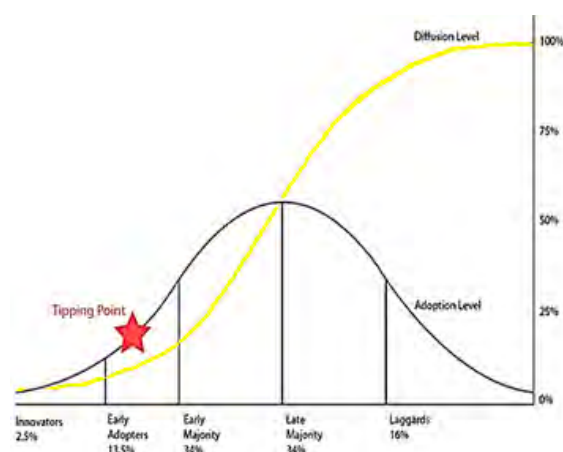


Figure 2: The distribution of innovation adoption patterns

Through "crowding-in and "CSISA MI project interventions this tipping point during year 6 appears achieved in most Upazila. CSISA MI recognizes that the tipping point requires qualitative changes to ensure the quantitative achievements, and that the tipping point may change with evolving market circumstances. Indications of qualitative changes include copying project activities by non-associated companies and service providers, "crowding-in" of these actors, and spontaneous adaptation and expansion of the business models that underlie the project's theory of change. These indications appear evident, especially when you see the same product on

display at the recent national agricultural fair by a broad number of others in the sector. By the same token, it also would appear that the project is successfully contributing to an environment that is scale-friendly. iDE coordinated post year 5 surveys in light of the framework of the MRM system and the survey revealed that in some of the key districts the tipping points have been surpassed.

## 2 RESULTS AND ACHIEVEMENTS

### 2.1 Overview

CSISA MI continues to achieve set targets for the sixth year (Oct'18-Sept'19). During the reporting period, special initiatives were undertaken well ahead to forecast the achievement against the target. As this is the last year for CSISA MI, the project rationalized its target to ensure the best possible closeout process. Since the fourth year, project has seen continuous growth against the all indicators. To achieve the sales target in the last year, at the onset of the season and following-up on low performing LSPs during the season, helped to surpass 5<sup>th</sup> and 6<sup>th</sup> year targets. Analysing the overall achievement, it would appear that PTOS services are heading toward sustainable scaling, while the use of AFP for dewatering the large fish ponds (ghers) to cultivate rice during winter, are also increasing day by day. The use of the reaper is moderate, but expanding, due to limited scope of operation under lesser cropping intensity this year, and in some cases due to higher machinery cost and adaptability.

Contributing factors to overall success in the reporting term include; the improved availability of agriculture machinery and spare parts, facilitating financial services from MFIs and the increasing presence of highly trained LSPs. Additionally, geo-specific targeting enabled us to focus on areas of greater potential for implementing the project, with a view to eclipse the theoretical tipping point well before the project end date. The “big wins” or tangible effort that builds the successes of CSISA MI are; our pre-existing experience with Bangladesh cropping systems, unlocking fallow land (double and triple cropping), developing machinery dealers from local machinery agricultural service providers and developing bridging capital through involvement and expansion of the private agricultural machinery sectors in the value chain (Figure 3).



Figure 3. The big wins underpinning the success of CSISA MI

CSISA MI's online database is now fully operational, which consistently supports the project through effective and efficient automated reporting (from near to real time data input). It also reveals scale and effectiveness to the management team through links to power map technology and GIS display, ensuring high quality graphic data and detailed tabulated reports. The data base quality is fully supported by the project MEL team inputs from continuous field monitoring and stringent validation protocols. The database is explained in detail in section 4.3.



*Sunita, a typical rural housewife living in Chamta village in Rajbari district, is now an aspiring entrepreneur owing to the support from her family and CSISA MI. Wanting to help her husband run the business, she bought a PTOS and currently provides service to the local farmers alongside him. Like Sunita, several other women in Rajbari district have transitioned into proficient LSPs with guidance and support from CSISA MI.*

*Photo: Rowshan Anis*



## 2.2 CSISA MI framework and USAID's FtF Indicators

The flow diagram (Figure 4) shows the logical sequence of the three strategic objectives described under section 1.2 and the associated intermediate results (IRs) based on USAID's FtF indicators.

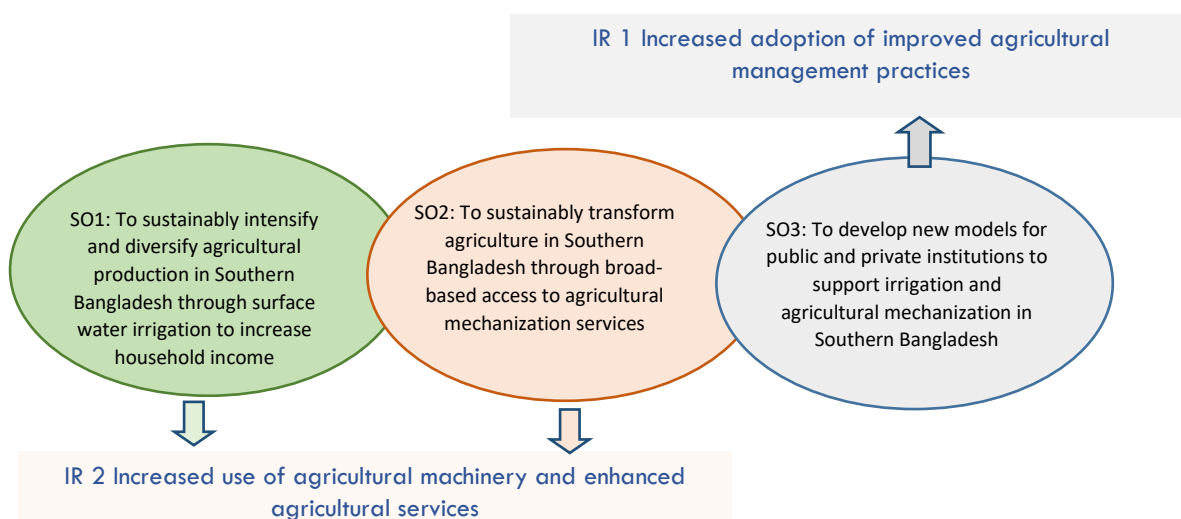


Figure 4: CSISA-MI's strategic objectives and associated FtF's Intermediate Results

To achieve the IRs towards increased on-farm productivity, CSISA MI has identified five major sub-IRs as stated above and shown in Figure 4. To achieve the results, based on the five Sub-IRs, CSISA MI reports on five FtF Indicators from USAID's indicator handbook, which are:

**EG.3.2-1** Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (Sub-IR1.1)

**EG.3.2-3** Number of micro, small, and medium enterprises (MSMEs), including farmers, receiving agricultural-related credit as a result of USG assistance (Sub-IR 2.4)

**EG.3.2-24 (EG.3.2-17)** Number of individuals in the agriculture system who have applied improved management practices or technologies with USG assistance [IM-level]

**EG.3.2-25 (EG.3.2-18)** Number of hectares under improved management practices or technologies with USG assistance [IM-level]

**EG.5.2-1:** Number of firms receiving USG-funded technical assistance for improving business performance (O)

In addition to these five indicators, CSISA MI also reports against one 'Custom' indicator: Value of private sector investment in agricultural machinery and equipment resulting from project intervention (IR 3), which deal with MSME and related interventions. The value of private sector investment is calculated from the sum of the total investment incurred by LSPs, machinery dealers, manufacturers and importers within a given reporting period. The strategic objectives and the associated indicators shown in the above diagram.

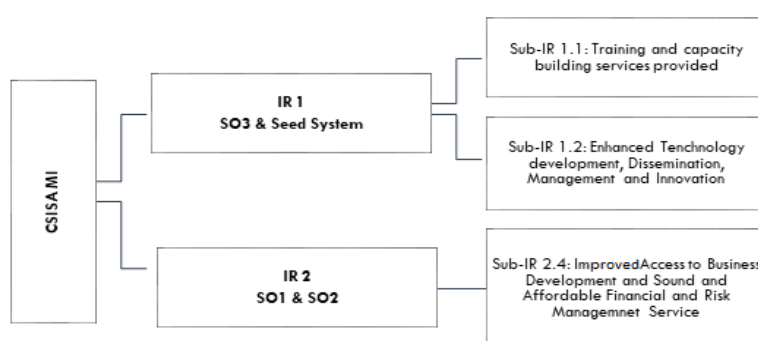


Figure 5: CSISA MI Intermediate Results (IR) and Sub-IRs

Project progress is mapped according to project target indicators based on the Feed the Future (FtF) indicators. Overall results are also based on the CSISA MI project-monitoring plan that was approved by USAID in December 2015 and further revised on April 2017. The two main outputs of CSISA MI's results framework include; (i) inclusive and sustainable agriculture-led economic growth and (ii) Increased employment and entrepreneurship.

The five years results highlighted CSISA MI's private sector engagement, which was boosted due to the increase in demand for innovative agricultural machinery services, which is also indicative of the current scaling success in year 6 (Oct 2018-March 2019) and the potential to scale-out further in the FtF zone, as evidenced by the increased rate of scaling in the last year. In general, with the exception of irrigation related indicators, the high achievement at the half-year mark (Table2), suggest the project is progressing very well and on target.

Table 2: Summary of CSISA MI's results by FtF Indicator

	Core Indicator	Description	Year-1	Year-2	Year-3	Year 4	Year 5	Year 6 (1 <sup>st</sup> Sem.)	Year6 Target	%
SO 3 Sub-IR 1.1	New indicator number EG.3.2-1 Number of individuals who have received USG supported short-term agricultural sector productivity or food security training	Producer	4,765	693	10,053	9,070	8,847	3,585	4,793	75
		Government Staff	16	128	275	91				
		Private sector	889	1,285	1,689	968	550	369	610	60
		Civil society <sup>2</sup>	139	87	351	149	20	39	120	33
		<b>Total</b>	<b>5,809</b>	<b>2,193</b>	<b>12,368</b>	<b>10,278</b>	<b>9,413</b>	<b>3,993</b>	<b>5,523</b>	<b>72</b>
SO 1 & SO 2 Sub-IR 2.4	EG.3.2-3 Number of micro, small, and medium enterprises (MSMEs), including farmers, receiving agricultural-related credit as a result of USG assistance	Number				91	85	52	48	108
SO 1 & SO 2 Sub-IR 1.1	EG.3.2-24 (EG.3.2-17) Number of individuals in the agriculture system who have applied improved management practices or technologies with USG assistance	Irrigation (Water Conveyance)				9,201	12,231	9,405	7,500	125
		Others (Land Preparation and Planting & Harvesting and Post Harvesting)	9,073	12,939	39,975	33,836	96,418	85,256	68,625	124
		<b>Total</b>	<b>9,073</b>	<b>12,939</b>	<b>39,975</b>	<b>43,037</b>	<b>108,649</b>	<b>94,661</b>	<b>76,125</b>	<b>124</b>
SO 1 & SO 2 Sub-IR 1.2	EG.3.2-25 (EG.3.2-18) Number of hectares under improved management practices or technologies with USG assistance	Irrigation	3,584	5,726	19,287	7,192.65	13,573	3,638.81	7,700	47
		Others				14,005.5	37,581	31,058.05	27,300	114
		<b>Total</b>	<b>3,584</b>	<b>5,726</b>	<b>19,287</b>	<b>21,198</b>	<b>51,154</b>	<b>34,696.86</b>	<b>35,000</b>	<b>99.13</b>
SO 1 & SO 2 Sub-IR 2.4	EG.5.2-1: Number of firms receiving USG-funded technical assistance to improve business performance (O)	Formal (Dealer)	45	43	32	31	30	11	15	73
		Informal (LSPs)	229	256	707	673	1,019	607	565	107
		Medium Enterprises (Importer/Manufacturer)	2	3	5					
		<b>Total</b>	<b>276</b>	<b>302</b>	<b>744</b>	<b>704</b>	<b>1,049</b>	<b>618</b>	<b>580</b>	<b>106</b>
SO 1 & SO 2 IR 3	Custom: Value of private sector investment in agricultural machinery and equipment resulting from project interventions (USD <sup>3</sup> )	Water Conveyance	327,975	80,861	83,375	29,126	10,921	643	311,850	.02%
		Land Preparation and Planting	252,902	95,830	124,530	225,863	248,659	98,659	219,608	45%
		Harvesting and Post Harvesting	229,191	42,815	373,565	502,275	3,430,732	540,214	219,608	246%
		<b>Total</b>	<b>835,934</b>	<b>264,988</b>	<b>701,482</b>	<b>757,968</b>	<b>3,690,312</b>	<b>639,516</b>	<b>751,066</b>	<b>85%</b>

<sup>2</sup> NGO representative, Local Elite, CBOs, CSOs, Research organizations' representative and School teacher are considered as civil Society

<sup>3</sup> 1 USD= BDT 84

## 2.3 Progress by Indicator

### 2.3.1 Indicator EG.3.2-1

**Number of individuals who have received USG supported short-term, agricultural sector productivity or food security training (Sub-IR1.1)**

# 72%

Targeted persons trained

CSISA MI provides business management training, operation-maintenance and troubleshooting training to LSPs and mechanics' skill development training to increase the skill of local technicians. This ensures adequate repairing and troubleshooting services within LSP service areas. While farmers, GoB staff and civil society also receive appropriate training according to their needs, training remains key to knowledge transfer for CSISA MI across the working area. Field Days also influenced a significant role in communities and groups to promote conservation agriculture and demonstrate the new technologies. Project has provided training to 3,993 individuals (72% of target) in reporting year and more than 44,000 individuals against 40,066 for its entire tenure. The training achievement against target is above expectation. The activities under this indicator outlined previously contribute to increased awareness, enhancing business and technical skills as required by the various market actors in the agricultural machinery value chain. Increasing numbers of farmers who live adjacent to the project demonstrations have pro-actively joined mechanized sowing, irrigation, and harvesting training

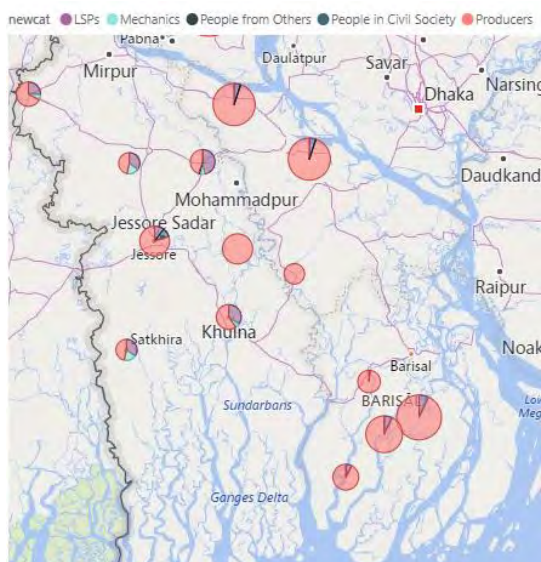


Figure 6: CSISA MI training activities

events this year. Among the 3,993 training recipients (single individual counts), 33% were women. Technology promotion and demonstration training organized at rural level found that farmers enthusiastically participated, and were usually disaggregated, males were at 90% and females 10%, but this year we observed the female participation rate increased significantly, as the events were organized near to target farms and based on household objectives.

Due to the enhanced interest in the use of mechanised land preparation, irrigation and harvesting by farmers' broadly, CSISA MI, in response, increased training for private sector partners, so that they can meet demand. In fact, the private sector (Alim Industries) requested CSISA MI to conduct training for the trainer of their staff. In addition, all training modules are under final revision in preparation for publishing for an international audience. The project has intensively extended training to 369 private sector actors i.e. LSPs, mechanics etc. against target of 610. In addition, training of 39 participants from civil society against the target 120 and 3,585 farmers against the 4,793 target, gave an overall achievement of 72% for Year 6 (Oct'18-March'19).

Training is stimulating uptake and utilisation of new agricultural technologies. In the reporting period, the project provided training to around four thousand farmers (33% women) across a well targeted geographical area. The training targets for Y6 focused on Conservation Agriculture (CA) for LSPs and Farmers, so that the LSPs can advance these type of services (farming practices) to farmers and they in turn were able to understand the benefits of CA. These efforts increased and aggregated demand for machinery services and positioned LSPs to capture additional business, which appears well balanced across the operational area (equivalent numbers from each hub).

### 2.3.2 Indicator EG.3.2-3

#### Number of micro, small, and medium enterprises (MSMEs), including farmers, receiving agricultural-related credit as a result of USG assistance (Sub-IR 2.4)

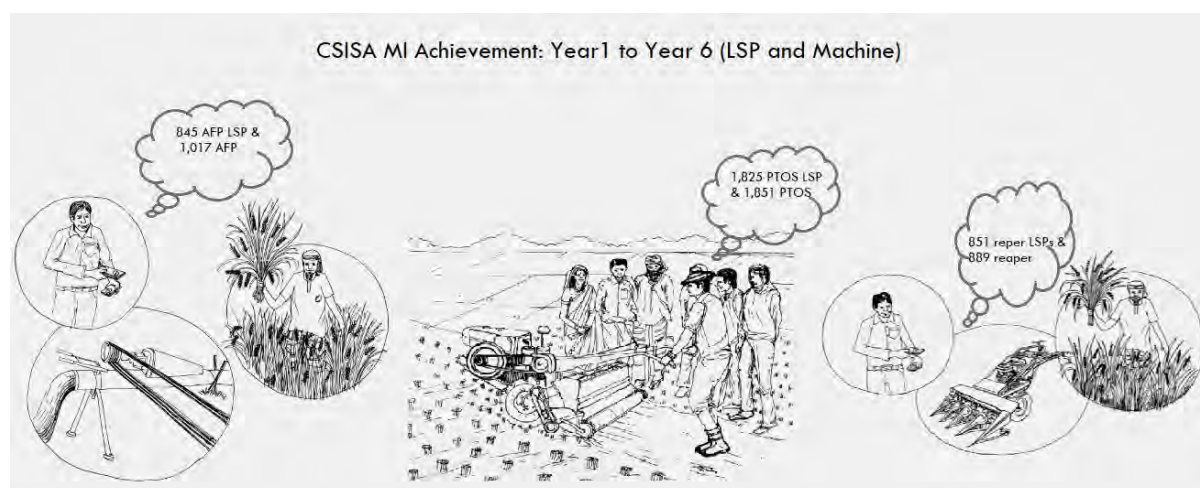
# 108%

Targeted MSME received credit

CSISA MI has reported this indicator since its fourth year of implementation to estimate the accessibility of LSPs' to finance from project initiatives through the MFIs. For year 6, a total 48 LSPs were expected to take loans to purchase agriculture machineries. Availability of credit at the time of machine purchase was crucial to LSPs seeking financial support. The Project established linkages between LSPs and MFIs to ensure availability of financial services.

In the reporting year, total 52 LSPs received USD<sup>4</sup> 60,809 for 52 machines against a yearly target of 48, which was 108% of the annual target, of these; twelve women LSPs received USD 18,095 during the reporting period. The total amount was 20% higher than last year's total, this was an indication that MFIs are increasing their credit support to mechanization. In this reporting period, total USD 45,800 (75%) credit received by reaper LSPs and PTOS service providers received the rest, USD 15,000 (25%). This indicates the mechanized harvesting is increasing in popularity among the farmers. ASA has provided credit to 13 LSP but in terms of value, BRAC is on top, with a distributed amount around USD 10,000. Besides the MFIs, private sector companies/manufacturers also provided machinery on credit. This process helps the LSPs in terms of refunding the money from their earnings. Among the formal banks, Krishi Bank Ltd provided credit to 4 LSPs with a total USD 5,700. Among the other MFIs, Grameen Bank, AID Foundation, WAVE foundation, Dhaka Ahsania Mission GJUK, JCF were mentionable.

CSISA MI's Access to Finance (A2F) activities facilitate access to credit and the processes by orientating MFI staff to the project and by enhancing their capacity to support value chain actors. Through "Krishi Machine Porichiti (KMP)" and "Sombhabbo Kreta Somabesh (SKS)" activities, the project identifies and enrolls potential LSPs who are seeking financial services with the MFIs and links them to the Partner NGO MFI. These initiate the formal line of credit process. LSPs provided with Business Development Training and financial planning support their access to credit. Linkage meetings in the presence of Dealers, MFIs and LSPs smooth the entire process.



<sup>4</sup> 1 USD= BDT 84



### 2.3.3 Indicator EG.3.2-24 (EG.3.2-17)

#### Number of farmers and others who have applied new technologies or management practices as a result of USG assistance (Sub-IR1.1)

**124%**

Targeted farmers  
applied new  
technology

Since the inception of the CSISA MI, capacity building of LSPs' to enhance agricultural service across the FtF zone was the prime objective. Over the period, more than 213,000 of farmers have received mechanized services for their agricultural production from LSP supported by the project. In year 6 (Oct'18-March'19), project LSPs have served more than 94,000 farmers against the target 76,125. The achievement is much higher than the expectation, somewhat due to onion farmers who are using more mechanized land preparation to reduce land preparation costs. At the same time, large gher (large water body to cultivate fish in rainy and rice

at winter), owners are using axial flow pump to dewatering their land for paddy cultivation. Although the axial flow pumps are lagging in sales and local manufacturers are not producing them due to low quality raw material and reduced demand, but the existing machines are still performing satisfactorily. Both farmers and LSPs are happy with the performance of the machine, as they are economically viable. Rice farmers were only reported under mechanized reaping technology, as wheat cut data is not included in this reporting period. Total 2,107 LSPs were active among the total 3,474 LSPs.

In 2013-2014, project involved only 229 LSPs and reached 9,000 farmers and 3,500 ha. But at the end of first semester of year 6 total 3,474 LSPs serviced more than 308,000 farmers on more than 135,000 ha (Figure 7). This data shows that machine use growth in crop production and harvesting is increasing rapidly and following project closure, this growth is expected to continue as farmers awareness increases with agricultural mechanisation development.

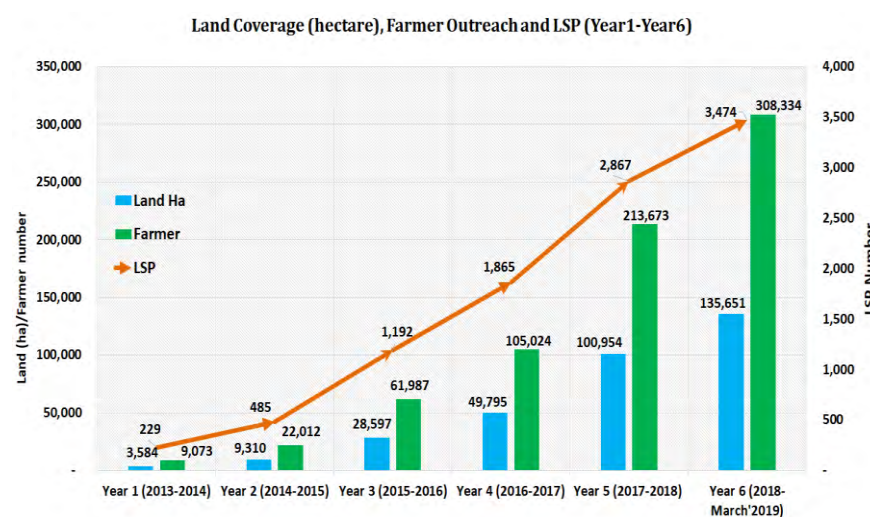


Figure 7: Land coverage (hectare), farmer outreach and LSP developed (Year 1 - Year 6)

In the previous year, the overall achievement against this indicator was 86.25%, however in this year the achievement was 124%. Achievement is higher due to the increased number of active LSP, and thus more farmers are receiving benefits of mechanized land preparation and harvesting. Mini and medium combine harvester are also becoming available in the FtF zone. Farmers are increasingly aware and interested in mechanized land preparation and harvesting as they address the acute shortage of agricultural labour.

#### 2.3.4 Indicator EG.3.2-25 (EG.3.2-18)

##### Number of hectares under improved technologies or management practices as a result of USG assistance (Sub-IR 1.2)

New technology applied on

99%

Targeted land

CSISA MI researched and developed suitable agricultural machineries, which were introduced and marketed in the southern part of Bangladesh. These include the fuel-efficient axial flow pump (AFP) for conveyancing surface water, Power Tiller Operated Seeders (PTOS) suitable for mechanized land preparation, sowing and basal fertilizing, and a multi-crop Reaper (and newly introduced Mini and medium combine harvesters) for mechanized harvesting.

Against annual target area of 35,000 ha, the project achieved 99%.

The growth curve of land coverage is inspiring and indicates the growth sustainability of mechanization in agriculture. In upcoming years, increasing labor scarcity will further boost the use of machinery in agriculture, saving money and time during land preparation and harvesting against the constraints of climate change. In the recent times, the project has observed commercial expansion of mechanized fleet service provision in Kustia and Gopalganj; where the entrepreneurs are using several machine

sets to service farmers across the country. In the beginning of the project, the number of LSP was extremely low, as a result, awareness and usefulness of mechanized land preparation/harvesting was not adequate among farmers.

However, as LSP numbers grew, the service provision radius also increased. In this reporting year, the project identified more than 2,100 machine provided services to farmers and thus 34,697 ha land were brought under improved technologies or management practices, especially as the private sector increases their investment in agriculture machinery. The project has facilitated 3,474 LSPs with a total 3,757 machines to sell their services among the farmers. The density of machines across the FTF zone facilitated by CSISA MI is shown in Figure 8. Rice, onion, maize lentil and wheat are the main crops where the mechanized irrigation, land preparation and harvesting technologies are applied. The project estimated a total of 157,608 ha land that was brought under mechanized services from year 1 to year 6, which included 35,645 ha at the end of first half of year 6, that came under mechanized irrigation, land preparation and harvesting service. This is 86% of the total target. Through these agricultural services, LSPs have generated almost USD 9,000,000 and thus expanded self-employment opportunities across the zone and beyond.

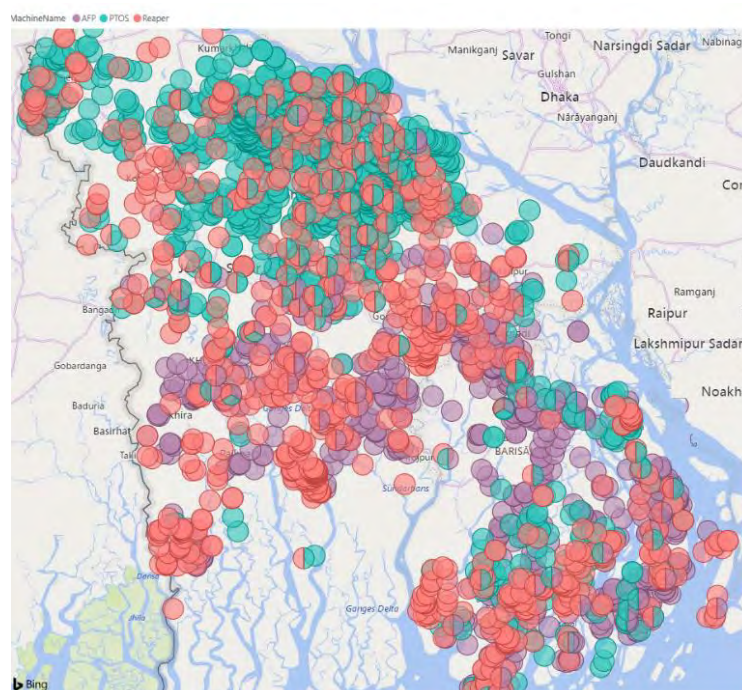


Figure 8: Location and relative size of agricultural machinery sales (AFP, PTOS and Reaper) in the FTF zone Southern Bangladesh

### 2.3.5 Indicator EG.5.2-1

#### Number of firms receiving USG-funded technical assistance for improving business performance (Sub-IR 2.4)

# 107%

Targeted firms received technical assistance for improving business

The project has supported 618 firms in this reporting semester of year 6 by technically assisting 607 informal firms (LSPs) and 11 formal firms, mainly agro-machinery dealers. The project developed and provided training to 3,474 LSPs and facilitated the purchase of agricultural machinery, who then serviced more than 308,000 farmers on more than 135,000 ha. To support and ensure the availability of machinery, the project engaged agro-machinery dealers and importers and/or manufacturers classified as formal firms in the agricultural value chain.

CSISA MI conducted in excess of 73 local level market events, e.g. Krishi Machine Porichiti (KMP) to increase awareness of agricultural machinery, which was followed up with Shombhabbo Kreta Somabesh (SKS) to persuade potential buyers (LSPs).

In addition to these events, CSISA MI conducted a range of other activities (visits, meetings, demonstrations, and training, FFD etc.) in order to popularize agricultural machinery and create demand. It attracted potential buyers and created awareness of USG funded CSISA MI promoted agriculture machineries among various market actors, the intervention strategy resulted in exceeding the annual target by 7% and a considerable number of associated machinery sales, which exceeded those for this time last year, especially for the PTOS.

The KMP and SKS events attracted more than 1800 participants, among which 85% were female, resulting from special initiatives to encourage more woman to be involved in agriculture mechanization sector.

The size and distribution pattern of sales across all hubs was dependent on crop type, seasonal activity and geographical location. The AFP for example, was generally restricted to Barishal in the Southern sector, where water conveyancing is the main activity. Whereas the PTOS is popular in the Northern Sector, covering the Faridpur and Jashore field offices. During this reporting period, the project developed 607 LSPs across the three technologies, who purchased 617 machines. Faridpur hub developed total 237 LSPs, Jashore 227 LSPs while the rest, 143 were developed by the Barishal office in the reporting year.

Of the 3,474 LSP, eight have all three types of machinery and 39 LSPs have at least two types of the technology. Overall the project has promote a total of 1,017 AFP, 1,851 PTOS and 889 reaper over the year. Although, in earlier years, the AFP was the top selling product, it has declined due to quality and availability issues. The PTOS is rapidly exceeding expectations however; and additionally our private sector partners and other companies are investing more into mini, medium and large combine harvesters.

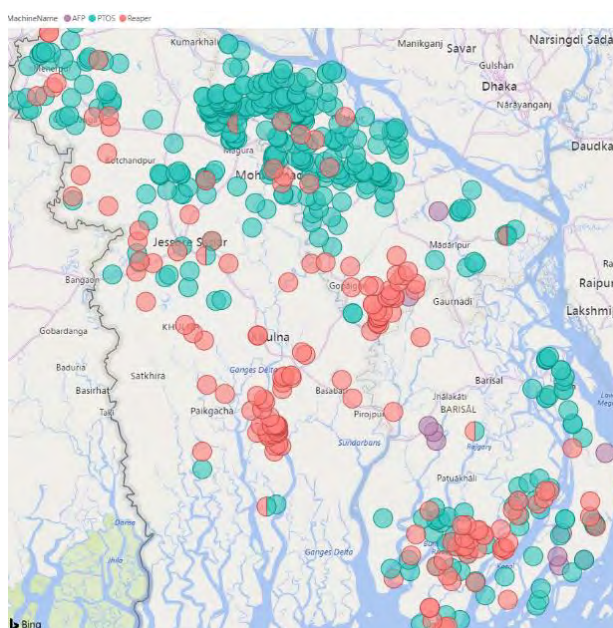


Figure 9: Year 6 technology wise LSP location



### 2.3.6 Custom Indicator

#### Value of private sector investment in agricultural machinery and equipment resulting from project interventions

Private Sector invested

85%

of year 6 target for  
agricultural machinery

Private sector investment was key in assessing impact and potential post-project sustainability of CSISA MI, which stands at USD 640,000 in this semester. In FY 5, total private sectors' investment was USD 3,700,000 but with large residual inventories thus, the investment is lower in this year. Despite variability in market demand for agricultural machinery, private sector investment continues because of CSISA MI's transformative efforts. Overall, progress towards this indicator shows that the project has been able to motivate and engage private sector partners through financial investment, resulting in the expanded use of CSISA MI supported scale-appropriate machinery.

For the reporting period, private sector investment achieved around USD 639,000. Like last year, the largest investment was in harvesting and post-harvesting technology at around USD 540,000. The majority of which came from ACI Motors, who invested reasonably with USD 308,571 in FtF zone and more than USD 2,500,000 across the rest of the country (shown in Figure 10: Private Sector' Investment FtF Zone vs Non FtF Impact Zone). Similarly, Alim Industries invested USD 45,000 in the FtF zone, while more than USD 133,000 was invested

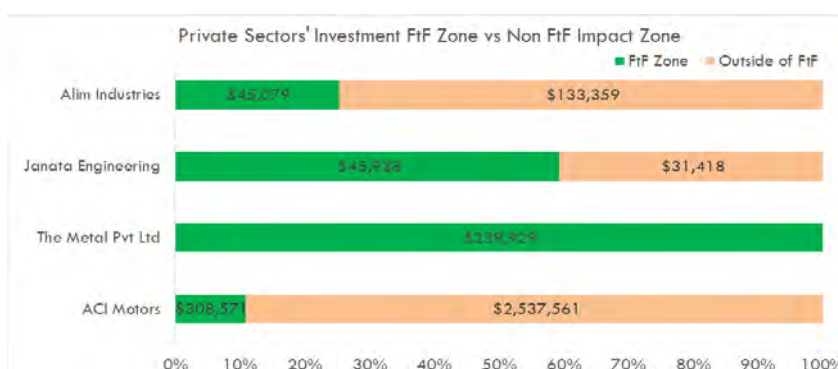


Figure 10: Private Sectors' Investment: FtF zone vs Non FtF zone

outside the FtF area. The Metal limited as one of our closest partners, most of their investments were applied to the FtF Zone at near USD 240,000. An investment of USD 2,700,000 gives a strong indication that the promoted technology is being well scaled across the FtF zone and the rest of the country. Unfortunately, investment in water conveyance technology (AFP) was only USD 643 by The Metal Ltd., and it is this technology is facing challenges with quality inputs and consequently demand issues. CSISA MI, local industry and other USAID implementing partners are addressing the local manufacturing quality issues. The project is supporting this new industry and local manufacturers like RK Metal are manufacturing AFPs at a limited scale as the issues are solved. However, sourcing quality raw materials is the greatest challenge for this fledgling AFP production. Although, the AFP service recipients and LSPs are very happy with the cost effectiveness and performance of the machine, quality and longevity is still a concern for them. CSISA MI has instituted training for pump setup procedures and maintenance, and is resolving spare-parts issues with local manufacturing (RK Metal) with a view to stimulate sales and services for the AFP. During reporting year, CSISA MI LSPs invested over USD 579,863 to purchase 617 machines. The field office wise investment as described previously is linked to crop type and geographical location. For example, AFP sales predominate in the coastal area of Barishal, while PTOS and Reaper sales are associated are very popular in Rajbari and Faridpur districts cropping areas, where farmers regularly use it to plant rice, maize, wheat, jute, lentil, mustard, canola, onion etc. LSPs and farmers alike recognise the benefits of "line-sowing" especially in jute fields and other high value cropping (sesame). Private sector investment also indicates that the multi-crop technologies remain beneficial and the private sector continues to accept the financial risk associated with promoting scaling. The project facilitated financial services (A2F) with MFLs to ensure smooth and future investment. Thus, our scaling efforts are driving mechanised cropping hence boosting private sector investment. CSISA MI works closely with importers, dealers on the supply and demand side to ensure quality products are entering the production system. Moreover, the project is also facilitating and ensuring after sales services for LSPs, as well as making spare parts available through 89 shops and repair services (762 workshops/mechanics) created in and around the "last mile".

One of our partners, RFL did not import in the reporting period as they have sufficient stock, at the same time they have stopped marketing the AFP due to quality issues which relate to the importation of inferior equipment and an inability to satisfactorily recondition them. As demand remained in the field, CSISA MI continued to support local investment in manufacturing, modification (warning sensors) spare parts availability and market development activities around the AFP. By adapting to meet the new reality of reduced imports, opportunities to promote and build AFP local manufacturing capacity at RK Metal and The Metal limited, has been filling some of the market demand.

Although CSISA MI's activities to increase employment and entrepreneurship have dramatically increased reaper sales since year two. Further efforts (re-engineering, re-purposing, operator accessories) during reporting period and continuing, will ensure that reapers are more appealing, marketable and efficient. Increasing LSP ownership has reduced harvesting costs to farmers and removing small grain

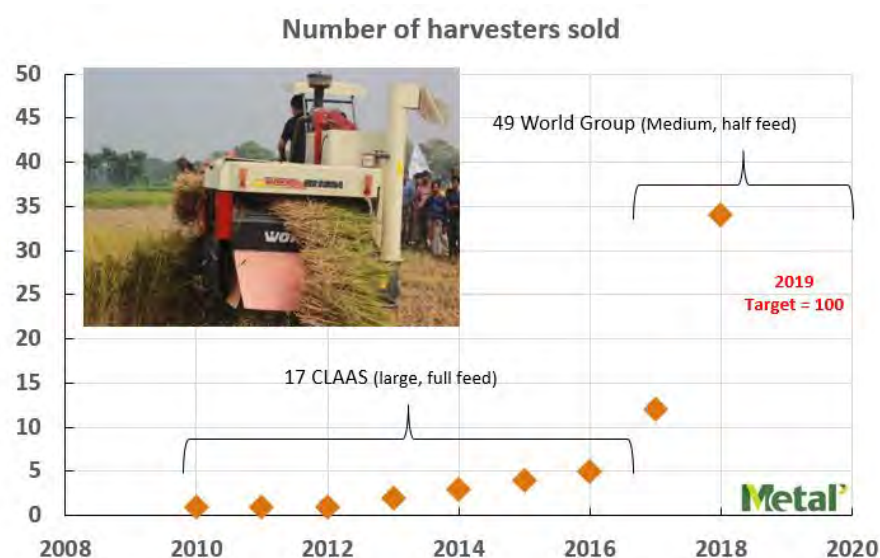


Figure 11 Importation and sales of Combine harvesters by TML

crops faster with less effort now includes jute. Apart from the issues surrounding the AFP, the other investments on PTOS and Reaper are well aligned with the targets and will continue to accelerate as we improve the products and strengthen the value chain that supports it. The private sector (TML, ACI, Alim) is gaining interest in importing medium combine harvesters in this reporting year (Figure 11), which comes from farmers' demand and CSISA MI's demonstration activities of the K Bos medium multi crop combine harvester. Timely harvesting by modern combine harvesters with excellent floatation are essential under monsoon conditions and muddy fields, which will continue to drive investment and agricultural mechanisation development.

### 3 PROJECT MANAGEMENT

CSISA MI project management has continued to utilize an adaptive management approach by rotating staff, stepping-up communication among CIMMYT and iDE, reviewing and streamlining geographical coverage, drafting future project implementation plans and implementing internal learning workshops. For example, based on the geographical coverage and cropping intensity assessment, operations in remote and isolated Bhola were suspended, and the staff were transferred to Faridpur. Despite all the financial uncertainties, CIMMYT continues Year 6 along with iDE and 3 other PNGOs including TMSS in Jashore, SDC in Faridpur and BDS in Barishal field offices. Recently a senior ADO was promoted to Field Office coordinator at Faridpur field office and will remain in this position for the remainder of CSISA MI phase I. CIMMYT recently hired two project assistants to the wider CSISA program, their work has proven to be extremely useful to the management of the MI project especially in the area of logistics, administration, planning and coordination.

#### 3.1 CIMMYT-iDE Coordination

CSISA MI project activities are jointly implemented by CIMMYT and partner iDE in all the working areas as defined in the Detailed Implementation Plan (DIP). All the operational areas were selected based on joint review by both CIMMYT and iDE while the PNGOs were also equally contributing with

the harmonized prioritization of activities of DAE, fixed target through series of team meetings for year 6. Under the guidance of the CSISA MI management team, the coordination and cooperation between all project partners in the field offices has been stepped up enormously especially through revised feedback mechanisms and reporting, which has created a positive boost in activity and stakeholder engagement. Revitalised rotating bi-monthly learning workshops at the field office level have increased interaction among field level staff, GoB agencies, PNGOs, specialists and private partners. Bi-monthly meetings are held at alternate field offices, and have been extremely effective in adapting by providing feedback, discussion challenges, taking opportunities, strategizing and developing staff capacity.

Fortnightly coordination meetings between iDE, USAID AOR and CSISA MI continue to be effective in maintaining relationships, continuity, reflection and addressing challenges. This has improved project delivery and as such interaction has proved useful to address issues and strategize. Although Year 5 was extremely challenging year for the project due to fund uncertainty, it taught us a great deal about refocussing for greater gain and relationship strength. Therefore once funding became available, the project was able to reboot activities at full pace, which was reflected in the Year 6 results.

### 3.2 Staffing

As Dr. D. B. Pandit reached his retirement age, he was replaced by one existing Senior ADO to take over the responsibilities as Interim Field Office Coordinator in Faridpur. However, Dr. Pandit has been retained as Senior Technical Coordinator as a National Consultant in CIMMYT. Unfortunately, some very effective staff (MEL, Machinery Development Officers), have left to pursue careers elsewhere, However all reports (Agricultural Fair, Feb 2019) suggest they are doing very well in their new positions. CSISA MI remains active in recruiting with a dual view of current activities and new directions in future programming. This will add pressure on the existing staff, but necessary to offer job security to those that remain and upskilling for new and existing staff. In terms of our partners, iDE has had some turn over in MEL, Communications, and Business Development Officers, where the latter are now in the Private sector performing well and selling agricultural machinery.

### 3.3 Geography and Coverage

To support machinery commercialization more effectively in Year 5, CSISA MI refocused to areas where activities would have the greatest impact. This re-targeting of effort resulted in significant and



USAID team of Thomas Pope, Patricia Orlowitz, Aniruddha Hom Roy and Nazmul Bhuiyan visited the CSISA MI activities in Jashore on December 18, 2018. Photo: Shahidul

effective change in the results achievement in the last 6 months. CSISA MI has continued to revise the geographical targeting to strengthen inclusive agriculture systems around the FtF zone. Improved impact was achieved through a surgical approach and a synergy of efforts to increase sustainable productivity. During the DIP preparatory work during year 4, CIMMYT and iDE M&E teams gathered sales and intervention data from the MRM system and utilising “CSISA MI M&E Database” by conducting a mapping exercise where the number of *upazilas* were logically reduced from 105 to 69 in 19 districts.

However, the mapping exercise was based

the period of financial constraints, the project further streamlined activities to 16 districts and 49 upazila for implementation activities in years 5/6.

### 3.4 Detailed Implementation Plan (DIP)

The “Detailed Implementation Plan (DIP)” planning for Year 6 (2019) was conducted through series of participatory workshops and planning meetings, a practice that was developed in year 5; whereas in previous years it was completed through a top down approach over a 3-day workshop. The management consider this previous approach limited creative thinking and was not inclusive of those that interacted directly with beneficiaries. The planning series commenced with a project team meeting, prioritizing the tasks and field requirement considering the project exit in year 6. The analysis of the project’s key activities, brainstorming canvas exercises clearly identify challenges and mapped a vision, and with a consecutive series of stakeholder consultations and internal workshops with project staff, CSISA MI developed the strategy for Y6. The primary areas of focus of this year’s DIP were:



Figure 12: The Big 6 intervention pathways for implementation and focusing on demand creation

- Exit strategy and sustainability beyond the project;
- Fully transferring the responsibility for generating sales over to the private sector;
- Promoting availability of commercial service provision for the farmers; ensuring the availability of machines in project working areas;
- Improved manufacturing and distribution channels across the project areas;
- Capacity building strategy for LSPs and market actors

A final round of DIP Finalization meetings held on end of September 2018 completed the activities schedule and budgets, which was declared as very successful. The inclusive participatory approach with staff from all levels, including the partners and GoB invoked ownership of the intervention activities and instilled enthusiasm for the initiatives for year 6.

Given the success of year 5’s intervention prioritisation, the DIP continued with the six intervention pathways, nominated as the big six (Figure 6):

- Intervention Area 1: Strengthening Value/Supply Chain for Agriculture machinery
- Intervention Area 2: Access to Finance
- Intervention Area 3: Conservation Agriculture
- Intervention Area 4: Networking and Capacity Building
- Intervention Area 5: Technology Adaption and Manufacturing
- Intervention Area 6: Public-Private Development Partnership

## 4 PUBLIC-PRIVATE SECTOR ENGAGEMENT

The proper alignment of incentives can create a virtuous cycle that has a positive spiral effect between supply and demand. With this incentive in mind, and an eye on the constraints and opportunities within the market, CSISA MI continued to facilitate development within the private, public, and development sectors and support services that were connected to the agricultural machinery market. To understand how the market was evolving, CSISA MI utilized a monitoring and results measurement (MRM) system and a scaling scanner to analyse spatial and temporal scaling and impact. The market systems development approach used by CSISA MI considered incentive structures within a system:



- For the private sector companies and their dealers, profit and brand value should increase as a result of target machinery sales;
- For the local services providers (LSPs), profit and social capital should increase as a result of buying the target machinery and using it to provide services to farmers as a business;
- For the farmers, the purchase of mechanization services from LSPs should decrease the cost of farming, increase productivity, and/or provide other agronomic benefits;
- For the government, public value – such as food security and the economy - should grow as the market system for agricultural machinery develops.

The following subsections describe CSISA MI's private sector engagement, public sector engagement, supporting services work, and MRM system over the past year.

## 4.1 Public Sector Engagement

CSISA MI works broadly with government agencies to 1) endorse, promote and technically advice appropriate technologies in agricultural machinery to the farmers and 2) conduct research to evaluate and develop machinery suitable to the project area.

GoB is providing subsidies for selected agricultural machinery in selected areas through Department of Agricultural Extension (DAE). The subsidies for the selected machinery were 50% for most of the country. GOB-DAE increased subsidies from 50-70% for selected coastal and haor areas/districts and for particular machine types, but the number of subsidies remain limited. This has created significant enthusiasm amongst importers, dealers, local mechanics, workshops and spare parts shop owner and farmers, which is anticipated to accelerate growth of the agricultural machinery market in Bangladesh.

The boost in sales of mini combine harvesters, in particular, has been largely driven by the provision of GOB subsidies. Many private sector companies especially ACI, have taken considerable advantage of the subsidies, but so to have DAE by setting up a number of mechanization villages with heavily subsidized machinery. CSISA MI has also taken advantage of these villages by working closely with the farmers groups organized by DAE associated farmers IPM clubs and others to build their capacity in machine operations, business development and mechanized agronomic service provision. However, on the negative side, the subsidies dis-incentivize LSPs to proactively build their client database. CSISA MI jointly with DAE conducted several events workshops, fair, policy dialogue and other promotional activities successfully, which has also created a significant enthusiasm among the concern stakeholders. A very good professional relationship has been developed with the public-private partners through knowledge sharing and joint venture programs.



CSISA MI participated in the National Agro Mechanization Fair 2019, organized by DAE during 25-27 April in Dhaka. Agriculture Minister Dr. Abdur Razzak visited the stall and was briefed by the Project Leader A. D. McHugh about the project activities.

Photo: P. K. Malo

At the field office level, i.e. upazila and district level, CSISA MI engages key DAE officials (Deputy Directors, District Training Officers and Upazila Agriculture Officers) to participate in various activities, such as project stakeholder workshops, Farmer Field Days (FFD), farmers/LSPs training, demonstrations, as well as awareness and demand creation events and linkage meetings with MSMEs. This has helped the project gain a better understanding and endorsement from GoB officials. CSISA MI in turn has actively participated in agriculture fairs at Upazila and District levels organized by DAE and have received awards based on the performance demonstrated by CSISA MI technologies. CSISA MI is also closely working with DAE's Farm Mechanization Project, which enhances the promotion of agricultural machinery in the project areas.



At the national level, CSISA MI advocates a project collaborative approach and clear objectives with key government departments and ministries, including but not restricted to; Bangladesh Agriculture Research Institute (BARI), Department of Agriculture Extension (DAE), Ministry of Agriculture (MoA), Bangladesh Agriculture Research Council (BARC), Bangladesh Agricultural Development Corporation (BADC), the Bangladesh Wheat and Maize Research Institute (BWMRI), Bangladesh Rice Research Institute (BRRI) and the South Asia Agricultural Research Council (SAARC).

CSISA MI continues a long standing working relationship with BARI with equipment development, testing and trials. BARI staff also take an active role in intensive training i.e. support to Alim Industry's staff training.

A new subgrant was developed between CSISA MI and BARI that will provide mechanical and senior engineering service to the project. but remains on hold for the time being. Despite this setback, support is often just an email away.

## 4.2 Private Sector Engagement

As part of CSISA-MI's exit plan, the project sought to see sustainability in technology commercialization, led by the private sector. The value chain of the project-promoted technologies has improved beyond expectations over the life of the project. In the extension phase, the project continued to focus on working with manufacturers and importers to improve AFP product quality and to build and reinforce sustainable supply chains for PTOS, reaper and mini-combine harvesters. The team has observed significant change in build quality and the range of other mechanization products from our partners, due to their exposure to the project and other possibilities. Activities related to this intervention focused on a final round of capacity building for private sector partners so that they could identify the best areas for geographic business expansion, as well as expand and build their own local networks of dealers, mechanics, retailers, and spare parts suppliers to support commercialization of their particular product lines.

**Market Facilitation:** CSISA MI had developed over 3,400 LSPs over the course of the project and as a rule of thumb each entrepreneur creates 7 other jobs. However, as with any group of entrepreneurs, some LSP were performing better than others. Major reasons for low performance included lack of knowledge on the market, factors in the enabling environment (i.e. access to spare parts, mechanics, etc.) lack of functional linkages with relevant market actors and recalcitrance due to subsidies. To help address these conditions, in Year 6 the project helped facilitate the formation of informal LSP networks as a means to provide support to individual LSPs. The networks provided a convenient means for LSPs to interact and provide a forum for building beneficial linkages with other businesses and similar platforms. In the extension period, the project sought to facilitate the formation of additional groups where needed and to consolidate, strengthen and institutionalize the LSP networks formed to date.

For the extension period, the project continued its approach of facilitation with farmer-based organizations, private sector, financial service providers, agricultural machinery dealers, development organizations, and DAE to identify new LSPs. Beyond PTOS, AFP, and reaper, they also included mini combine harvester and medium combine harvester in the technology portfolio for the identification of LSPs.



Couple of years back, Mitul Hossain of Gosaidanga village in Jhenaidah district invested in a PTOS and started his career as a LSP after receiving both operational as well as business plan training from CSISA MI. He then joined the "Gosaidanga Agricultural Development Youth Cooperative" and due to his sheer grit and determination, he became the president of the club of 17 members. The government-subsidized club has managed to procure a mini combined harvester, rice transplanter, reaper, PTOS and power thresher among other machinery at its members' disposal. As a result, Mitul, as well as other members of the cooperative, are able to provide a plethora of services, courtesy of the wide range of available agricultural machinery

belonging to the club. The club has been active for 2 years and continues to go on strong with support from the government of Bangladesh as well as guidance from CSISA MI. Photo: Shahidul

**Collaboration with Hello Tractor:** As mentioned in the previous progress reports, an agreement was signed between Hello Tractor, Metal and iDE in August 2018 for the pilot of a digital solution to enhance service provision in agricultural mechanization in Bangladesh. As per the agreement, Hello Tractor was to support iDE and The Metal to install its GPS monitoring devices on 100 new tractors (75 4WT and 25 2WT) sold by The Metal that will go under service provision by CSISA MI LSPs. The devices capture information such as GPS location, machine hours, fuel consumption and tractor coverage area, which could be used by the tractor owner/operators/lessees to track usage, plan for service and maintenance, collect repayment instalments and recovery. The devices arrived in Bangladesh in the third quarter of 5<sup>th</sup> year and 25 were installed so far.

On the operational front, there have been some importation and funding challenges between The Metal to Hello Tractor. In light of that, it has been decided that the current tripartite collaboration will be terminated and revert to two bilateral agreements between iDE Global HQ and Hello Tractor, and CSISA MI and TML. This will mean that the transactions will now take place between two US-based organizations and two national organizations. With the project scheduled to phase out shortly, the team felt this was the best solution to expedite importation and payment of the devices.

CSISA MI has had important qualitative accomplishments in commercial sustainability through machinery producers, machinery service providers, and farmers buying machinery services. Additionally, the project continually monitors activities outside its zone of impact to gauge sustainability. The systemic change anticipated by CSISA MI looks for change in systems, such as markets, government or civil society, that can have a greater impact than direct assistance, as it will benefit people who have had no contact with the program and may continue to multiply after the project is completed.

#### 4.2.1 Public Private Partnerships

CSISA MI facilitates public-private partnerships in order to improve the extension services for farmers. Such partnerships have become embedded in the project activities at the field level.

DAE's Farm Mechanization Project organized the National Farm Machinery Fair that took place over three days in February to promote the use of agricultural machinery in Bangladesh. CSISA MI as an annual special guest attended a well-represented fair, whose theme was about saving money, labour, and time with mechanization. At CSISA MI's stall, visitors learnt about the project's work through large banners and handouts. These explained how the project was expanding access to advanced agricultural machinery to farmers. More than 20 public and private organizations - including many of CSISA MI's partners - took part in the fair displaying their own technologies and that promoted by CSISA MI. Virtually all the attending organisations had strong linkages with CSISA MI through current and ex-employees, current and previous collaboration, crowding-in etc. However new relationships were established especially in relation to Phase II of CSISA MI, both new and old acquaintances were more than highly appreciative of the project and continuing engagement. The fair was another strong indication of the government's emphasis on agricultural mechanization and the "crowding-in" effect caused by the projects interventions in partner organisations. The organizers recognized CSISA MI's contribution to agriculture and participation at the fair by awarding them with two crests and unique pictures in the local press.



Leading Bengali Newspaper The Daily Prothom Alo Publish this Photograph saying "Sulky with a reaper demonstration attracted crowd at the National Agricultural Machineries Fair"

Other partnerships of significance facilitated by the project are between BARI, BIRRI, BJRI, BWMRI, and Janata Engineering, RK Metal, TML, Alim Industries, Syngenta foundation, and Bangladesh Agricultural University. The work under these partnerships included; development of the jute reaper, seeder calibration keys, maize seeder metering plates, maize seed grader, reaper ride on sulky, AFP development, press wheel for 4 and 2-wheel tractor seeders, comparative testing of 2 Wheel tractor seeders, training, internships, R4D, gender studies and advisories on Conservation Agriculture.

#### **4.2.2 Local Manufacturing Capacity Building Assessment for AFP**

The PSPs involved in the manufacturing of AFPs are facing various challenges related to quality control, mostly around maintaining uniformity and quality in manufacturing of the pumps. To address these issues, the project and BARI worked with two private companies, TML and R.K. Metal developed a set of Standard Operating Procedures (SOP) for adoption and implementation at their manufacturing facilities. TML workers were trained on following the SOP. Once it is translated into Bangla, R.K. Metal workers will be trained. However, without a production line for AFPs, the execution of the SOP remains a challenge and demand to implement the protocol was low. Therefore, ad hoc on-the-floor production will continue for the time being. Until such practices are addressed, quality will remain low and thus demand will not increase and scaling of AFP will be limited. To address some of this quality issues sensors are being employed on the AFP to warn users (SMS) of overheating in bearing housings. This Technology is being field tested by TML.

#### **4.2.3 Local-level Market Facilitation**

CSISA MI is engaged in various market system facilitation activities at the local level the results of which were displayed in section 2. The major categories of facilitation include persuasion events, linkage meetings between dealers and sub dealers, method demonstrations for potential LSPs, and interested farmers wanting to follow conservation agriculture fundamentals, and exploring opportunities to introduce a fleet service model. Forty-four persuasion events took place across all the field offices, with a combined total attendance of close to 700 people. The aforementioned method demonstration brought together 30 interested LSPs and farmers. There were 11 linkage meetings in the three field offices, which were attended by more than one hundred people and who were introduced to the sub dealer model.

#### **4.2.4 Market Strategies**

As part of the exit strategy, CSISA MI's focus for Y6 in developing the market system of the selected technologies was to have private sector partners lead all the activities. The demand creation and awareness activities for buying agricultural machinery was previously led by the project team. After providing the sales catalyst, the project stepped back from that role, even though CSISA MI continues to build capacity in market development with the private sector. So that the PS may take the lead in successful sustainable technology adoption, the PS, for the most part, were driving the marketing activities by themselves in reporting year. For example, TML have built networks with other market actors; i.e. dealers, commission agents, spare parts retailers, MFIs and mechanics. They have also developed an outreach training centre and machinery hub, along the lines of CSISA MI for the development of LSPs and maintenance services.

The project developed a tool to monitor Joint Venture Agreements (JVAs) with PSPs, which facilitates an opportunity to track changes in downstream market actors and on the wider market system. Indicators that are tracked to monitor these changes in the wider market system include:

- PSP investment in project nominated technologies and also other agricultural machines,
- Number of activities carried by private sector to promote agricultural machines, and
- PSPs' investment, promotional activities and sales in the areas beyond where project intervened.

#### **4.2.5 Business expansion through engagement with different value chain actors**

CSISA MI developed and signed local level agreements with 12 agricultural machinery dealers who sell agricultural equipment and machines from different importers. Under the agreements, the dealers received an incentive to engage with commissioning agents to expand their market and mechanics for ensuring timely after-sales services. The project worked with the dealers to strengthen their capacity to market their products to the targeted customers. District and upazila-level dealers play a vital role in machinery availability at the rural level by creating sub-dealers in various locations. The project has been working to facilitate linkages between dealers and sub-dealers to catalyze sales in the remote areas. As part of this initiative, the project has signed LLA (local level agreement) with 12 local level dealers to facilitate their capacity to engage sub-dealers and commission agents to expand their market, better distribution of products, and provide faster after sales service to LSPs.

Usually the Rabi season, (October-March) is the peak period for machinery sales as 90% of the total sales in a year occur during this time. This year, the sales of the project-affiliated machines have been considerably higher than other years, because:

- There are an ample number of early adopters in the field. Other LSPs (the early majority) and farmers now see the benefit of using machinery. They also interacted with the early adopters and take informed decisions on purchasing new machines. As per the Diffusion of Innovation Theory, more early adopters and early majority will purchase the technologies in the coming seasons.
- The private sector recognized the potential of the agricultural machinery market and are offering incentives to drive it further. Competition among private companies has led to better product and services for their customers. As a result, Janata Engineering offered one knapsack sprayer free with each PTOS purchased. ACI provided free pre-season maintenance service to the reaper LSPs, and RFL provided free settings service for PTOS.
- Dealers have played a vital role in promoting these technologies. There are clear financial incentives from the private sector, and they have more “pull” than “push” sales, so they are motivated to promote CSISA MI technologies and have contributed to the higher sales. The combined sales of all three technologies have achieved 102% of the target.

However, as mentioned previously, the AFP sales have been below target due to substandard product and higher price point over its competitor i.e. centrifugal pump. There is a perception that AFPs are not durable and not reliable, as they require frequent maintenance and repair. This is generally a result of attempting run the pumps 24/7, as they do for LLP, for which the AFP was never designed to do. CSISA MI has and will continue to advise on correct operating procedure to increase pump longevity, but major breakthroughs in changed practice will take time achieve. The prolonged downtime of the machine due to breakdown and maintenance puts people off from buying them; however, this is alleviated by running them in pairs and alternating between the pair to allow for maintenance and adjustments. The operators use this tandem practice in relation to the Chinese diesel motors when dewatering ghers, so this practice needs to be transferred to the pump itself. Due to low sales in the past and the inconvenience of transporting it (devices are too long to be carried on rickshaws), private companies are less keen on fully embracing the technology into their core businesses. These issues are being addressed by substantial modifications that allow the pumps to be disassembled for easier transport and sensors to warn of overheating issues that lead to breakages.

#### 4.2.6 Access to finance

**Access to Finance:** Through Year 4 of the project, support to LSPs for financing purchase of machinery was heavily subsidized by the project. As part of the project's exit strategy, subsidies to LSPs and other support to financial service providers has been completely discontinued without an effect on sales and uptake in years 5 & 6. Project partner financial institutions are now self-investing and independently servicing LSPs; in the extension phase, as an exit activity, the project started the process of facilitating LSPs' access to formal loans. It partnered with a financial technology firm - Bangladesh SME Corporation Limited (BSCL) - and digitized the financial records of LSPs as a means to allow banks to more easily assess creditworthiness for future loans. The digitization was carried out through a data collection process which was used to translate the financial records into credit ratings for lenders through a sophisticated algorithmic digital platform dubbed “i-SME”. The credit history facilitated formal lending by commercial banks of these newly “bankable” LSPs, and provide them the opportunity to avail agent banking services through STEPs' partnership with the likes of Bank Asia. All these facilities were available at their SME centres in Khulna's Fultola and Jashore's Keshobpur. The objective of a pilot collaboration was to learn about the effectiveness of the i-SME platform with regard to the LSPs and discover impact on creditworthiness knowledge on access to formal financial services. In order to kickstart the process, three registration workshops were held in Khulna, Jhenaidah, and Jashore to bring the LSPs and some dealers under the platform. A total of 150 market actors took part in the workshops. The next step now is to generate the financial statements and start the formal process of receiving a decision on their loan applications.



#### 4.2.7 Others

**Database of market actors:** CSISA MI has been collecting and compiling information on market stakeholders since the beginning of the project. The purpose of developing this database has been to keep a record of the ever-growing list of market actors involved in the agricultural mechanization value chain in the CSISA MI working areas. The project's field teams continually update the database based on the interactions and involvement with various stakeholders and involvement in the local markets. The Innovation and Quality (iQ) team at iDE compiles the data and performs the quality checks. This Excel spreadsheet database is shared with CIMMYT's CSISA MI monitoring and evaluation lead and the management team. A weekly dashboard update is regularly shared with the wider team. In addition, the project has developed a stakeholder map (<https://tinyurl.com/csisa-map>) that includes the updated list of:

1. LSPs, dealers, mechanics, spare parts shops, and workshops down to the upazila level
2. Contact information (as available) for all the above
3. Search field by stakeholder name, location (district/upazila), and contact number

After analysis the project team uses the data broadly and very regularly as a key tool for information sharing, networking, planning, strategizing and adaption.

**LSP Networking:** Development of informal LSP networks (LSPN) was a new project initiative and a key activity in the detailed implementation plan for year 5. LSP networks continue to be a key in achieving sustainability and further scalability of the LSP model. The LSPN is an apolitical platform for the agriculture mechanization service providers that aims for the growth, development and progress of Local Service Provision in the agriculture sector. The platform works to encourage, motivate, entrepreneurs (with an emphasis on women and youth) to engage in agriculture mechanization. The network brings local service providers under an umbrella for effective agriculture mechanization service provision approaches and to achieve their common goal for LSP business growth, development and progress of different categories of mechanization service provision.



*Innovative farmers, Md. Mohosin Sarkar (right) and Nazim Sikdar (middle) are enthusiastically helping the power tiller operated seeder service provider, Md. Nomir (left), load up his machine with wheat seed so that he can strip-till the field. Farmers of Piyarpur village in Shalikhra, Magura district, are practicing conservation agriculture to keep the soil healthy as well as get better yield. Photo: Mustafa Kamrul Hasan*

The platform provides information and assistance to the existing and potential LSPs to get the opportunities provided by private, public and financial sector in various areas and plays a vital role for searching new markets for their services (client base). The network will strive to give high priority and monitor issues concerning the governance to improve service delivery mechanisms and redress of grievances of the agriculture mechanization service sector in close coordination with the local government to encourage young entrepreneurs, self-employed individuals in agriculture sector. The LSPN will cooperate with other Micro & Small Medium Enterprises Associations in rural Bangladesh with an intention to further the objectives of the LSPN and to that end will be affiliated with various groups and bodies. The network exists in a few upazila and will expand to other areas over the next six months.

The benefits of such a network are many, as LSPs are often scattered and barely connected to their peers, which was brought out by a Social Network Analysis conducted by CIMMYT and KIT (Netherlands) earlier last year. This will serve as an opportunity to exchange knowledge and information with one another and gain insights on how others are managing their businesses and responding to challenges. For instance, members are notified of upcoming training offered by the Department of Agriculture Extension under the Ministry of Agriculture. The platform will also be a way to expand their services to more farmers. For any technical issues, the newer LSPs can get help from

the skilled ones. The LSPs can harmonize their demand through the network. The cropping calendar is not same across upazila and districts.

During peak times, network members can work together to provide efficient services and move to the next area to cover a greater number of clients. In terms of geographic coverage, the project will initially start by forming networks in places where there is a high density of LSPs. It will not be limited to the LSPs developed within the CSISA MI project. It is open to other existing LSPs who own power tillers and four-wheel tractors. From the perspective of smallholder farmers, they will have greater availability and access to machinery services. In some places, while tilling services are commonly available, there is not enough access to seeding services. The network will mitigate this by ensuring a better distribution of services. Farmers sometimes become victims of overpricing by LSPs. The network will provide more options to farmers, thereby ensuring they are able to have access more affordable services. Going forward, LSP networks can form horizontal linkages with other LSP networks to extend their services to neighbouring upazila networks.

The formation of the LSP network followed a four-step process:

- **Conceptualising and motivation:** This involved gathering the LSPs and initially presenting the idea of a network. The pitch for the network explains to them how a collaborative platform would maximize mutual gains for everyone.
- **Organizing and mobilization:** Once the LSPs are on-board, a SWOT analysis process, forming ad hoc committees and discussing the various operational issues were applied. The process was designed to define the specific roles of the committee members and begins the preparation of the guideline for the network. The project generates business development ideas and facilitates capacity development initiative.
- **Growth and Governance:** The aforementioned guideline will be the foundation of the governance of the network. The committee members will have their defined roles and responsibilities and adhere to the rules and norms. There will be informal membership drive events to attract more people to join the network.
- **Institutionalization:** The final step is to accelerate towards formalizing the network. This involves preparing all necessary legal documents to secure the licensing and registration of the network under the relevant regulatory body.

**Dealer's Capacity Building:** For machine sales, dealers play key roles for product availability, enhance sales and ensure quick after sales service at a local level. New dealer creation, as well as linkage with private companies, was another initiative taken by CSISA MI, which resulted in achieving project targets by using their existing networks. In 5th year Jashore field office involved 20 new dealers and sub dealers in ag-machinery businesses. However, at the time knowledge and skills on ag-machinery sector constrained their activity. Part of capacity building of them, learning events in Jhenaidah district, where dealers had excellent results in year-5 were conducted for these new dealers. The main objectives of this visit was to learn about marketing strategy, how to involve commission agents for more sales and ensure sales service etc. During this visit, the 8 dealer and sub dealer group visited Janata Engineering at Sorojgonj to learn about business linkages with the company, marketing strategy, new dealership processes and company products.

### 4.3 Lessons from Monitoring, Evaluation & Learning

#### CSISA MI Database- Turning it into a daily management tool

##### Development phase

As described in previous reports, CSISA MI started with a MS Excel based database, but it was not smart enough to meet all the project's management needs. In search of a smarter solution in 2016, the project recruited a database consultant to develop a Share-point database solution. This approach would improve database efficiency, ensure donor compliances and to support the management with a strategic tool for decision-making. Power-bi and QGIS are integral parts of this database, which provide a visual dimension to project outputs. Since that time the project management team utilised the geo-specific data to strategize and adapt to great effect.

## Technical highlight

**Database System:** Databases have simple, interactive and user-friendly interfaces in order to manage and maintain the collected data from the field level. It has customized features to help monitor the progress made against the set targets and to generate reports in tabular and graphical forms. CSISA MI has two deployment environments: The Web Application (Cloud App Model) and the client-server (desktop) solutions. Users of web app can view, edit, and delete data directly from their web browser,

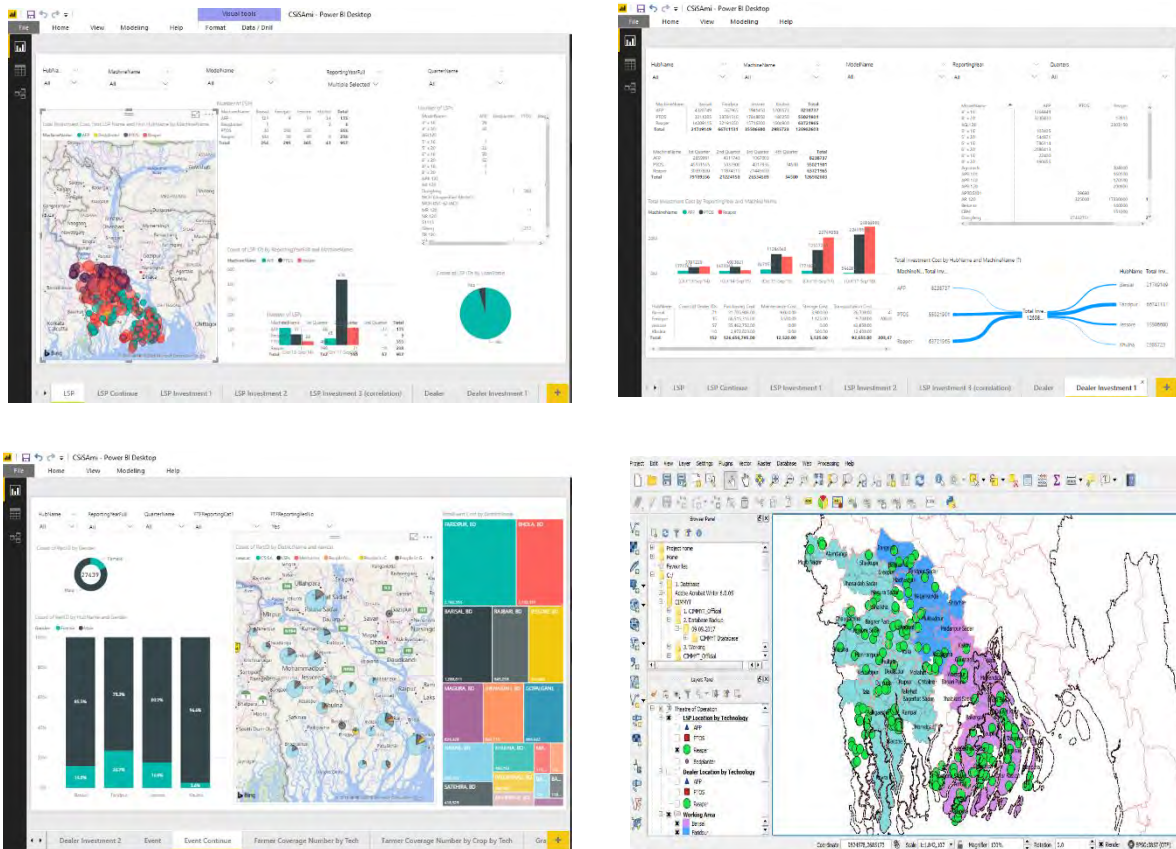


Figure 13: Snapshot of Database outputs

and can generate reports. On the other hand, the client-server solution is expertly designed for Monitoring Officers and the other users to facilitate data quality control and generating detail reports.

**Web App:** Web App was developed on Access 2013 with Access Services on Microsoft's Office 365 Premises and can be run on a server with SharePoint 2013, Access Services, and SQL Server 2012. Recently Microsoft has limited their online free-service, so, the project searched for alternate hosting arrangements for the database.

## How database works

**Data entry:** Data entry clerks enter (near to real time) data online with appropriate user access from three remote field offices or field. For internal users with their official user accounts, but subject to licensing agreement and for external users with a Microsoft account (e.g. Hotmail, Live mail) through any internet browser. This platform is also usable on mobile phones or tabs for near to real time field operations.

**Storage and security:** Data stored in the SQL Azure database on Microsoft Cloud (1 GB limit for a single database). Therefore, Microsoft backup is used on a regular basis. Along with this facility, data-admin backs-up every day, or as many times as required from the desktop database, which is connected to cloud database. Access to data is restricted in several ways (geographical area wise and user wise i.e. only the owner of a record can modify that record). A complex security plan was

implemented, such as, who created the record, who modify the record and when (date and time stamp), etc.

### **Database Outputs and Strategic support**

During the DIP preparation, the database supported all through its outputs. The database has several geo-specific reporting facilities like Q-GIS, Google earth and Bing, which provides historical map generation for visualisation and resolution of implementation strategies. The desktop-based app linked to the online database, generates near-to-real-time reports, in support of the implementing team and their progress. The database output is a refocusing tool, with which one can see the achievement against the yearly FtF target, facilitating prioritization of activities and time to complete.

### **Data Quality Control**

Generating unique identifying numbers and prevention of double counting is challenging for database integrity. Hence, a comprehensive method is followed to generate unique identifiers and prevent duplication. Firstly,  $\alpha$ -numeric combination of name, address and cell phone number and secondly, name, father's name and cell phone number. Moreover, the database has a prediction facility, if any cell phone number is inserted; it predicts if the name has been entered into the system previously. This potentially removes and reduces the chance of duplication and promotes spelling consistency. Beside this system, MEL team has a standard protocol to check data that is entered into the database. To limit errors, (beside the system generated safeguards), the MEL team frequently field validates and checks hardcopies against softcopies for transcription errors. MEL team checks 5-10% of all entered data to ensure the credibility of the report. While conducting any survey, all the data enumerators are well oriented on survey tools and randomize sampling techniques used for data consistency. Then the collected data is checked, and verified and finally entered into the database.

### **Future of the Database**

Database has been shifted to third party rental cloud. As this phase of the project is ending, the MEL team is re-designing a new database with new sets of indicators, but with the same unique attributes that have supported the project so well over the last 6 years. The current knowledge in the database will be preserved in a MS Access version for future reference and use.



*CSISA-MI participated in the 'DAE-Blue Gold agricultural technology fair' in Batiaghata, Khulna and has displayed AFP, PTOS, and self-propelled reaper machines. Farmers from different villages, officials from DAE and NGOs and local govt. leaders visited the stall. During the fair CSISA-MI distributed leaflets on conservation agriculture, early wheat seeding, wheat blast, healthy rice seedling, etc. Photo: Ashraf*



## 5 LEARNING, INNOVATING AND ADAPTING

### 5.1 Study on Impact of Mechanizing Harvesting Service on Woman Daily Time Distribution in Harvesting Season

#### Introduction:

Agriculture remains the major sector in Bangladesh economy and contributing almost 20% in national GDP. Traditionally, more than 80% of the total population is involved in agriculture directly or indirectly. Since 1990, mechanization in agriculture was introduced and growing fast. Irrigation was the first technology introduced and popularized just after liberation of the country. After that, land cultivation was introduced with the power tiller. In recent times, harvesting and post harvesting machinery was introduced into the process. Traditionally men are employed in all field related activities. Meanwhile, women involvement in agriculture production remain largely neglected across the country. However pre and post field activities (mostly drudgery work) related to crop production remain women labor dominated. During the entire crop-growing period, women's time is taken up with meal preparation and serving for field labor as required. Nevertheless, all this woman labor remains unaccounted in production systems. A study designed to compare the changes in woman life in daily time allocation between the manual and mechanized harvesting was recently undertaken and repeated with a larger cohort in year 6.

#### Objective:

The objective of this study stated was two fold:

1. Compare women's daily time allocation under manual and mechanized harvesting in treaton to her other household duties and leisure time.
2. Identify the use of time saved due to mechanized harvesting technology from the male perspective of the household.

#### Methodology:

CSISA PIII has received a database of 6,674 farmers from CSISA MI project, who have applied mechanized harvesting service in their fields. A random sample list of 511 farmers drawn containing 256 farmers for rice and 255 for the wheat. Telephonic survey conducted involving eight data enumerators. Five of them were women, as this study intended to talk with women in the household. During the data collection enumerators transferred into the hard copies and then this transcript into the soft copy. Previously developed Microsoft excel based analysis tools was used to analysis the data.

#### Findings:

Table 3: Rice and Wheat Farmer

Woman Proportionate Time Distribution During Harvesting Season	Manual Harvesting %	Mechanized Harvesting %	Change
Child & Family care	18%	24%	35%
Cooking and serving food for Agril labors	9%	1%	-93%
Livestock and poultry care	7%	10%	35%
Harvesting related physical labour	29%	15%	-48%
Social activities	3%	7%	99%
Earning related activities	2%	3%	40%
Leisure and Personal time	31%	41%	31%

n=511



Figure 14: Rural woman Time Allocation in Average Harvesting Day- Manual vs Mechanical Harvesting

## 5.2 Systemic Changes

**Systemic Change Study:** The mixed methods systemic change study was implemented in CSISA MI activity regions in the divisions of Jashore, Faridpur and Barishal, covering 23 upazila in 12 districts (Faridpur, Rajbari, Gopalganj, Jashore, Magura, Jhenaidah, Bagerhat, Khulna, Satkhira, Narail and Meherpur). The type of market actors covered in the study consisted of: Local Service Providers (LSP), Dealers, Private Sector Partners (PSP), Mechanics, Spare Parts Shop Owners, Financial Service Providers (FSP), the Department of Agricultural Extension (DAE), and Farmers. Through Springfield Center's Adapt-Adopt-Expand-Respond framework, the report highlights the systemic improvements for each actor type and draws conclusions about the systemic impact of the program.

The CSISA MI project contributed to systemic change throughout the market system of agricultural machinery. While tipping point remains a useful exercise for setting targets and developing project strategies, the theory of tipping point did not prove to be a successful indicator of technology uptake, and confoundingly saturation was not reached. Once the tipping point was reached, there was not a large increase in sales, as expected. This could imply that either the tipping point was not an accurate value, or that the tipping point theory is not relevant for agricultural mechanization products.

**Crowding- and copying-in** have both been effective indicators of systemic change and the research identified significant copying and crowding at the LSP, mechanic, PSPs and dealer levels. As also evidenced in sector growth, the market is expanding and more actors are engaging.

The agricultural mechanization **sector is growing** as evidenced by the increase in investments from farmers, LSPs and dealers. New products are being introduced, and farmers are choosing increased productivity over accessing more land as was typical in recent years.

**Sustainable linkages** between the core market actors is seen as a very strong indicator of market strength and the long term sustainability of the impacts of the program. Linkages between LSPs and households, dealers and LSPs and the PSPs to dealers are exceptionally strong as evidenced by referrals and customer retention rates. Where linkages are weaker - in spare parts shops - the market has adapted to find other market actors who are adopting the specific activities of spare parts shops.

**Indirect impacts** such as the speed of approvals for loans and subsidies were seen not only by PSPs but also LSPs reaching across the different levels of the value chain. The Department of Agricultural Extension (DAE) has also extended specific subsidies on selected machineries and new technologies no longer require rigorous approval from the Bangladesh Agricultural Research Institute (BARI) - a process that was creating significant time and financial investments to bring new machines to market.

Utilizing the A-A-E-R framework, we can see that the majority of the market actors have fully adopted the promoted business model for mechanization services. Additionally, only the private sector partners were able to respond to market changes and that spare parts shops remain the weakest component of the market system. The shading below highlights the amount of evidence that was found for the adoption, adapton, expansion and response behaviors of each market actor.

Actor	Adopt	Adapt	Expand	Respond
Local Service Providers	Strong	Strong	Strong	Weak
Dealers	Strong	Strong	Strong	Weak
Private Sector Partners	Strong	Strong	Strong	Strong
Financial Service Providers	Strong	Strong	Strong	Strong
Mechanic	Strong	Strong	Weak	Strong
Spare Part Shops	Weak	Strong	Little	Little

Strong Evidence	Weak Evidence	Little Evidence
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### 5.3 CSISA MI Training Programs

CSISA MI has very successfully provided a high standard of scientifically based technical and business training service among the farmers, LSP, Mechanics, private and public sector members, to build their technical capacity to provide machinery' based quality service among the farmers' community in the project areas. CSISA MI took the initiative to review and finalize the one-day training (Bangla) module for service providers' and mechanics, in the various topics such as - Axial and Mixed Flow Pump for LSP, Axial and Mixed Flow Pumps Troubleshooting for Mechanics, Power Tiller Operated Seeder for Two-Wheel Tractor for LSP, Self-Propelled Multi-Crop Reaper for LSP, Self-Propelled Multi-Crop Reaper Troubleshooting for Mechanics, these will be published in due course for national and international use.

In this period during October 2018 to March 2019, a total 1614 farmers' participated in conservation agriculture and crop specific training, 314 LSP were trained in reaper, seeder & MMCCH and 48 mechanics participated in machinery maintenance & repair training. While 877 participants attended various demonstrations for reaper & MMCCH and 1158 participants attended demonstration on wheat & lentil harvesting. There is still considerable scope to engage with civil society on training in CA, which was only 20.83% of the target so far this year.

The project largely focused on business development for machinery entrepreneurs. Through collaborative partnering with iDE, we created an environment in which machinery service provision was outfitted to handle the maintenance & repairs which also benefitted from enhanced technical training, adaptation of rapid accretion to increase the use if agricultural machineries in the farmers level through the participation of community farmers' in the Farmers' Field Day.

CSISA MI published a Conservation Agriculture cartoon book in Bangla ("easy-language") which is an easy read for existing farmers', young farm families, local service provider, NGO & Company field staff as well as the SAAO, DAE on the very technical matters of CA. An unveiling ceremony of the book was inaugurated by Dr Allen David McHugh at the end of this



CSISA MI has recently published an easy to understand cartoon book in Bengali on conservation agriculture (CA). This handy book describes the principles of CA and how to practice the method for profit.

reporting period and is distributed to the field offices for use with the beneficiaries. This cartoon book is useful for farming families to learn about the conservation agriculture techniques to cultivate Maize, Wheat and other crops like Millet, Beans, even Rice. In this book, there are two characters: a progressive farmer wanting to learn and a local service provider talking informally on conservation agriculture. The local technical service provider answers the farmer's questions and advises to practice conservation agriculture practices in a small piece of land in his agricultural crop field. The Bangla language and technical words and the picture are easy to understand for farmers and local service provider. Ultimately, based on a focus group response, the project believes that farmers' will be motivated or convinced, to start Conservation Agriculture practices in his/her small crop field and will encourage others of their community neighbours.

## 6 COLLABORATION WITH OTHER PROJECTS AND VISITS

### 6.1 Collaboration

CSISA MI continues to work with and engage AEP, WEP, RDC, DFAP projects and a broad range of others in the development sector funded by USAID, especially with the latter in workshops, launches and complimentary events.

AEP has been working with the project through which DAE-AIS has made it possible for a range of CSISA MI videos and other communications materials to be uploaded onto website. CSISA MI assessed the earlier 25 trained women of Women's Empowerment Project (WEP), to understand their ability & interest. The project has started the process to engage 1200 women entrepreneurs in the WEA database as agricultural machinery service providers. The project is also working jointly in the project areas to identify potential women LSP and facilitate them to purchase agricultural machinery. Over the last few months the CSISA team and CSISA MI Project Leader have had a number of important interactions with RDC to seek out potential options for collaboration and alignment of activities, such as Hello Tractor and QR-Cash. Working groups were established, but at this early stage progress has been limited to establishing a dialogue and limited verbal reviews of prospective activities. CSISA MI is also looking forward to sustainable options of collaboration with Development Food Assistance Program (DFAP) as well as, Appropriate Scale Mechanization Innovation Hub (ASMIH), Post-Harvest Loss Reduction Innovation Lab (PHLIL)-Bangladesh.

### 6.2 Visits and Exchanges

During the reporting period, key visits by high-level representatives from the government, donor and CIMMYT included:

- A delegation of USAID representatives, led by the US Ambassador to Bangladesh, Earl R. Miller, visited Sajjali village in Jashore district on 12 February 2019 to learn about CSISA MI's activities and impact in the area. Ambassador Miller and his team talked to the farmers and agricultural machinery service providers, while seeing firsthand how CSISA MI is working with NGOs and public and private sector partners to ensure that machinery is scaled, available and affordable to the most marginalized farmers.
- On March 18, 2019, Josh Klein, US Congress Advisor visited CSISA MI activities at Burai, Jhenaidah.
- On December 18, 2018, a USAID team of Anar Khalil, Thomas Pope, Patricia Orlowitz, Aniruddha Hom Roy and Nazmul Bhuiyan visited the CSISA MI activities in Jashore, Bangladesh. Project Leader, Dr Allen David



*US Ambassador to Bangladesh, Earl R. Miller, visited Sajjali village in Jashore district on 12 February 2019. Photo: Shahidul*

McHugh, briefed the team about the project activities and achievements in the region. The team also had a fruitful conversation with farmers, local service providers and other stakeholders.

- Md. Arshed Ali, Additional Director (AD), Department of Agricultural Extension (DAE), Barishal Zone along with Haridas Sikari, Deputy Director (DD) of Barishal visited rice reaping activity by reaper binder on November 26, 2018.
- On December 06 and 11, 2018, DDs of Patuakhali and Jhalakathi, Ridayashar Dutt and Md. Fazlur Haq respectively visited farmer's field day on rice reaping by reaper binder in the districts.
- Dr. Naresh Chandra Dev Barma, Director General of Bangladesh Wheat and Maize Research Institute visited CSISA MI activities in Rajbari on March 8, 2019. Dr. Israil Hossain, Chief Scientific Officer, Bangladesh Agriculture Research Institute (BARI), Dr. Mohiuddin, Principal Scientific Officer (OFRD), BARI and Kartik Chandra Chakrabarty, DD, DAE were also along with him.



Josh Klein, US Congress Advisor visited CSISA MI activities at Burai, Jhenaidah on 18 March, 2019 Photo: Anne-Laure

## 7. CHALLENGES

CSISA MI, as with other programs in Bangladesh, has found it difficult to involve women in machine-related activities, as this is a non-traditional profession for most women, however we have risen to the challenge and added 66 new woman LSPs' participation in this last year through specific targeting and training. Related to this, is limited access to finance for many value chain actors (especially for women), due to their inability to comply to credit worthiness criteria, as agriculture and related service sectors are not viewed as viable businesses by the formal banking sector. Agricultural mechanization in Bangladesh is decades behind developed nations, which in part can be contributed to inadequate machine quality (domestic and imported), untrained operators, limited manufacturing capacity, cultural norms, and climate and agronomic complexities. These complexities, such as inclement weather, negatively impacts Bangladesh's low-lying terrain and restricts adoption of cropping practices and related mechanization. Changes in cropping pattern, diversification, capacity development, machinery modification and adaption are addressing these challenges. However, access to spare parts remain a challenge, along with subsidies that remove LSP's incentive to build client bases, low farmer awareness of LSP services and the slow development of extensive functional linkages between value chain actors constrain "last-mile" activities.

### 7.1 Delay in funding

Funding for year 5 was delayed significantly. However, based on prior notice of the delay, the project refocused the annual implementation strategy so that it could run smoothly and effectively until March '18; the revised implementation strategy was largely based on adjusting geographical coverage, to areas where the project could achieve much more with less effort. This also ensured that fewer demonstration and training activities would take place. The strategy worked very well as is evidenced by the achievements in year 5 and since. In case of both land (ha) and farmer (#) coverage, CSISA MI achieved significantly against targets, i.e. for land 118% and farmer 86%. The numbers trained was also very acceptable level at 94%. Of course this uncertainty around funding delays led to early staff exits, which may have contributed to a reduction in possible deliverables. There were a number of cost cutting measures put in place to prevent staff losses, including stopping all activities, restricting travel, and implementation of other collaborative activities. Unfortunately, in this hibernation mode, Partner NGO sub-grants were necessarily terminated and implementation of others postponed, as funds were not available to pay such grants. These sub-grants and other activities are all under re-activation, however uncertainty around when the grant modifications will occur for Phase II of the project has



placed us in a cautious mode (high priority activities only) and we are concentrating on our transitioning plan.

## **7.2 Plans and Partnerships for Adapting to Wheat Blast**

Wheat is the 2nd most important food crop in Bangladesh and its consumption is increasing at 13% per year due to food consumption changes with livelihood improvement and urbanization. The country produces around 1/5th of its requirement and 6 million tons were imported in 2017-18. In this situation yield increases are very important, as there is limited scope for cultivation area increase due to continued loss of arable land and competition with higher value Rabi crops. Consequently, timely seeding under short and mild winter conditions was very important. Long turn-around time (ToT) between Rice harvest to wheat seeding invariably increases the risk of late plantings. CSISA MI reaper technologies and PTOS combines with strip tillage and or CA can remarkably decrease ToT and ensure timely seeding of wheat, thus boosting yield and reduction of disease risk. A recent CA demonstration in Jashore clearly showed that harvesting and planting with CSISA MI technology can occur simultaneously without land preparation.

After the 2016 outbreak of wheat blast, CSISA in collaboration with Bangladesh Wheat and Maize Research Institutes (BWMRI) continues development of wheat blast resistant varieties and other mitigation technologies. In 2017 one blast resistant zinc enriched variety BARI Gom 33 and one blast tolerant variety BARI Gom 32 have been released. BARI Gom 30 and BARI Gom 28 were also found as blast tolerant. Last year six advanced lines were also found resistant under inoculated condition of which Borlaug 100, BAW 1272 and BAW 1280 had <1% disease index where BARI Gom 33 had 1.8%. These lines have been evaluated by field technical committee this year for release as varieties. For seed treatment and preventive foliar spray fungicides available in Bangladesh and not banned in USAID PERSUAP have been recommended. To raise awareness to the farmers and GO, NGO and private sector personnel these technologies and other crop management advices have been disseminated through factsheets, field days, workshops, training events, etc. by CSISA MI partners' staff and other organizations. Due to the adoption of these technologies blast infection was reduced each year since 2016, i.e. blast affected areas of 15,000 ha in 2016 were reduced to 22 and 16 ha in 2017 and 2018, respectively. Infected area of 2019 was not yet reported, however from visual observations during surveillance and field visits it appears less than previous years with only sporadic infection found in late seeded crops and after 4 days rains during 24-27 February, 2019, which was afforded by adoption CSISA MI's advanced mechanization and agronomic initiatives. Accordingly, CSISA MI demonstrated BARI Gom 33 in 1.9 ha of 15 farmers' fields and with BARI Gom 28, 30 and 32 in 12 ha on 90 farmers' fields. All these demonstrations were seeded and harvested by CSISA MI's PTOS LSPs.

Two hundred fifty farmers in 10 batches in the demonstrations areas were given hands on training on wheat seed production and preservation with the advice to spray Nativio 75 WG, before heading and 12 days after 1st spray, and to preserve seeds of the recommended varieties. No blast infection was found in these demonstrations and all 15 farmers preserved 4.5 ton seeds of BARI Gom 33 and 80 farmers preserved 8.5 tons of other three varieties. The use of this seed next year will considerably reduce risk of blast infection area and speed up farmers to farmers' seed dissemination of these blast resistant/tolerant varieties.

## **7.3 Engaging Women as Entrepreneurs**

Usually men operate and own agricultural machines in Bangladesh. Women and their families prefer women to be engaged in household duties or work that is very near to home, a result of deep social prohibitions on engaging women in alternative and external activities. Additional for a woman to become an LSP, she would also be required travel to different farmer fields and have extended stays outside the home. However, this has not deterred the CSISA MI team and it became a primary focus last year. CSISA MI team has prioritised women involvement in the workforce, especially for the focussed mechanization, but just as importantly post-harvest work in the homestead. This priority for CSISA MI was expressed in Jashore, Faridpur and Barishal with DAE staff and officials. These discussions raised awareness and promoted gender inclusiveness for our joint activities, which aligns

with DAE's policy to recruit more female extension officers, their target is to have to 60% of women in this role.

CSISA MI worked closely with the Winrock's Women Empowerment Project (WEP) targeting to reach around 1,200 women entrepreneurs, of whom at least 30% are already engaged in agriculture related businesses. The project also is using WEP data base of around 30,000 potential entrepreneurs to introduce new technology to the potential buyer group. WEP's sub-list of champion entrepreneurs has been filtered by CSISA MI MEL team to those who have invested in the market and who might be eligible to be a part of the CSISA MI's market value chain, through involvement in agri-machinery dealerships.

Celebrating the International Women's day was also an opportunity at which the field offices took advantage by hero-ing women entrepreneurs and agricultural champions at various events. To that end of the total 3,474 LSPs, 139 are now women, which evidences the renewed focus on women and the ratified the change in strategy for this concluding year.

## **7.4 GoB Subsidies**

GoB is providing subsidies for selected agricultural machinery in selected areas through the DAE, which has been discussed extensively in previous sections. CSISA MI, jointly with DAE has continued to conduct several workshops, fairs, policy dialogue and other promotional activities successfully which has also created significant enthusiasm among the concern stakeholders. A very good professional relationship has been developed with the public-private partners through knowledge sharing and joint venture programs to take advantage of the subsidy program.

## **8. LESSONS LEARNED**

Agricultural machinery and its employment needs to be adapted to women users and should include business development skills to develop entrepreneurship in this very conservative society. Entrepreneurism is not restricted to marginalized groups as a way forward, mechanic recruitment and training is critical, as well as the creation of spare-parts shops to connect the value chain and create a functional after-sales service environment to ensure sustainability. Acute scarcity of agriculture labor and rising input costs were important drivers for the implementation of CSISA MI and they remain important motivators for farmers to mechanize through affordable agricultural service provision. However, mechanization for mechanization sake should be tempered with appropriate and tested machinery. Most harvesting machinery is not designed for waterlogged (muddy conditions) found in Bangladesh. Imported reapers and seeders need considerable modification and Combine Harvester type (size) and capability selection, is critical, especially now the demand for it is rapidly increasing. Third party marketing and video show; create mass awareness but are not effective for a quick result. The household approach is fruitful for women awareness and for persuasion events. Dealer, sub dealer, mechanic cum dealer development model is more fruitful for agricultural market development. To these ends, CSISA MI must remain nimble, adaptable and be able to pivot with the private sector and the changing mechanization landscape.

## **9. UPCOMING ACTIVITIES FOR YEAR 6 SECOND SEMESTER**

### **9.1 No Cost Extension**

The no cost extension was approved to September 30, 2019. Below is the list of activities that were included in the extension application. CSISA MI will concentrate on short term, big impact activities, and especially those that are incomplete. i.e. AFP, women LSPs, Mechanization. Major interventions and the key activities as per the detailed implementation plan (DIP) for Year 6 under CSISA MI will be as follows:

#### **Strengthening value chain**

- Asset and community resource mapping

- WEA - Women LSPs development (consider a range of machinery, including Janata's jute ribboner) and electric starter for PTOS
- Develop sales service strategy i.e. Hello Tractor
- Strengthen spare parts supply chain (business planning, book keeping, upstream and downstream linkages)

#### **Access to finance**

- Creditworthiness profiling (STEPS)
- Digital Financial Solutions for the ag-mechanization value chain
- Engage formal banking sector and link to MI
- Focus on scaling gap under finance availability

#### **Sustainable intensification with Conservation Agriculture (CA)**

- Finalize CA modules and materials
- Disseminate agronomic techniques for higher yields (Maize)
- Strategic field demonstrations (triple cropping, ZT, Strip till, line sowing)
- Value chain training in CA

#### **Networking and capacity building**

- Strengthen LSP networks
- Value chain business development training (Spare parts, workshops, mechanics)
- Finalize Yellow-Pages of service provision
- Focus on scaling issues

#### **Technology adaption and manufacturing**

- Focus on AFP challenges (Quality, setup (automation), spare parts, conduct survey (uses, locations, agronomy & crops, solar power, sensors, variable costs)
- Demonstrate multi-crop harvester, Zero tillage planters, Reaper binder
- Finalise machinery modifications (design sprint) BARI sub grant

#### **Public private partner-shipping**

- Link LSPs with private sector
- Annual stakeholder workshop
- Build linkages with DAE and public sector
- Final reporting and workshop, close out

## **9.2 Transitioning out Plan**

This plan (*annex 5*) formally documents the process for the transition of the powers, duties, activities, and functions of tasks and tools for the CSISA MI Phase II project. It describes the approach to transitioning work and employees from CSISA MI Phase I to CSISA Phase II. The Phase II contract is for the creation and implementation of the workforce development project for USAID. CSISA MI will expand beyond machinery service provision at the farm level to emphasize new job opportunities, entrepreneurship, and skilled youth workforce development to service growing machinery manufacturing assembly, and repair service markets. It will professionalize and develop new systems within SMEs to support skilled workforce growth in agricultural machinery manufacturing and repair services. Additionally, it will create employment opportunities and by partnering with development and humanitarian relief organizations to increase farmers' knowledge and use of sustainable intensification practices – including both better-bet agronomy and appropriate mechanization – that increase productivity while reducing environmental externalities in Rohingya refugee impacted communities. The current project is with CIMMYT and iDE and will transition to include the same and additional partners, under sub-grant arrangements, for the specific areas outlined above. The period of performance under Phase II is from 1 October 2018 to 30 September 2023. The value of the contract is US\$21,000,000.



## ANNEX 1: CSISA MI Year 6 Working Area

Hub	District	Upazila
Jashore	Jashore	Keshobpur
		Jashore Sadar
		Monirumpur
		Bagherpara
		Jhikorgacha
	Jhenaidah	Jhenaidah Sadar
		Shailkupa
		Kaligonj
	Magura	Magura Sadar
		Sreepur
		Mohammedpur
		Shalikha
	Bagerhat	Mollarhat
	Khulna	Batiagata
		Dumuria
	Sathkhira	Tala
	Meherpur	Meherpur Sadar
		Mujibnagar
		Gangni
	Narail	Kalia
		Lohagara
		Narail Sadar
Barisal	Jhalokati	Jhalokati Sadar
	Barisal	Barisal Sadar
		Wazirpur
		Agailjhara
		Babuganj
		Gornodi
	Patuakhali	Galachipa
		Kalapara
		Patuakhali Sadar
	Barguna	Amtali
Faridpur Hub	Faridpur	Bhanga
		Boalmari
		Faridpur Sadar
		Madhukhali
		Nagarkanda
		Saltha
	Rajbari	Kalukhali
		Pangsha
		Rajbari Sadar
		Baliakandi
	Gopalganj	Kashiani
		Gopalganj Sadar
		Kotalipara
		Muksudpur

The image displays two versions of a Joint Venture Agreement (JVA) between iDE and The Metal (Pvt.) Ltd. for the purpose of troubleshooting and production modification of AFP (Axial Flow Pump).

**Left Document (November 15, 2018):**

- Title:** JOINT VENTURE AGREEMENT
- Purpose:** For the troubleshooting and production modification of AFP (Axial Flow Pump)
- Signatories:**
  - iDE:** Md. Zahurul Islam Chowdhury, Project Manager - Ag Portfolio
  - The Metal:** Jimmy Davis, Programs Director
- Date:** 15 February 2019
- Subject:** Two-month time extension of the joint venture agreement with The Metal (Pvt.) Limited

**Right Document (February 23, 2019):**

- Title:** Memorandum
- Background:** iDE Bangladesh has signed a bilateral joint venture agreement with The Metal (Pvt.) Ltd. on November 15, 2018 for the troubleshooting and production modification of axial flow pumps used in the implementation of the Cereal Systems Initiative for South Asia - Mechanization and Irrigation (CSISA-MI). The duration of the agreement was until February 23, 2019.
- Reason for Extension:** However, due to several months of feedback on the initial technical research report and operational challenges on the ground, the activities outlined in the agreement have been delayed for which the parties are now extending the duration of the agreement until 30 April, 2019.
- Signatories:**
  - iDE:** Deepak Khadka, Country Director, iDE Bangladesh
  - The Metal:** Md. Sahid Zamil, Managing Director, The Metal (Pvt.) Ltd.

### ANNEX 3: Media coverage during Oct'17-Sep'18

Sl	Name	Date	Type
1	ETV	23.02.19	National TV channel
2	Jamuna TV	24.02.19	National TV channel
3	SA TV	25.02.19	National TV channel
4	ATN	28.02.19	National TV channel
5	Dhaka Tribune	02.03.19	National Daily
6	Channel 24	08.03.19	National TV channel
7	Boishakhi TV	10.03.19	National TV channel
8	Barishal Protidin	27.11.18	Local daily
9	Janapad	27.11.18	National Radio Station
10	AgriNews24.com	27.11.18	Local Online
11	AIS	29.11.18	DAE wing
12	AgriNews24.com	29.11.18	Local Online
13	Janapad	30.11.18	Local daily
14	JaiJaiDin	02.12.18	National Daily
15	AgriNews24.com	03.12.18	Local Online
16	Motobad	04.12.18	Local daily
17	Motobad	07.12.18	Local daily
18	Radio News Amtoli	12.12.18	Local radio
19	Motobad	14.12.18	Local daily
20	JaiJaiDin	16.12.18	National Daily
21	Radio Barishal	17.12.18	National Radio
22	JaiJaiDin	18.12.18	National Daily
23	AgriNews24.com	06.12.18	Local Online
24	Bhorer Prottasha	13.12.18	Local daily
25	Sobujbd24	17.12.18	Local Online
26	Bhorer Prottasha	18.12.18	Local daily
27	Sobujbd24	20.12.18	Local Online
28	Motobad	22.01.19	Local daily
29	AgriNews24.com	22.01.19	Local Online
30	Motobad	29.01.19	Local daily
31	AgriNews24.com	06.02.19	Local Online
32	AgriNews24.com	24.02.19	Local Online
33	Somprosharon Barta	01.03.19	Local daily
34	AgriNews24.com	27.03.19	Local Online
35	Radio Bangladesh	27.03.19	National Radio
36	Motobad	29.03.19	Local daily
37	Agrilife24	03.03.19	Local Online
38	Daily Khulnanchal	04.03.19	Local daily
39	Daily Spondon	04.03.19	Local daily
40	Somprosharon Barta	24.04.19	Local daily

## ANNEX 4: Success Stories during Oct'18-Mar'19



### SUCCESS STORY

#### Transforming modes of education

**Demonstration of agricultural machinery use proves to be highly beneficial for instilling practical skills in university students.**



Students brushing up their practical skills on the field

*“There is no other viable alternative than mechanization to battle the continuous challenges faced by agriculture due to climate change.”*

*– Gautam, a student of Patuakhali Science and Technology University*

This story is made possible through support provided by the United States Agency for International Development (USAID). The contents and opinions expressed herein are those of the project and do not necessarily reflect the views of the USAID or the United States Government.

For decades, tertiary institutes have struggled to keep pace with agricultural machinery development and its use. Consequently, there existed a huge disconnect between what was being taught and what was available regionally and globally. Students and teachers alike were disappointed only to see ox driven ploughing systems in their region, while studying about high technology agricultural machinery from around the world. However, the scenario is now drastically different. Gautam, a student of the Patuakhali Science and Technology University, was about to experience, for the first time, agricultural equipment that he had only learned about in books. After attending a briefing in his university about the CSISA MI activities, he was curious to learn more about their promoted agricultural machinery. His interest piqued when he witnessed a CSISA MI conservation agriculture demonstration of the strip tillage of wheat, maize, sunflower and mung beans by Power Tiller operated Seeders (PTOS). For the first time in his journey of discovering the wonders of the modern agricultural world, Gautam gained first-hand experience on a machine and farming concepts, which up until then was merely theoretical and a picture in a book.

Dr. Swadesh Chandra Samantha, the dean of higher studies, realized the effectiveness of a hands-on approach to learning and invested in two PTOS to facilitate students' thesis field experiments. According to him, sustainable agricultural mechanization is pivotal in achieving development in the Southern Bangladesh, where it is more susceptible to impacts of climate change. Additionally, he claims, students are in dire need to understand the dynamics of agricultural machinery and its applications.

Knowledge, in theoretical or practical form, is undoubtedly a crucial investment for a better tomorrow. It is imperative to ensure that along with theoretical knowledge, students receive effective hands-on training and gain practical experience in the field. Hence, such an opportunity is crucial for the improvement of the student's technical capacity, who are the leaders of change for a better future.

CSISA MI project focuses on upstream market interventions to ensure technologies are reliably available through local markets.







## SUCCESS STORY

### Rising by lifting others

**Development of a youth cooperative provides ample agricultural mechanization opportunities for struggling farmers.**



Mitul Hossain stands among the agricultural machines belonging to the cooperative

*"I am grateful for the support and technical guidance I received from CSISA MI, without which it would have been difficult for me to get to where I am today."*

— Mitul Hossain, President,  
Gosaidanga Agricultural Development  
Youth Cooperative in Gosaidanga,  
Jhenaidah

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In developing nations, cooperatives or clubs are a great way to help improve livelihoods in the community. However, with time, members of such cooperatives often lose their enthusiasm to continue. Nonetheless, in stark contrast to this quite common occurrence, is the Gosaidanga Agricultural Development Youth Cooperative, which has been effective for quite some time. A huge driving force behind its longevity is the avid dedication of its President, Mitul Hossain.

Being the sole bread winner of a large family, Mitul Hossain of Gosaidanga village in Jhenaidah district was struggling to make ends meet and was looking for a way to end the drudgery in his life. As a farmer, Mitul worked in close association with the Cereal Systems Initiative for South Asia- Mechanization and Irrigation (CSISA MI) project, his efforts to improve his household livelihood did not go unnoticed. CSISA MI encouraged Mitul to invest in a power tiller operated seeder (PTOS) with his savings, and provided operational and business plan training. Accumulating almost all of his savings, Mitul invested in a PTOS and started planting other farmers' crops as a local service provider (LSP). Within a very short while, Mitul became well-known among farmers as an expert PTOS service provider.

Word of his flourishing business reached the Department of Agricultural Extension (DAE) and on the recommendation of CSISA MI, decided to assist in his business expansion dreams. By this time, Mitul had joined the "Gosaidanga Agricultural Development Youth Cooperative" and soon became their president, which consisted of 17 other struggling young farmers. Through DAE's support, the cooperative procured a mini combined harvester, reaper, PTOS and power thresher among other machinery. As a result, Mitul, and his co-op members, following CSISA MI training, were able to provide a plethora of services courtesy of the wide range of available agricultural machinery belonging to the co-op. Mitul's journey from a struggling farmer to an influential entrepreneur, bears testament to the fact that, with the right kind of guidance and support, dreams and goals are achievable.

USAID funded CSISA MI project focuses on upstream market interventions to ensure technologies are reliably available through local markets to young entrepreneurs. CSISA MI is led by the International Maize and Wheat Improvement Center (CIMMYT), which works closely with International Development Enterprises (iDE) in project implementation.





## **ANNEX 5: CSISA MI Transition out Plan Document**

Transitioning to CSISA MI Phase II

### **TRANSITION OUT PLAN CSISA MI PHASE I TO PHASE II**

**CIMMYT  
BANGLADESH**

**DATE APRIL 2019**

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## 1. BACKGROUND

This plan formally documents the process for the transition of the powers, duties, activities, and functions of tasks and tools for the CSISA MI Phase II project. It describes the approach to transitioning work and employees from CSISA MI Phase I to CSISA Phase II. The Phase II contract is for the creation and implementation of the workforce development project for USAID. CSISA MI will expand beyond machinery service provision at the farm level to emphasize new job opportunities, entrepreneurship, and skilled youth workforce development to service growing machinery manufacturing assembly, and repair service markets. It will professionalize and develop new systems within SMEs to support skilled workforce growth in agricultural machinery manufacturing and repair services. Additionally, it will create employment opportunities and by partnering with development and humanitarian relief organizations to increase farmers' knowledge and use of sustainable intensification practices – including both better-bet agronomy and appropriate mechanization – that increase productivity while reducing environmental externalities in Rohingya refugee impacted communities. The current project is with CIMMYT and iDE and will transition to include the same and additional partners, under sub-grant arrangements, for the specific areas outlined above. The period of performance under Phase II is from 1 October 2018 to 30 September 2023. The value of the contract is US\$21,000,000.

## 2. TRANSITION APPROACH

For this transition, CSISA MI will maintain its existing staff on-site where appropriate, but with some essential relocation throughout the transition period. Additional staffing requirements are anticipated to complete the transition to CSISA MI Phase II. Visiting consultants will be utilized in this period to advise on specialist staff and activity requirements. The transition is expected to take 90 days to complete. As we do not know when funding will arrive, we assume that transition will commence at the end of April and phase II will commence late July 2019.

Immediately prior to the transition, CSISA MI will activate its transition team in order to facilitate the activities necessary for successful transition and coordinate the contract's transition. CIMMYT will provide adequate workspace for the team and staff throughout the duration of the transition. CIMMYT will also designate a transition project manager to work with all parties throughout the transition. CIMMYT PL and Conor Riggs (iDE) will coordinate the consultancy engagement for the transition period and for the phase in activities. However, locally, this role will be largely undertaken by a consultancy group, (Section 3)

## 3. TRANSITION TEAM ORGANIZATION

The following table lists the Transition Teams and leaders from CSISA MI and the Oversight Consulting Group. It also describes the roles and responsibilities of each Team Lead.

Organization	Title	Lead/Appointee(s)	Roles/Responsibilities
CIMMYT	Transition Project Manager	Ansar Siddique	Coordinate activities between staff and consultants throughout transition; provide workspace for all transition staff; facilitate transition meetings as required
CIMMYT	Contracting and Administration Officer	Meher Niger and others (iDE)	Responsible for overseeing all project actions and deliverables; responsible for ensuring accountability on all funding and budget items pertaining to the contract
iDE	Lead Transition Coordinator	Zhaheedul Chowdhury	Work with CSISA MI PM (and Transition Project Manager) to coordinate and schedule all transition activities from iDE side; provide weekly reporting on transition progress; ensure all applicable property and tools are included as part of transition
CIMMYT	Training and Documentation Manager	Shahidul Khan Mahmud Syed	Ensure all training documentation is complete; ensure completion of user and technical manuals; ensure all documentation is in accordance with standards; ensure proprietary materials are not part of transition. Ensure all IT activities are completed during transition; document all IT processes, tasks, and activities for transition to Phase II; Ensure back up of all data, reports, and soft copies for current developed materials under MI.
CIMMYT	MEL and Reports Officer	Syed Ur Rahman	Develop post project review, establish new MEL protocols and targets
CIMMYT and iDE	FO review and transitioning supervisor	Hera Nath Mufazzal Hossain	Auditing assets and resources: Ensure stocktaking and mapping throughout transition; ensure receipt of adequate documentation of all processes, tasks, and activities New site (field office) development
CIMMYT	New Staff and Consultant Orientation	Mahmud Syed	Help transition of old to new positions and consultant orientation; ensure adequate logistics for new recruits
External Consultants and Internal management	Oversight Consultant Group	Consultant/RPM Joe Dale (potential lead) Dianne Auchettl, Deepak Khadka and PL	Guide and document transition and advise on staff, activities, partnerships, implementation concepts and liaise with OS consultants. Oversight and Guide and review PPR.

#### 4. WORKFORCE TRANSITION

For this contract transition, the majority of workforce members will remain with their current organization/position. The incumbent CSISA MI workforce will remain on-site to perform their transition activities until such time that the transition is completed and approved by all parties and the new field offices are established. The CSISA MI Phase II staff will ensure its workforce is on site 30 days prior to transition completion. This will allow

adequate time to perform all transition activities for the old post to the new. CIMMYT will provide additional temporary workspace for PII employees (if required) until transition completion, at which time, the workforce will occupy the vacated locations (only Jashore) of the outgoing Phase I workforce.

The proposed organogram attached, identifies proposed staff and their field office locations of Jashore, Bogura and Cox's Bazar.

The CIMMYT leads for the Field Offices (FOL) are:

Jashore – Shafique

Bogura – TBA (New Hire)

Cox's bazar: Arafat with Hera Nath (roving mentor – based near Madaripur/Faridpur)

iDE field coordinator (FC):

Jashore – Shajahan

Bogura – TBA

Cox's Bazar – Mahfuzzal

The FOLs (Led by Hera Nath) will play key roles in managing transition activities and the establishment of the new field offices.

External Consultants will guide adaptive processes and timelines contrary to the project proposal.

## **5. WORK EXECUTION DURING TRANSITION**

Throughout the transition of this contract, CSISA MI Phase 1 work will generally continue, but at a reduced level to be performed by CSISA MI in accordance with the approved project schedule and the interim DIP in place. At the end of the 90-day transition period, and upon transition task completion and approval, CSISA MI in its new configuration will assume full responsibility for all tasks and deliverables as scheduled in the Phase II work plan/DIP.

For each of the sub-activities listed below will be the responsibilities of sub-committees with relevant key leads. This will ensure completion of all the identified activities. Support staff i.e. Admin and Finance Manager will also be part of the process as and where required or as requested by the sub-committees for the identified sub-activities.

The consultant Group, CSISA MI MEL and senior staff will maintain all responsibility for tasks and deliverables and with support, the transition management team will ensure that all current employees work with new and relocated staff on the activities listed below;

### **5.1. Post project performance review**

The post project performance review will be developed from and be largely based in, the CSISA MI Final Report. However, the additional stand-alone report will consist of the following:

- CSISA MI annual (Final) report (as an Annex)
- Summary



- Staffing, resources and assets
- Deliverables (planned versus actuals)
- Budget (planned versus actuals)
- Schedule (planned versus actuals)
- Detailed outcomes and learnings
- Programmatic
- Administrative
- Recommendations

#### 5.2. MEL plan development and DIP for Phase 2

- The current MEL team will develop targets and monitoring plan as outlined in the new contract and adapt on advice from consultant's timelines and guidance on partnerships.
- The detailed implementation plan (DIP) framework will be raised to compile field office implementation activities while accounting for expected and adaptive approaches.

#### 5.3. Inventory (Resources and Asset Mapping)

The inventory team (sub-team of transition team) will conduct audits with the support of FOL and FOC especially in terms of; IT, furniture, field equipment, vehicles, tools, portable and attractive items and assets. Detailed mapping and auditing to be included are;

- Resources (including staffing, skills, experience and potential)
- Assets (equipment, vehicles, tools etc.)
- Collaborators (by name, location, expertise, history, effectiveness)
- Partners (Name, location, expertise, effectiveness)
- Social capital and Network (list of, databases of all, especially Light engineering)

#### 5.4. Staffing

The transition team, with administrative support, will commence recruitment of staff, transfers of current staff, termination of staff above requirement and conduct appropriate orientation for recruits, transferees and consultants.

This activity will refer to the attached organogram (below) and current vacancies to develop a comprehensive recruitment and transfer plan. The transition period will be 90 days therefore the recruitment implementation should commence on the tabling of this report.

#### 5.5. Staff development and training

Training of new staff into their roles will commence on recruitment, largely led by our current training officer. Development of existing staff will also commence during the transition period, largely guided by consultants and partner's requirements during transition and discovery phases.

#### 5.6. Site Selection

Cox's Bazar: Site selection for Cox's bazar was undertaken by iDE and a reconnaissance of the region was undertaken by MEL and combined technical team. The team briefing

indicated closer reconnaissance (Deep Dives) are required, these are listed in sub section 5.7 below.

**Bogura:** The Transition Team will assemble a small group to undertake reconnaissance of the key manufacturing area (concentration) to establish suitable offices from which to conduct operations. These may include an office with training rooms and laboratory (fab lab) facilities. A further reconnaissance of the area will be conducted as listed below in sub section 5.9.

**Jashore:** The FO will remain in place at RARS, but will actively seek to expand CSISA MI's footprint in training facilities on site, or nearby the "light engineering concentration zone" of Jashore.

### 5.7. CXB Deep Dives

To build strategies, focus our resources and taking smart action in our FO in Cox's Bazar, a number of Deep Dives will be initiated during the transition period. These will also feed into R&D initiatives; these Deep Dives will be centered around the following aspects;

- Mechanization (CIMMYT)
  - AFP
  - PTOS
  - Reaper+Gangs+Thresher
  - Combine+Sheller
  - Chopper
  - LSP, CHC, Fleet Svc
- Crops (CIMMYT)
  - Maize
    - Feed
    - Sweet +Normal
    - Food
    - Baby Corn
  - Rice
  - Soybean
  - Vegetable
    - Home
    - Broad acre
  - Nursery
    - Fruit
    - Forest
  - Cropping Systems (CA + Triple cropping + best bet)
    - CA
    - Triple cropping
      - Spices
      - Vege
      - Pulses
      - Oil Seeds

- Best Bet agronomy
  - Salinity and acid sulfate soils
- A2F (iDE)
  - TMSS
  - BRAC
  - Coast
  - Local Cooperatives
- Partners Coordination (Joint CIMMYT-iDE – Training Officer)
  - Aleem/Alim Industries
  - DAE
  - BWMRI (Research Partner)
  - BARI (Research Partner)
  - BADC
  - BRAC (Local Research Partner)
  - FAO
  - Land Owners
- Market (iDE)
  - Mechanization
    - Spare Parts
    - Repair
    - Sales
  - Crop
    - Supply
    - Demand
  - Labor (who and type)
    - Rohingya (gender)
    - BD (gender)
    - On and Off-farm work
- R&D (MEL & IQ)
  - Climate Change + environment
  - Socio Economics (Spatial and growth)
  - Gender + women and youth demographics

#### 5.8. Initializing Implementation in CXB

- Follow-up with DAE, INGOs and FAO
- Explore possible Demonstration sites/partnerships with DAE, BADC and PS
- Develop Partnerships with TMSS, Coast, BRAC and GoB
- Seek out Training facilities/opportunities with farmer clubs/associations
- Seek avenues for advocacy and awareness raising (Communications)

#### 5.9. Reconnaissance of Bogura (and Jashore)

- Follow-up with local NGO's (TMSS, RDA, BRAC, others)
- Define and map the light engineering sector
- Seek out Training facilities/opportunities

- Seek avenues for advocacy and awareness raising (Communications)
- Highlight observed challenges
- Comment on logistics, access, infrastructure.

#### 5.10. Workshops and Seminars

- Conduct Orientation work shop
- Conduct Transition workshop
- Conduct Project kick off Seminar (the group of consultants may come to BD during kick off or they can join through Skype in case of funding uncertainty)

## 6. SUBCONTRACTS

The following chart illustrates the proposed sub-grants/consultancies, which are in support of CSISA MI's activity. These sub grants/consultancies apply to all partnership tasks to ensure all required functionality is in place to support the project's DIP. The iDE subgrant will continue through the transition and reviewed through the DIP development. The other sub-grantees and or consultants will be allocated funding following the transition in line with due diligence and DIP.

Subcontract/C onsultancy #	Awarded to	Tasks
	iDE Global	Perform business and market development. investment strategies,
	TMSS or RDA	Support field staff in training. Support Fablab implementation, provided training facilities and A2F
	IRRI?	Provide guidance and supervision in the area of socio economics and gender
	National Safety Council (USA)	Provide training of trainers on OHS &E
	AGCO (USA – Singapore)	Provided guidance on developing distribution systems and process engineering
	TIP (USA)	Facilitate transition to independence for youth
	Minnesota University (USA)	Implement Business retention and expansion initiative and conduct training in same
	Georgia Tech University (USA)	Facilitate development of the engineering apprenticeship program. Guidance on process engineering and workshop design. Provided training on workforce development

### 6.1. Consultants' Recruitment

As soon as the funding will be formalized and kick off ceremonial take place, the PM will start processing all the planned consultancies. But, some of the contract negotiation may take longer time than usual practices, and thus, the hiring procedure will start during the transition phase itself for few of the key consultants.

## 7. PROPERTY TRANSITION

### 7.1. Project (USAID) Furnished Equipment (PFE)

As part of this transition, all PFE provided to CSISA MI under the current grant will be retained for use and or disposal (in accordance with the regulations) upon completion and approval of the transition phase. PFE includes agricultural machinery, equipment, tools, training equipment/documents/aids, and any other items specifically purchased by the project to conduct activities and deliver objectives.

### 7.2. Incumbent CIMMYT/iDE Owned Equipment

- All CIMMYT/iDE owned equipment will remain with the incumbent upon completion and approval of the transition. This equipment includes incumbent-issued laptops, computers, PEDs, all peripherals and infrastructure (cable, wifi, routers etc.) organizational tools and equipment, field equipment, furnishings, vehicles and motorcycles, C/W tools and accessories.
- If it is determined that any incumbent owned equipment is required to stay with partner organizations (i.e. TMSS, Janata etc.) to ensure successful completion of CSISA MI Phase I or II, the partner and incumbent representatives will coordinate allocation of the equipment through the partner's established equipment management process. These items will remain the property of CIMMYT/iDE until otherwise determined.
- Transfer of equipment to Cox's bazar and Bogura, furniture fit out and infrastructure will be organized by the Regional Office in Dhaka and coordinated with iDE Global BD. IT fit out will be organized by FOL with local contractors and supported by the Dhaka office

### 7.3. Intellectual Property and knowledge management repository

Intellectual property may include various documentation, supplier and subcontractor information, service agreements, or original designs or plans. All intellectual property which is a direct result of work on the CSISA MI (and BD) deliverables will be transitioned to CSISA MI phase II in order to ensure the successful completion of the project and archive any materials for future use by CIMMYT and iDE in BD. All knowledge management materials (Pictures, Data Sets, reports, survey, end user (value chain actor) data bases, manual, training aids, etc. are to be tagged and archived according to CIMMYT/iDE policies.

### 7.4. User Accounts and Passwords

As part of the contract transition, various user account accesses and authorizations must be created and disabled. Currently CIMMYT/iDE personnel user accounts and access necessary for contract deliverables will be retained and unchanged. New employees will be granted access on their first day of the contract approval. Once transition is complete and approved, and the new sites occupied and fitted out, access to the new WIFI will be authorized.



## 8. KNOWLEDGE TRANSFER AND TRAINING

For this transition, knowledge transfer will occur over the entirety of the 90-day transition period and will take place via various methods. The knowledge transfer (documentation, instruction manuals including as-built documents, formal training classes, one-on-one training/knowledge transfer, etc.) is an important consideration as the transfer of knowledge is what will provide continuity for the project

- The CSISA MI PM will coordinate training sessions to be conducted by the Transition Lead. These sessions will focus on the specific concerns related to the new sites' tasks and activities.
- The incumbent PM will also coordinate sessions to be conducted by the assets & knowledge manager and Communications Officer. These sessions will cover documentation requirements, software, E communications materials, archiving, tagging storage and organizational processes and assets. These sessions will be completed no later than 15 days prior to the end of the 90-day transition period.
- All incoming and partner staff will work alongside their existing CIMMYT/iDE counterparts throughout the 90-day period in order to gain familiarity with the database, tools, processes, and organizational assets.
- Onboarding of all staff (consultants and otherwise) will include comprehensive and documented programmatic and administrative orientation.
- The training officer will develop TOTs activities and focus expectations through formal and informal classes that will prepare employees for their new roles.
- The PM and the transition team will meet no later than 10 days prior to transition completion in order to determine if any further training or knowledge transfer is required.

## 9. SCHEDULE

This section of the transition plan includes a GANTT chart schedule of the transition. The complexity of Phase II and the transition does restrict the level of detail able to be included in the schedule. However, all major milestones as well as transition start and completion dates are included as a minimum.

### 9.1. The Milestones

- Transition framework
- DIP and MEL Plan
- Post project review
- Auditing and equipment review
- Staff contracts
- Recruitment
- Site selection
- Site establishment
- Property transfer and fit out
- Training

- Implementing Deep Dives in CBX
- Scoping Partners
- Consultant briefing
- Orientation workshop to Bangladesh and project methodologies
  - SBCC
  - Clustering
  - BR&E
- Sub-grants
- Implementation

All the milestones will be included in the Teamwork site for better tracking and generate timely GANTT chart. The following GANTT chart illustrates the schedule for transition of CSISA MI to CISA MI Phase II. Any changes to this schedule will require review and approval from the PL, PM (Transition team), iDE Global and Extended Project Partners.

## **10. HANDOVER AND ACCEPTANCE (IMPLEMENTATION OF PHASE II)**

The PL will make the determination of when transition is completed and will provide formal acceptance indicating such at a project “kick off” workshop. In preparation and behind the scenes to do this, the PM will utilize a transition checklist and a systematic review in order to determine that all activities associated with the transition have been completed. Prior to the kick off workshop the transition team, PMs (iDE and CYMMYT) FOL, FOC and key sections heads will meet to ensure that all concerns and issues have been met and addressed appropriately. Once the transition PM has formally accepted the transition, the checklist and supporting documentation will be signed and accepted by the PL and the CIMMYT’s and iDE’s Country Director. The last step is the formal announcement by USAID’s CIMMYT COP and AOR at the “kick off” workshop. It is only after all of these approvals and signatures are in place that the transition will be considered complete and the project is officially implemented.



