



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



OUTCOME HARVEST: INFLUENCING SYSTEMIC CHANGES IN AGRICULTURAL MARKET SYSTEMS IN SOUTHWEST BANGLADESH

DECEMBER 2021

FEED THE FUTURE BANGLADESH RICE AND DIVERSIFIED CROPS (RDC) ACTIVITY



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ACRONYM LIST

BARI	Bangladesh Agriculture Research Institute
BDS	Business Development Services
BDT	Bangladesh taka
BRI	Bangladesh Rice Research Institute
BSCL	Bombay Sweets Co. & Ltd
CBS	Community Business Service Provider
CH	Combine Harvester
CPP	Crop Pest Protections
	Cereal Systems Initiative for South Asia – Mechanization Extension Activity
CSISA-MEA	
DAE	Department of Agricultural Extension
FTF	Feed the Future
GAP	Good Agriculture Practices
IFPRI	International Food Policy Research Institute
KG	Kilogram
LSP	Local Service Provider
MFI	Microfinance Institution
MT	Metric ton
OH	Outcome Harvest
RDA	Rural Development Activity
RDC	Rice and Diversified Crops Activity
RT	Rice Transplanters
SME	Small and Medium Enterprise
UOMCSL	Ujirpur Organic Multipurpose Cooperative Society Limited
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

The Feed the Future (FTF) Bangladesh Rice and Diversified Crops Activity (“the Activity”), funded by the United States Agency for International Development (USAID), worked from July 2016 through December 2021 to increase incomes and improve food security and nutrition in the 22 southern Bangladeshi districts in the FTF zone. The Activity sought to facilitate systemic market changes that would promote a diversified farming system based on intensified rice production and the introduction of higher-value, nutrient-rich crops. The Activity aimed to reach 500,000 farmers in the FTF zone with a 50 percent expansion of commercial production and post-harvest-related inputs and services at the supply end, complemented by a 50 percent expansion of commercial procurement by collaborating companies on the demand side.

Against these anticipated results, RDC achieved the following:

- 1,074,811 farmers in the FTF zone with access to new and improved products, services, and market channels (A 215 percent achievement over the targeted 500,000 participants)
- 100 percent of districts (21 districts) and 88 percent of sub-districts (out of 138 sub-districts) expansion of commercial outreach
- 71 percent of districts (out of 21 districts) and 36 percent of sub-districts (out of 138 sub-districts) expansion of commercial procurement by collaborating companies

USAID commissioned a separate evaluation effort to quantify the Activity’s impact at the farmer level; that assessment has since been completed. More broadly, and from a systems perspective, the Activity also wanted to know more about the systemic market changes its work may have inspired, especially the impact of business model innovations related to agro-input distribution, advisory services, agri-machinery, digitalization of agri-businesses, integrated services (bundling inputs, services and output purchases), and financial inclusion. Specifically, the Activity was keen to know the following:

1. **Which business models promoted by the Activity have resulted in systemic changes?**
2. **What are the scope and characteristics of these systemic changes?**
3. **What influences contributed to these systemic changes?**

This Outcome Harvest (OH) was commissioned in August 2021 to answer these questions. The OH methodology was chosen because its investigative nature makes it particularly suitable to detecting, validating and tracing the contributing factors of systemic outcomes, which are often challenging to identify and describe. Through a two-phase process consisting of 65 interviews with a wide variety of actors, the Activity team and the OH team identified and validated **12 systemic outcomes related to the Activity’s work**. These 12 outcomes, listed below, are described in detail in this report. In sum, they constitute chapters of a larger story of significant boosts in the dynamism, information flow, and growth rates of firms serving farmers in the Activity’s target market systems in the FTF zone. The 12 outcomes are as follows:

- **Outcome 1:** Farmers have increased demand for mechanization services.
- **Outcome 2:** Activity-supported innovations have led to significant firm growth.
- **Outcome 3:** Consumer demand for specialized rice varieties has increased.
- **Outcome 4:** Supply constraints have inhibited the growth of expanded product offerings (negative).
- **Outcome 5:** Financial service providers have expanded outreach to rural areas.
- **Outcome 6:** Farmers have better access to information.
- **Outcome 7:** New market actors have crowded into FTF zone.
- **Outcome 8:** Market actors have adopted some promotion activities and dropped those they feel are not worth the resources.

- **Outcome 9:** Market actors have adopted promotion and service strategies targeted at female farmers.
- **Outcome 10:** Market actors have improved cooperation with research institutions.
- **Outcome 11:** Market actors have used digital platforms to expand sales, coordinate, and transact.
- **Outcome 12:** Advances in digital adoption are excluding marginalized groups (negative).

In addition, at least four (slightly overlapping) themes emerged from these 12 outcomes:

1. The Activity extended and deepened market actor engagement in the FTF zone.

The OH found significant evidence that many market actors had freshly entered the FTF zone and discovered viable markets for their products and services. Others, despite having already operated in the area, nonetheless managed to expand significantly by adopting new approaches to reach rural residents. In all cases, RDC played a significant role in facilitating these results.

2. The Activity helped market actors experiment with innovations and operational improvements.

Many of the outcomes analyzed in this report involve experimentation with new forms of farmer outreach, service provision, information transfer, and other innovations that together paint a picture of the increased level of experimentation induced (at least partly, in all cases) by the Activity. This is vital, as economic development necessitates a process of localized experimentation; the Activity played an important role in de-risking heightened experimentation by dozens of Bangladeshi companies.

3. With the Activity’s support, several actors developed new specialized services or discovered markets for relatively niche products.

While less dynamic market systems are often characterized by many actors working with relatively similar business models (i.e., lots of actors doing more or less the same thing) more dynamic environments feature a larger diversity of business models exploring consumer appetites for specialized services and niche products. The Activity’s support to many of its partners contributed, at least in part, to a blossoming of newly stylized services and niche product offerings in southern Bangladesh.

4. The Activity facilitated a massive increase in the flow of useful information moving between all types of market actors in the FTF zone.

Lastly, but perhaps most importantly, the Activity certainly facilitated a large increase in the volume and accuracy of useful information flowing between farmers, retailers, buyers and other market actors in southern Bangladesh. Information is the blood of any market system—the basis upon which market actors make decisions and interact with one another. Boosting the completeness, timeliness and accuracy of information, especially where information piggybacks on commercial relationships, enhances the sustainability of new behaviors and commercial relationships and lays the groundwork for more development gains in the future.

INTRODUCTION AND PURPOSE OF THE STUDY

The Activity was a six-year effort that used several approaches to intensify and diversify the production and value-addition of rice and other crops in southwest Bangladesh. Its goal was to create more competitive and inclusive market systems by incentivizing the private sector to test and scale-up more competitive business models that are more responsive to the needs and requirements of smallholder farmers. The Activity worked in 22 districts in southwest Bangladesh, promoting transformative changes in the way rice, maize, sesame, mustard, sunflower, groundnut, lentil and mung bean market systems function.

The Activity's systemic change objectives outlined the types of inclusive and competitive systemic changes sought by the Activity. These included the following:

1. Input companies moving from commodity-oriented to customer-oriented marketing strategies
2. Increased adoption of gender- and nutrition-sensitive business models
3. Institutional buyers offering incentive systems for producers
4. Banks offering financial services to producers and local service providers (LSPs)
5. Increased number of LSPs offering mechanization services
6. Agribusinesses adopting business development services (BDS) (training, communications, marketing, and advertising) and ICT technologies (enterprise resource planning, point-of-sale, and digital payment systems), which results in access to information to support evidenced-based decision making

This OH explored for these and other types of systemic changes across the market systems targeted by the Activity's interventions, as well as the business models promoted by the Activity. The study was purposefully broad and opportunistic, seeking positive and negative outcomes that may have been related to the Activity's work, then analyzing them to determine the degree to which they are systemic. This assignment's purpose was to answer the following **central OH question**:

To what degree have the Activity's interventions contributed to systemic changes that resulted in more inclusive and competitive market system dynamics?

In answering the central OH question, this study generated insights into a larger set of questions:

1. Which business models promoted by the Activity have resulted in systemic changes?
2. What are the scope and characteristics of these systemic changes?
3. What influences contributed to these systemic changes?

The scope of the study was limited to six service-related areas of the Activity's market systems support. These intervention areas included business models related to **agro-input distribution, advisory services, agri-machinery, digitalization of agri-businesses, integrated services (inputs, services, and outputs market), and financial inclusion.**

The first part of this study introduces the Activity and the scope of the study, explains the OH methodology, and details a systemic change framework used to detect and make sense of systemic outcomes among the (more than 100) outcomes identified during interviews.

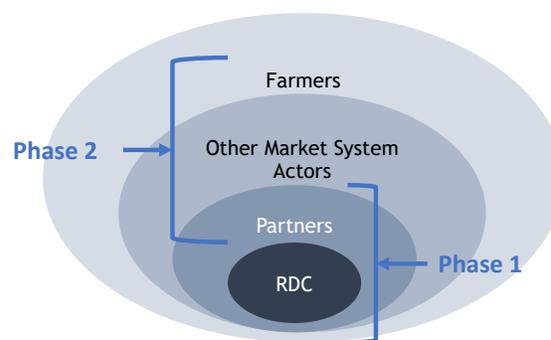
Next, the study describes the four common themes that emerged from the 12 outcomes, before detailing each outcome separately. Each outcome writeup includes a description of the outcome followed by an exploration of the evidence in support of it, plus an analysis of the ways in which the Activity contributed to its emergence alongside other contributing factors. Where relevant, the outcome writeups also point to opportunities for follow-up by other actors who may be interested in building on the Activity's achievements.

METHODOLOGY

Phase I: Harvesting Preliminary Outcomes

The first phase of the OH began with a literature review and Activity staff discussions that informed the overall design of the study. That was followed by an Inception Report that outlined the background and context of the Activity and presented the purpose, scope and methodology of the study in more detail. With the Inception Report agreed, the study team moved quickly into harvesting preliminary outcomes.

Outcome harvesting started with in-depth interviews with Activity staff who provided the first layer of data about potential systemic changes that resulted from the Activity's intervention. These discussions helped determine the relevant landscape of outcomes across the market systems targeted by the Activity. Next, in discussions with Activity staff and external partners, the research team explored changes in detail using a semi-structured interview guide intended to capture information about all aspects of systemic change that could be related to the business models the Activity promoted.



This process of progressive exploration allowed the Activity team and the research team to prioritize areas for in-depth investigation and substantiation and develop a list of key informants for Phase 2. Overall, the study team interviewed 31 individuals during Phase 1.

The immediate result of Phase 1 was an extensive list of 144 specific outcomes that emerged from several dozen interviews. From that list, the study team developed 35 generalized outcome statements and selected 15 of the 35 statements as worthy of further investigation, given the assessment's focus on uncovering systemic changes that may have resulted from its interventions, and presented those to the Activity team. Following feedback from the Activity, the study team then refined the list further to 12 statements.

Phase 2: Substantiating and investigating harvested outcomes in-depth

In this step, we interviewed a different set of informants than during Phase 1. These informants were selected based on their ability to substantiate and share insights about the preliminary set of harvested outcomes. Ideally, the study would have included farmers, as well as RDC partners and other market actors, but the study team was unable to interview farmers because most data collection was conducted remotely, mainly through phone calls.

The discussions with informants during Phase 2 were meant to ascertain the following:

1. Detailed observations about the outcome changes
2. Influences that have shaped the outcome changes and how changes have spread between market actors

The study team conducted 34 interviews of representatives from banks, retailers, commodity buyers, government agencies, and more during the substantiation process. The team then used that data to validate the information obtained during Phase 1, further explore the significance of systemic changes, and identify both Activity-related influences and influences on the outcomes that were entirely unrelated to the Activity.

Limitations

Several limitations confronted this piece of research. First, connecting with potential interviewees was difficult due to the ongoing COVID-19 pandemic, causing the team to abandon plans to conduct in-person interviews with most actors and making it impractical to reach out to farmers who may have benefited from the Activity's work.

Secondly, outcome harvesting requires mature interventions that have had enough time since activity inception to influence the emergence of outcomes that are detectable. Some of the Activity's outcomes were less significant only because insufficient time had elapsed since those interventions began. Revisiting the OH exercise after a longer time period would elicit more extensive and deeper outcomes. The USAID Market Systems and Partnerships Activity is considering conducting an ex-poste evaluation of the Activity that could

build on this OH, discovering more evidence of significant behavior and relationship changes among the Activity's partners and other market actors.

Thirdly and more broadly, the OH methodology carries with it several consistent limitations. Principle among these is that one cannot draw population-level conclusions from the information collected. In other words, the plural of anecdote is not data. Any claim to population-level effects would require a quantitative follow-up survey that used the OH data to specifically examine the breadth of changes experienced by large numbers of people.

Fourthly, the first phase of data collection, relying significantly on project staff, can generate information that is more wishful thinking than empirical. Substantiation is therefore a vital part of the process as it helps researchers identify what is valid versus what is merely desired. By their nature, qualitative interviews tend to generate additional insights, new questions/lines of enquiry, and potentially some conflicting or partially conflicting information. Therefore, an OH exercise benefits from conducting several successive rounds of substantiation interviews, including going back to some of the original respondents. However, the time and budget available to conduct these successive interview rounds is always a limiting factor.

FRAMEWORK FOR IDENTIFYING AND MAKING SENSE OF SYSTEMIC CHANGES

Systems are dynamic networks of relationships between actors (or agents) who evolve over time. Systems include both the collection of agent characteristics and, at the same time, a broader set of characteristics that relate to the system itself. For example, a firm can be competitive with other firms, but only a system (the combination of interacting producers and supporting actors, guided by regulations and norms) positions a sector as competitive at the regional or international level.

As dynamic networks, systems are constantly in motion and they change over time, for better or worse, as their components change their own characteristics and their interactions with other agents. In this way, systems build or damage their capacities to create significant, inclusive benefits for the people that constitute them. Rapidly developing markets show greater willingness on the part of agents to try out new ideas, while they also demonstrate ample opportunity for innovators to experiment and provide rewards for successful experiments.¹ Thus, from a systems perspective, **economic development is the result of a faster pace of productive evolution through new and/or improved business models; systemic change** that is useful for this purpose² entails the evolution of actor business models over time, while their networks of interaction and influential norms evolve around them.

Thus, the study used a systemic change framework that captured **agent-level changes** for the sake of gathering information about changes in actor willingness to experiment, ideally building a larger picture about the degree to which the Activity has managed to spark a process of faster, more productive evolution within its focal market systems. At the same time, the systemic change framework expanded beyond agent-level characteristics to capture changes in flows (of information and resources) and stronger connectivity between agents as well as

¹ "What Makes a Successful Local Problem-Solver? I4ID's approach to supporting successful experimentation by its partners in Tanzania," UKAID Learning Brief, July 2021

² Systems change constantly – so the challenge is not to identify systemic changes, rather to identify systemic changes that indicate that the system is moving in a desired direction (or away from it).

changes in intangible aspects of commercial relationships (especially trust) that we refer to as **relationship-level change**.

This OH focused on systemic changes related to Activity partners and the market system actors with whom they work, using the six intervention areas as focal points for inquiry. The study built on the widely used Adopt, Adapt, Expand, Respond framework to expand beyond agent-level characteristics, borrowing from the Disrupting Systems Dynamics framework³ to add a focus on how agents are interacting with one another.

In terms of what qualifies as a “systemic change” in this study, we used the following framework:

1. Agent-level characteristics:

- 1.1. Changes in one or more ways in which agents organize themselves, produce and market their product or service, use finance, and gather information about their markets
- 1.2. Sensitivity and ability to quickly respond and adapt to changes in context
- 1.3. Changes in willingness to invest in new, specialized services

2. Relationship-level characteristics, based on an understanding of the state of commercial networks prior to partnership with the Activity:

- 2.1. Changes in the number and type of business partners (diversity) and lengths of commercial relationships (duration)
- 2.2. Changes in the character of commercial relationships that carry additional benefits for trading partners (particularly the addition of embedded services)
 - This includes examining perceptions of trustworthiness of commercial partners, as well as changes in flows between actors (looking mostly for changes in the conveyance and use of information).

This framework was used to organize and analyze the outcome statements that resulted from Phase 1 and were investigated in Phase 2.

FINDINGS

This section details the study findings by examining each outcome in detail. Each outcome writeup includes an overall description of the outcome followed by an examination of the evidence in support of its existence. Following that, the writeups explain the degree to which the Activity contributed to that outcome and whether other factors also played a role in stimulating this change. Lastly, where relevant, the writeups detail opportunities for follow-up by other actors who might be interested in picking up the Activity’s work to drive deeper, more sustainable change.

The final list of 12 outcomes substantiated through this study is below:

Agent-level outcome statements

- Outcome 1: Farmers have increased demand for mechanization services.
- Outcome 2: Activity-supported innovations have led to significant firm growth.
- Outcome 3: Consumer demand for specialized rice varieties has increased.
- Outcome 4: Supply constraints have inhibited the growth of expanded product offerings (negative).

Outcome statements that include both agent-level and relationship-level changes

- Outcome 5: Financial service providers have expanded outreach to rural areas.
- Outcome 6: Farmers have better access to information.
- Outcome 7: New market actors have crowded into FTF zone.

³ “Disrupting System Dynamics: A framework for understanding systemic changes,” USAID/LEO Report No. 47, October 2016

- Outcome 8: Market actors have adopted some promotion activities and dropped those they feel are not worth the resources.

Relationship-level outcome statements

- Outcome 9: Market actors have adopted promotion and service strategies targeted at female farmers.
- Outcome 10: Market actors have improved cooperation with research institutions.
- Outcome 11: Market actors have used digital platforms to expand sales, coordinate, and transact.
- Outcome 12: Advances in digital adoption are excluding marginalized groups (negative).

COMMON THEMES

Prior to diving into each outcome, it is worth dwelling on four larger (and somewhat overlapping) themes that emerged from this study:

1. The Activity extended and deepened market actor engagement in the FTF zone.

The OH found significant evidence that many market actors had entered the FTF zone for the first time and discovered viable markets for their products and services. Others, despite having already operated in the area, nonetheless managed to expand significantly by adopting new approaches to reach rural residents. In all cases, the Activity played a significant role in facilitating these results.

While most of the market systems the Activity engaged with are national in scope, the southwest has been an area with more unmet demand than other region in the country. The Activity helped market actors tap unmet demand by raising awareness of the potential market, supporting promotion and distribution, and thereby increasing interest in FTF zone markets, while lowering the cost and risk of entry.

Outcome 1 details the success of mechanization service providers that saw surging farmer demand for their services, while machine sellers registered doubled and tripled machine sales levels on an annual basis. Outcome 2 details at length the growth experienced by firms that partnered with the Activity to enter the FTF zone and serve farmers in southern Bangladesh by expanding their offerings to provide a multifaceted range of services. Outcome 5 tells a similar story, focusing on financial service providers and the myriad techniques they used to better understand and serve their rural clientele, while Outcome 7 presents evidence regarding many Activity partners and non-partners who found viable markets in the area.

2. The Activity helped market actors experiment with innovations and operational improvements.

Many of the outcomes analyzed in this report involve experimentation with new forms of farmer outreach, service provision, information transfer, and other innovations that together paint of picture of the increased level of experimentation induced (at least partly, in all cases) by the Activity. This is vital, as economic development necessitates a process of localized experimentation; the Activity played an important role in de-risking heightened experimentation by dozens of Bangladeshi companies.

The Activity's support involved helping firms adopt some methods that were tried and tested by others, while helping other firms innovate using new techniques. Innovations include the following: (1) promoting new or adapted ways of doing business (contract farming, targeting female farmers for financial services outreach), (2) integrating (or bundling) services with product sales and more robust information, (3) using digital services for transacting, coordinating and providing information, and (4) incorporating information as an essential part of doing business with information-hungry farmers in rural areas.

3. With the Activity's Support, Several Actors Developed New Specialized Services or Discovered Markets for Relatively Niche Products

While less dynamic market systems are often characterized by many actors working with relatively similar business models (i.e., lots of actors doing more or less the same thing) more dynamic environments feature a larger diversity of business models exploring consumer appetites for specialized services and niche products.

The Activity's support to many of its partners contributed, at least in part, to a blossoming of newly stylized services and niche product offerings in southern Bangladesh.

The Activity's work with Ali Seeds and the Nutri Champ awareness program, focused on promoting a larger market for zinc-enriched rice, is one example. Other examples include its support to input sellers Xplore and KONIKA as they marketed inoculants and Trichoderma, relatively unused products in the area that promised significant boosts to crop yields. The bundling of various services and products described in Outcome 2, the new mechanized services described in Outcome 1, and the agent banking and micro merchant financial service models described in Outcome 5 are all additional examples of specialization and the tailoring of products and services in a market that was witnessing a greater pace of experimentation than what the Activity found when it began its work in 2016.

4. The Activity facilitated a massive increase in the flow of useful information moving between all types of market actors in the FTF zone.

Lastly, but perhaps most importantly, the Activity certainly facilitated a large increase in the volume and accuracy of useful information flowing between farmers, retailers, buyers and other market actors in southern Bangladesh. Information is the blood of any market system—the basis upon which market actors make decisions and interact with one another. Boosting the completeness, timeliness and accuracy of information, especially where information piggybacks on commercial relationships, enhances the sustainability of new behaviors and commercial relationships and lays the groundwork for more development gains in the future.

Some of the Activity partners that saw significant growth (as characterized in Outcome 2) did so at least partly by offering improved information of farmers. In Dynamic Agro's case, there was essentially no information on sesame production provided to farmers before its partnership with the Activity. Outcome 8 details firm experimentation with a variety of promotional approaches, showing how those businesses piloted with different methods and ultimately chose those they thought best matched their strategies, then pushed forward with a focused set of promotional tactics. Outcome 9 shows how financial services providers enhanced their purposeful outreach to rural women through information and access campaigns, while Outcome 10 details greater collaboration between private sector actors and research institutions, with the Activity playing a key role in facilitating a new line of communication between these actors.

Outcomes

OUTCOME 1: FARMERS HAVE INCREASED DEMAND FOR MECHANIZATION SERVICES IN THE FTF ZONE.

This outcome statement refers to a significant increase in farmer demand for combine harvesters (CHs) managed by Local Service Providers (LSP) of CH services, evidenced both through conversations with LSPs and by the increased sales of CHs by agri-machinery suppliers.

All Activity-supported agri-machinery companies reported increased sales of the CHs in the FTF zone. Before partnership with the Activity, the companies had very limited focus in the FTF zone, as the northern part of the country was their focus for selling the CHs. The reasons that they gave for their strong presence in the northern region were the existing favorable market conditions, notably progressive farmers, suitable landscape and high concentration of CH-suitable crops, like rice and wheat. With support from the Activity, agri-machinery companies organized awareness programs in the FTF zone in Southwest Bangladesh to increase demand for CH services, including both online and offline promotions.

The companies stated that this marketing promotion helped to build the brand awareness for the CHs that led to higher sales and increased demand for CH mechanization services in the FTF zone, as the promotions demonstrated the benefit and value of using the services to farmers. For example, with the support from the Activity, The Metal (Pvt.) Limited ('Metal'), an agri-input and machinery company progressively increased sales of the CHs in the FTF zones from 2019 through 2021. Metal sold 43 CHs in 2019 and 2020 before increasing substantially to 81 CHs in 2020-21 in the FTF zones. Prior to the Activity's support, Metal sold only 17 CHs in 2018 -19 in the FTF zones. Another Activity partner, ACI (Advanced Chemical Industries) Motors, sold around 170 CHs in 2020-21, a significant increase from the previous season, although baseline numbers were

not available in 2018-19. A third partner, Abedin Equipment, sold 17 CHs in 2019-20 and 65 CHs in 2020-21 in the FTF zones with the Activity's support. All the companies stated that they are expecting higher sales in the coming season, as there is strong demand for CHs in the FTF zones where they carried out the awareness programs for CHs.

The companies acknowledged that a government subsidy program for the procurement of the CHs has also played an important role in increasing sales and demand for the CH mechanization services. In July 2020, the government approved a BDT 3,020 crore⁴ project—the biggest ever scheme for farm sector—to support farmers to purchase agricultural machinery.⁵ According to Abedin Equipment, the amount of subsidy for the price support to farmers in purchasing CHs was BDT 300 crore in 2020 and BDT 400 crore in 2021. The government pays a 50 to 70 percent subsidy to farmers for purchasing the CHs. In addition, another USAID program, Cereal Systems Initiative for South Asia – Mechanization Extension Activity (CSISA-MEA), provided training and capacity building support to the companies and CH service providers to increase capacity of the drivers/operators and mechanics of CHs.

An interview with one of the LSPs, KONIKA Seeds, found that there is increased demand for CH mechanization service in his region, Chuadanga District, that resulted from the awareness program conducted with the Activity's support. KONIKA started with one CH and then increased the number to six CHs within one year after seeing the demand from the farmers for the services. KONIKA said it has also increased its service delivery time from 60 days to 150 days by mapping the demand for the service by harvest time of crops in different locations. As there are time differences for rice harvesting of different varieties, the machine moves to different districts accordingly. KONIKA also said that many farmers consult them to buy CHs, and approximately 20 farmers have already bought CHs to provide CH mechanization services in the FTF zone. As the CH is still a relatively new type of machine in Bangladesh, all Activity partners emphasized the need for continued support from development partners for awareness programs for CH mechanization services. However, they also said that they will continue their promotion activities in the FTF zones, as they have already seen the increased demand for the services.

Influences

- **Activity influences.** Before the Activity, the agri-machinery companies had very limited or no operation in the FTF zone. The Activity supported online and offline marketing promotion conducted by partners that played a key role in increasing demand for CHs in the FTF zone. The agri-machinery companies will continue to supply CHs, rice transplanters (RTs) and other equipment in the FTF zone as they are expecting higher sales in the coming season.
- **Non-Activity influences:** The government subsidy program for the promotion of mechanization played an important role in increased sales of CHs, as the government bears 50 to 70 percent cost of the total price of each CH. In addition, another USAID program, CSISA-MEA provided training and capacity building support to the drivers, operators, and mechanics that has helped to improve the functioning of the CH and mechanization services market.

Opportunities for Follow-Up

The Activity's support created momentum, and the CH suppliers and LSPs are expecting higher growth in the coming years. However, for higher uptake, promotional activities should be continued alongside government support. According to the companies, they saw higher CH sales in areas where there is a high risk of natural calamities, like early flood, suitable landscape, and a high concentration of suitable crops, like rice and wheat, for using CHs. Those interested in promoting CHs should consider those factors including the potential to boost farmer resilience to flooding, while designing and targeting customers.

⁴ 1 crore= BDT 10 million. At the time of writing, USD 1 = BDT 85.79

⁵ <https://www.thedailystar.net/business/news/farm-mechanisation-gets-big-push-govt-1930645>

OUTCOME 2: ACTIVITY-SUPPORTED INNOVATIONS HAVE LED TO SIGNIFICANT FIRM GROWTH.

This outcome statement refers to the significant firm growth experienced by Activity-supported partners who had very limited or no operation in the FTF zones before the Activity. There was considerable evidence to support this outcome statement. Several small, regional private firms experienced significant firm growth by adopting innovations supported by the Activity. The Activity shared the cost of business risk for adopting the business innovations.

KONIKA Seeds, a regional seed distributor from Chuadanga District, is a good example. KONIKA expanded its business almost three-fold since 2018. Before their relationship with the Activity, its main business focus was crop seed production and distribution. Working with the Activity, KONIKA integrated five new products and services into its portfolio of offerings to farmers in multiple phases between 2018 and 2021, specifically the following products:

- Premium rice varieties production and seed distribution
- Crop pest protection (Trichoderma and bio-pesticides)
- Premium variety rice grain (Banglamoti) sales
- Mechanization services (combine harvester)
- Agent banking

In addition, KONIKA has been providing advisory services on good agricultural practices (GAP) and better post-harvest methods and has become a key source of quality extension service for farmers. It has increased its business area from six to 10 districts in the FTF zone, and its recent expansion has continued beyond the FTF zone as well. KONIKA says it will continue production of premium quality rice seed variety (Bangla Moti/BRRI Dhan 50) through contract farming, as there is increased demand from the farmers. It will also continue branding of premium quality rice grain/paddy (Bangla Moti/BRRI Dhan 50) through a buy-back guarantee that it offers to contract farmers.

As noted under Outcome 1, increased demand for mechanization service in the region, a result at least partly due to the Activity's support for awareness-raising, also contributed to firm growth. KONIKA increased its number of CHs from one to six within less than a year due to increased demand from the farmer. Furthermore, it will start focusing on a new RT service in the coming season and has already seen demand for the service.

With the Activity's support, KONIKA has increased its City Bank agent banking outlets from one to four. Despite an earlier concern, in which KONIKA expressed some dissatisfaction regarding the support City Bank provided, KONIKA will continue to provide services to farmers and expresses confidence about the future success of the business as there is already good demand.

Through the marketing promotion conducted by KONIKA with the Activity's support, there is also significantly increased demand for Trichoderma, a fungus-based crop protection product, and bio-pesticides that are relatively new on the market in the FTF zone. KONIKA nearly doubled sales of Trichoderma to 1,300 kilograms (kg) last year from its first-year sales of 700 kg. Sales of bio-pesticides have also increased to 2,500 kg compared to first-year sales of 1,500 kg. KONIKA states that it will continue the marketing and sales of Trichoderma and bio-pesticides.

Another example of significant firm growth is Ujirpur Organic Multipurpose Cooperative Society Limited (UOMCSL), another regional input distribution firm from Jessore District that more than doubled its revenue in less than two years by adopting the Activity-supported Community Business Service Provider (CBSP) model. Before the Activity, UOMCSL was dependent on the dealer-retailer driven distribution model for their rice seed distribution. In 2020, UOMCSL piloted the CBSP model alongside its existing dealer-retailer network for the production and distribution of new and premium rice seed varieties for diversified agro-ecological areas and safe Crop Pest Protections (CPP). It started with 66 CBSPs of which 60 CBSPs were retained based on their performance. It is worthwhile to note that 56 CBSPs are from Water Development Board groups in rural communities and 10 are from paddy traders.

In the scale-up phase (2021), UOMCSL continued to support the pilot phase activity along with sales of premium rice grain and mechanization services through the CBSP model. UOMCSL's business area expanded from 180 villages to 300 villages in 10 FTF zone districts in a two-year period with the Activity's support. Its sales of premium variety rice seed increased from 115 metric tons (MTs) in 2019 to 419.98 MT in the last season.

After production, sales of premium rice grain also increased significantly. UOMCSL procured around 18,000 MT of rice grain in the last harvest season that was supplied to five rice mills.

UOMCSL also integrated mechanization services into its portfolio. It offers mechanization services, such as reapers, rice transplanters, threshers, power tillers, and a mini-CH, to its customers. According to UOMCSL, the CBSP model helped it to have better services in the distribution of seed, advisory service, price information, paddy procurement, and sale of premium rice variety to millers that has led to improved trust, inter-dependency, influence over the farmers and over CBSPs.

UOMCSL also says its organizational capacity has been improved by working with the Activity in the areas of accounting, supply chain management, output collection, more organized business operation, improved marketing, and improved bargaining power in premium paddy selling. Considering the success of the CBSP model, UOMCSL will continue to use its 60 CBSPs in the future and has planned to add an additional 30 CBSPs in the coming season.

A third example of significant firm growth is Prantojon Agro Enterprise ("Prantojon"), a processing company from Barisal that processes mung bean at its mill and sells mung dal in the local market through an existing distribution network. Before the Activity's support, Prantojon followed a supply-driven business model and mostly used a traditional trader-dependent procurement method. With the Activity's support, Prantojon shifted to a formal contract farming model through which the farmer received mung bean seeds (BARI Mug-6) on credit along with GAP training for production and improved post-harvest management. Prantojon confirmed that this input-driven contract farming model contributed to its business growth. It procured 116 MT of mung bean in 2019, compared to 38 MT in 2018 (before the Activity), and it is expecting a higher volume in the coming (2021-22) season.

Prantojon will continue with the existing contract farming model (using lead farmers as agents) and expand into new locations without support from the Activity, as they found the model effective. It has also established linkages with the Department of Agricultural Extension (DAE) for technical assistance on mung dal, which did not exist before the Activity's intervention.

Influences

- **Activity influences:** The partners confirmed that the Activity's role was key in testing innovations, like integrating new products and services:
 - CPP, mechanization service, and selling of premium rice grains have significant contribution to KONIKA's business growth.
 - Integrated services offered through the CBSP model have significantly contributed to UOMCSL's business growth.
 - Moving from a trader-driven procurement model to an input driven contract farming model contributed to Prantojon's business expansion.
- **Non-Activity influences:** No non-Activity influences were identified, though the progressive mindset of the Activity's partners to explore new business opportunity can be seen as a positive influence on the outcome.

Opportunities for Follow-Up

The story of how these small regional companies increased their coverage and sales in the region within a short period of two to three years by adopting the innovations facilitated by the Activity could be captured as growth case studies for other development partners to assess opportunities for replicating.

OUTCOME 3: CONSUMER DEMAND FOR ZINC RICE VARIETIES HAS INCREASED.

Ali Seeds Ltd is a regional seed company from Jessore engaged in zinc rice seed production and supply since 2013. Ali previously supplied zinc rice seeds to only one buyer, HarvestPlus. HarvestPlus is a program under the International Food Policy Research Institute (IFPRI) that helped Bangladesh Rice Research Institute (BRRI) scientists develop six high-zinc rice varieties since 2013.⁶ With the Activity's support from 2018, Ali worked on the following: (1) demand creation for cultivation of zinc rice amongst farmers, and (2) promotion through value chain actors so that zinc rice gets greater visibility in the market, thereby increasing awareness of its nutritional and health benefits. For the OH exercise, increased consumer demand for zinc rice can be assessed if there are increased sales of rice grain downstream (aggregator/wholesaler/retailer) or if there are increased sales of zinc rice seeds sales at seeds the supplier level (seeds company/dealer/retailers).

Ali Seeds report that it has increased production and increased sales of zinc rice seed with RDC support. Its zinc rice seeds sales were 130 to 140 MT in the last season (2020-21), up from 50 to 60 MT before the Activity's support in 2018-19. Abdul Wadud, a lead farmer and contract grower, cultivated zinc rice in 12 to 15 bigha⁷ before 2018 and more than tripled (40 to 50 bigha) his cultivation due to increased demand. He acknowledged that both Ali and the local government agricultural officer made significant efforts through an awareness program that contributed to the increased cultivation of zinc rice.

Ali Seeds also reported that sales of zinc rice grain increased through its partnership with the Activity. As it was not his business focus, Abdul had very limited sales of zinc rice before the Activity. He saw an increased trend in grain sales in the last two seasons from around 14 MT in 2019-20 to 57 MT in 2020-21. He is now selling zinc rice grain to institutional buyers/wholesalers, local retail markets, and directly to consumers. One of his zinc rice grain buyers, M-World, an e-commerce platform, said that it sold 10 to 12 MT last season to consumers and is expecting 40 to 50 percent sales growth in the coming season. Ali said that he is getting attention from large buyers like Reneta, Agora, Labaid, and Shwapno, which he sees as a sign of increased consumer demand for zinc rice.

In terms of factors contributing to this outcome, Ali mentioned the Nutri Champ program,⁸ a television cooking reality show where zinc rice was promoted to consumers, as contributing to increased consumer demand. He mentioned that the farmers who grow zinc rice now keep a significant portion of their produce for home consumption and sell the remainder to him, as they are more aware of the benefit of zinc rice. However, he also admits that, considering the potential of zinc rice, consumer uptake has still been very slow.

Similarly, according to our interviews with M-World and Parmeda (another e-commerce grocer), there is great potential for zinc rice considering its benefits and features, but zinc rice uptake by consumers is very slow. M-World has been promoting zinc rice to consumers in Dhaka, Sylhet, and Jessore for the last few years. They acknowledged that the Nutri Champ program helped to increase consumer awareness on zinc rice to some extent. Before the program, M-World used to invest 30 to 40 minutes educating a single consumer about zinc rice and its benefits, but now a good number of consumers know the name of zinc rice, and they just need to spend five to 10 minutes to explain its benefits and features. According to Parmeda, consumer demand is increasing at a slow pace. Some of his customers did search for zinc rice during the Nutri Champ program, but the demanded amount is insufficient for him to sell zinc rice yet. Both companies emphasized the need for a strong mass awareness program to increase consumer demand for zinc rice.

⁶ <https://www.dhakatribune.com/bangladesh/agriculture/2021/02/11/bangladesh-develops-best-hi-zinc-rice-yet>

⁷ 1 bigha = 2,990 square yards

⁸ Nutri-Champs was a TV reality show on cooking aims to empower youth in the kitchen and stress the importance of a safe, nutritious diet that includes promotion zinc rice. The program idea came from the Activity, then they teamed up with Johns Hopkins University's UJJIBAN social behavior change program and other Feed the Future programs, including Abt Associates' Bangladesh Nutrition Activity, World Fish's Bangladesh Aquaculture and Nutrition Activity, and ACDI/VOCA's Feed the Future Livestock for Improved Nutrition Project.

Influences

- **Activity influences:** The Activity supported promotional activities conducted by Ali Seeds and the consumer awareness program Nutri Champ on the national television channel, which has contributed to awareness of and some increase in demand for zinc rice.
- **Non-Activity influences:** BRRI, DAE, and HarvestPlus have been supporting zinc rice development and promotion. HarvestPlus has been working with the BRRI and the International Rice Research Institute to develop zinc rice. Recently, Bangabandhu Sheikh Mujibur Rahman Agricultural University joined HarvestPlus in zinc rice development. They work with public, private sector, and non-governmental partners to multiply and distribute seed, educate farmers on the benefits of zinc rice, and promote wider adoption and consumption of the crop through public awareness campaigns.

Opportunities for Follow-Up

As confirmed by Ali and zinc rice grain distributors, there is increased demand due to the promotional activities carried out with the Activity's support, but considering the benefits and potential of zinc rice as both an agriculture crop and nutritious food, the demand is still very low and considered a niche market. As such, continuing and expanding promotional messaging to consumers, especially by market actors with a commercial interest in the success of zinc rice, would help sustain this momentum and increase awareness and demand among producers and consumers.

OUTCOME 4: SUPPLY CONSTRAINTS HAVE INHIBITED THE GROWTH OF EXPANDED PRODUCT OFFERINGS (NEGATIVE).

This outcome statement refers to the supply constraints of bio-solutions, particularly inoculants and Trichoderma compost that were promoted by input companies with support from the Activity in the FTF zone. In general, awareness and use of such products by farmers in Bangladesh are still in the early stage, as most farmers consider these to be secondary requirements to farming compared to the traditional agro-inputs (seeds, pesticides, insecticides, chemical fertilizers, etc.).

In the FTF zone, the advent of bio-solutions is new. With support from the Activity, two companies, Xplore and KONIKA, implemented promotional activities to create awareness and strengthen distribution channels for the supply of crop-specific inoculants and Trichoderma compost, respectively. However, ensuring regular and good quality supply of strains used for these products remains a challenge for the private companies.

According to government policy, any commercial provider of these products either should have their own laboratory for production of the strains or should have a Memorandum of Understanding with one of the six (appointed) public research agencies under the Ministry of Agriculture for procuring the strains. These agencies do not have the capacity to produce enough strains to cater to the demand of the private sector. Their laboratory facilities and human resource capacities still are used largely for research purpose, such as developing new strains for crops, or purity and quality checks of earlier strains.

With regard to private companies setting up their own laboratory facilities, according to them, the approximate cost of setting up such a facility ranges from BDT 5 million (USD 60,000) to BDT 15 million (USD 175,000), depending on the inputs/technology used for strain production. There is also an additional cost of recruiting technical experts and other associated costs, which makes it a significant investment for a private company to make. Some companies, such as Rash Agro Ltd., have invested in Trichoderma laboratories. Rash Agro is slowly expanding its facilities. Similarly, Apex Fertiliser Ltd. have also invested in the infrastructure needed but are facing challenges in operating cost effectively.

For inoculants, Xplore is currently procuring each 100 grams (gm) of strains at government approved rate of BDT 100 (~USD 1). According to the Bangladesh Agriculture Research Institute (BARI), this cost is highly subsidized and does not cover the costs of producing the strains. Due to capacity issues, BARI was not able to provide Xplore with any strains in 2020.

From the demand side, dealers in interview locations are yet to realize the full potential of the business case for inoculants. Pilot activities supported by RDC during the seasons of 2019 and 2020 created initial awareness

among farmers for *Rhizo*, Xplore's branded inoculant. During an interview, an input dealer affiliated with Xplore mentioned that the results were good, so he expects that farmers in his area will increase their purchases in the upcoming season. However, he is not able to assess his revenue from this product yet, compared to other fast-moving agro-inputs in his portfolio.

Influences

- **Activity influences:** The Activity's role was key in establishing private sector (Xplore, KONIKA) linkages with the public sector laboratories for sourcing of the strains. The support on implementation of promotional activities and pilot demonstrations in the field sparked a demand for bio-solution products among farmers in the FTF zone, which the companies would probably have not done to the same extent.
- **Non-Activity influences:** Existing government policies and high infrastructure investment inhibits increased production and supply of strains sufficient to needs of the private sector.

Opportunities for Follow-Up

The products have been reported to be effective in the field as well as being environment-friendly, which is important for sustainable agriculture. Further strategies that could assist to promote the market include policy advocacy and mechanism to foster investments in laboratory facilities on the supply side as well as strengthening awareness and uptake of such products from the demand side.

OUTCOME 5: FINANCIAL SERVICE PROVIDERS HAVE EXPANDED OUTREACH TO RURAL AREAS.

Banks are testing and expanding a range of financial services targeting the rural areas, including the FTF zone. These include agent banking, micro-merchant services, small- and medium-sized enterprise (SME) banking, and financing models for agri-machinery and equipment purchase. While uptake varies, farmers have confirmed growth in formal banking services in the rural areas targeting agricultural and non-agricultural transactions, according to other research conducted by the Activity. In addition, agricultural value chain actors are being engaged for financial service delivery, particularly as bank agents and micro-merchants, to reach "last mile" farmers.

Both partner and non-partner banks, such as Bank Asia, BRAC Bank, and Prime Bank, reported that they are seeing a growing opportunity in offering financial services in the rural areas. Of all the different models, agent banking has rapidly gained momentum. Given the potential for a growing client base and the need to develop a low-cost alternative bank branch mechanism to deliver financial services in the remote areas, the agent banking model proved to be feasible with up to an 82 percent drop reported in cost per client, according to Bank Asia. Bank Asia has pioneered the model since 2013, and as of June 2021, 28 banks have initiated agent banking operations. Bangladesh Bank suggested that a total of 12.2 million accounts (46.5 percent female)⁹ have been opened through approximately 12,000 agents to date. Of the total number of account holders, 86 percent are from the rural areas. In the FTF zone through Activity partners, a total of 55,000 new accounts have been created (38 percent of account holders are female), BDT 12.9 million has been deposited and approximately BDT 500,000 has been disbursed as a loan.

Bank Asia continues to be the bank with the highest share of accounts and outlets, followed by non-partner banks such as Dutch Bangla Bank Ltd., Islami Bank Ltd., and Al-Arafarah Bank. With the Activity's support, Bank Asia was also the first bank to initiate agent banking services in the FTF Zone.

The Activity supported Bank Asia¹⁰ to engage agricultural value chain actors in the FTF zone as agents and micro-merchants targeting "last mile" farmers, given their familiarity with the potential clients. For example, KONIKA has expanded to four agents across six different locations within the FTF zone in only six months and SAACO has recently opened another outlet. The success of the model has attracted agro-input leader Syngenta to test the model with Bank Asia on their own. Through the partnership with Bank Asia, Syngenta

⁹ Bangladesh Bank (June 2021)

¹⁰ Bank Asia has already contracted nearly 39,000 micro merchants across the country.

will use its exclusive agri-input retailer network as bank agents (initially with 500 micro-merchants both in the northern and FTF regions with a vision to bring 11,000 retailers on board).

As mentioned previously, farmers and agents have both confirmed a growth in formal banking services in the rural areas in the FTF zone. The six-month loan term and the favorable interest rate compared to microfinance institutions (MFIs) have been very attractive to the farmers while agents and micro-merchants have highlighted the benefit of unlocking tied up working capital due to credit purchase of inputs by farmers. However, the success of the different models and uptake of services have varied by region and by type of partner.

Within the FTF region, loan uptake was low in Barisal compared to Jessore. Farmers, in general, have shared concerns on longer documentation and procedures compared to MFIs, the lag of communication, and discontinuity from banks to make more six-month loans available.

City Bank, an Activity partner, has experienced greater success with SME financing (credit offered to 130 agri-companies in the FTF region) than with the agent banking model, particularly due to their focus and priority in terms of the type of clients and services they aim to associate their brand value with. Similarly, given the need for financing for agri-machineries, variations of asset-based financing for small machineries have been tested, but due to the poor credit rating and risk of default, financing related to movable assets is being cautiously considered by banks. BRAC Bank is showing most interest in testing out a feasible model.

Influences

- **Activity Influences:**
 - **Comprehensive testing and introduction of multiple models:** The Activity's role was key in supporting the complete 360-degree testing (establishing the model, promoting and ensuring the service is available during the COVID-19 period) and scale-up success of agent banking model and establishing the business case on micro merchant banking.
 - **Demonstration to others:** Bank Asia's role has a pioneer in rural financial services innovation has also influenced other banks. For example, this year Prime Bank has introduced agent banking services, and 30 percent of their agents are based in the FTF zone. Banks have also expressed their interest in the micro-merchant model but are waiting to see the learning from Bank Asia followed by directives from Bangladesh Bank.
 - **Motivation to risk investment in COVID-safe banking:** The Activity support has also enabled its partner banks to continue offering COVID-safe banking services and motivated them to invest in safe banking services, for example, deploying staff with masks and safety protocols established by BRAC Bank. Successful rollout encouraged partner management to continue such investments and highlighted its importance to others.
- **Non-Activity Influences:** Bangladesh Bank's Prudential Guidelines require commercial banks to maintain a minimum ratio of three to one for establishing rural versus urban agent banking outlets to emphasize the focus on rural areas. This has pushed banks to intensify their efforts in the rural areas. In addition, the stimulus package during COVID-19 and the lower interest rate offered by commercial banks compared to MFIs have encouraged banks to offer loans and encouraged farmers to take up credit. It is important to acknowledge the contribution of other development partners, such as the United Nations Development Programme and United Nations Capital Development Fund, in initiating the work on micro-merchants with Bank Asia, learnings from the Krishi Card supported by CARE, and the work by the Agriculture Retailer Network to develop a pool of agro-retailers.

Opportunities for Follow-Up

Banks need to continue communication with agents, micro-merchants and farmers to ensure that momentum or interest is continued. There is potential to consider innovations in asset-based financing to ensure access to agri-machineries, which is currently difficult for individual farmers (particularly the non-large farmers) to access. In addition, banks have confirmed that digitization is critical to ensure cost efficiency and obtain scale via agents and micro-merchants. Hence, digital literacy for users is an important component to include in any efforts that includes digital service delivery.

OUTCOME 6: FARMERS HAVE BETTER ACCESS TO INFORMATION.

Agro-companies are increasingly using a combination of different platforms to share new information, reinforce good practices, address queries, and monitor farmer activities on a consistent basis.

Companies acknowledged that there is no single platform that is sufficient to provide information. Rather, different types of platforms are used to serve different purposes. Agro-companies have highlighted the importance of *virtual platforms*, such as phone calls and social media, to reinforce good practices and address queries in a short time. For example, ACI Motors acknowledged that in-person demonstrations are critical to first generate interest and highlight the product, while video demonstrations online are sufficient to continue that reinforcement rather than spending time and resources on in-person demos. They have noticed only a marginal increase in physical participation for follow-up harvester demonstrations unlike the first time when people were introduced to the product. Once there is a general awareness, people prefer to look up online or inquire over social media or phone calls rather than using their time to attend more in-person demonstrations.

Companies are also increasingly adopting cable television content. The Activity supported companies to develop relevant content to promote products and give information to farmers using television advertisements, particularly to demonstrate its use as a cost-effective means for reaching a larger scale of farmers when in-person methods are not practical (e.g., during COVID-19). For example, Petrochem Ltd., plans to continue using multimedia and cable television promotions.

Female CBSP agents of UOMCSL confirmed that they use a mix of media and reported that phone calls are easier for responding to quick queries, and they reduce travel time and cost. They also highlighted that virtual platforms allow for greater flexibility. For example, farmers can easily refer to online content anytime they wish instead of recollecting from memory or waiting for the next in-person session.

On the other hand, in-person modalities continue to be important media, and companies have become more strategic in their use of them. These modalities include the following: (1) miking, (2) retailer network promotion, (3) one-on-one advisory interactions with agro-representatives (CBSPs and Crop Clinic Advisors), Farmer Ambassadors and farmers, (4) training, and (5) courtyard meetings. For example, Bayer engages its Crop Clinic Advisors to provide a combination of information services which include one-to-one advice to farmers and farmer meetings (*uthan baithaks*). This is particularly true for introducing new products and practices that require physical demonstration, as well as having group discussions that require in-person interactions or to address complex issues that benefit from opinions and consensus. In addition, they also use social media platforms, such as Facebook Messenger, to respond to queries.

According to the sources interviewed, farmers have confirmed an increased availability of information both in terms of content and frequency. In some FTF locations, farmers are receiving information on sesame production and post-harvest handling for the first time, as there were no companies providing information on this crop before. For example, as part of Shukumar Bhandar's expansion plan for procuring sesame from the FTF region, they are sharing information on sesame processing and post-harvest management with farmers and traders and have also used cable television to share information. Similarly, PRAN group and BSCL are providing GAP information to farmers in the FTF region.

The improvement in information flow and extension services provided by companies (Jadid, Shukumar Bhandar, Bombay Sweets, Bayer, etc.) is increasing farmers' engagement with the companies and therefore generating greater trust in agro-companies. For example, Activity partner Dynamic Agro was the first company to provide seeds and information on sesame production to farmers in the FTF region. This increased engagement and targeted information provision by Dynamic Agro has built trust amongst farmers about the Dynamic Agro input brand. It has also been able to leverage that trust to introduce other risky or sensitive crops, such as onion, without Activity support. Dynamic Agro is also planning to adopt courtyard meetings targeting female farmers to promote sesame seeds in new locations. Companies, such as Xplore, have confirmed that the increase in information has improved the level of awareness on quality of products/inputs among farmers, which is a major change in the FTF region.

Farmers are increasingly becoming aware of the benefits of online and virtual platforms; however, the preference continues to be higher for in-person interactions.

Influences

- **Activity Influences:**
 - **Demonstrate effectiveness of content and medium:** Information dissemination has always been considered strategically important by agro-companies, but RDC helped them improve the quality of content (for example, shortening the length of shows and highlighting the most important information within the shortest time) and gave ideas for more cost-effective channels and combination of media. The demonstration of the strategic purpose of different media was considered an important learning shared by RDC to companies.
 - **Support introduction of value-added services:** RDC's support enabled private companies to test out and introduce more value-added services that are inclusive in nature. For example, with the support of RDC, Bayer introduced women farmer clubs and female ambassadors targeting female farmers.
 - **Continued interaction during COVID:** RDC's support in identifying alternative modalities to continue information dissemination, helped companies to continue farmer level interactions despite mobility challenges during COVID.
- **Non RDC Influences:** Companies are being forced to innovate by competitors providing information via different media to remain relevant to farmers and therefore competitive in the market. This in addition to government restrictions imposed during COVID triggered companies to think creatively to reach out to farmers.

Opportunities for Follow-Up

While information is critical to gain farmers' trust and to improve the quality of supply, it is important for companies to understand that farmers are not a homogenous group and the effectiveness of information varies across different groups divided by gender, access to network, literacy etc. It is therefore important for companies to keep a note of what works for different groups when sharing information and selecting platforms. Development partners have a role to encourage companies to experiment and learn from others' use of media as all actors look to amplify the volume of useful information flowing with agricultural market systems in Bangladesh.

OUTCOME 7: NEW MARKET ACTORS HAVE CROWDED INTO FTF ZONE.

The study showed that many new market actors, including large institutional buyers of food grain, agri-machinery companies, and e-commerce players, crowded into FTF zone based on information about, and experience of, the market potential, largely as a result of the Activity's support.

Bangladeshi food processing companies have not been able to procure sufficient quantities or varieties of food grain or industrial raw materials like aromatic rice, mustard, groundnut grain, mung bean domestically. The companies are also heavily dependent on buying in the northern region due to a lack of confidence in the supply chain and limited operations in the southern region, and more specifically in the FTF zone. For example, PRAN group did not have any operations in the FTF zone for the procurement of mung bean before the Activity. With support from the Activity (2020-21), PRAN expanded its supply chain operations in the FTF zone by establishing eight new 'Krishi Hubs' in the region and brought in 6-7 staff. PRAN reports that it procured more than 4,500 MT of green mung from the FTF zone Krishi Hubs in the last season. PRAN is planning to expand its supply chain in the FTF zone by increasing the number of Krishi Hubs and adding more crops, like groundnuts, based on satisfactory results in the last two years of operation.

Similar to PRAN, Bombay Sweets Co. & Ltd. (BSCL), another large institutional buyer of industrial raw materials and food grains, established a strong presence in the FTF zone with the Activity's support. In the 2020 season, BSCL procured approximately 130 MT of groundnuts from Char Island of Pangasia Bazar of

Bhola District from around 35 Lead Farmers.¹¹ It also procured aromatic rice and mustard oil from the FTF zone. Like PRAN, BSCL reported that they would expand in the FTF zone by investing more of their own resources in the region and increasing the area coverage along with adding more crops to their portfolio. BSCL has already established a procurement and drying center in rented premises without direct the Activity's support.

Agri-machinery suppliers crowded into the FTF zone due to increase demand resulted from Activity-supported promotions through different agri-machinery suppliers. According to agri-machinery companies, they did not have operations or had a very limited operation for selling new types of agri-machinery like combine harvesters (CH) and rice transplanters (RT) in the FTF zone before partnering with the Activity. For example, before the Activity's involvement, Metal Agro, a national agri-machinery company, focused on the northern region for selling its CHs and RTs. In November 2018, the company partnered with the Activity to promote sales of CH and RT and sold 43 CHs in the FTF zone. Seeing the market potential, Metal scaled-up its activity and sold 81 CHs in 2021.

The Activity partnered with four agri-machinery companies focusing on the promotion and sales of CH and RT. They are ACI Motors, Abedin Equipment, Alim Industries and SmartMech Limited. The interviews with agri-machinery found that there is increased demand for the CHs in the FTF zone due to the promotional activities conducted with the Activity's support. They plan to continue their operations in the region to cash in the existing demand and would like the Activity or other organizations to continue the promotion to increase demand for CHs and RT in the FTF zone.

Another new entrant, Chaldal, is the first e-commerce grocery shop of Bangladesh to start procuring from and expanding their operations in the southern region (specifically the FTF zone) with the Activity's support. Previously, it procured only from Dhaka and surrounding areas, but since the Activity 's support it started operations in Jessore and Khulna. The Activity supported four market linkage activities helping Chaldal procure more than 12 MT of rice from the FTF zone in the last season. It is also very keen to continue its expansion plan in the FTF zone by increasing procurement volumes and adding more crop grains.

Influences

- **Activity influences:** The Activity partners confirmed that the Activity support influenced them to expand their operations in the FTF zone and that, before the Activity, they had very limited or no operation in the FTF zone.
 - The large institutional buyers like PRAN Group and BSCL expanded their supply chain in the FTF zone and confirmed they will continue to increase their procurement from the FTF zone in the future. These buyers set up their own procurement centers in the FTF zone and added more crops for the procurement.
 - The Activity supported awareness activities both online and offline promotions for mechanization services in the FTF zone that helped to increase demand for CHs. The agri-machinery companies will continue to sell CHs, RTs, and other equipment. in the FTF zone.
 - The Activity supported market linkage activities helped Chaldal to expand its procurement from the FTF zone
- **Non-Activity influences:** No non-Activity influences were observed other than government subsidy for procurement of CHs.

Opportunities for Follow-Up:

n/a

OUTCOME 8: MARKET ACTORS HAVE ADOPTED SOME PROMOTION ACTIVITIES AND DROPPED THOSE THEY FEEL ARE NOT WORTH THE RESOURCES.

This outcome statement refers to the promotional activities implemented by the private agro-input companies with support from the Activity. The major objectives of these activities were to create awareness of quality

¹¹ The Activity's Annual Progress Report 2020

agro-inputs in the FTF zone, as well as disseminate knowledge on GAP on select crops that have potential for increased productivity in the target locations. Considering the risks associated with crop production due to the different climatic/soil conditions of the FTF zone compared to the other agricultural zones of Bangladesh (particularly the northern region), the penetration of quality agro-input companies in the FTF zone was limited prior to the Activity's support.

Agro-input companies such as PetroChem Ltd., ACI Fertilizer, NAAFCO Ltd., and others, as well as some mechanization service providers, such as Abedin Enterprise, engaged with the Activity in promoting their products and services from 2018-20. The promotional activities included a range of field activities, such as conducting demonstration plots, field meetings, farmer trainings, video shows, road shows, miking, and more, as well as digital-based activities using Facebook, WhatsApp, and YouTube. The pandemic period from mid-2020 through to 2021 affected the continuity of some planned field activities.

The overall plan of the promotional activities was jointly developed by the Activity, and private partners based on the type of products and services to be promoted. Specific strategies to reach female farmers and female members of farming households were also designed and implemented. The intervention also included strategies to improve awareness and sales at the distribution and retail points within the FTF zone.

Most of the agro-input companies who were partners of the Activity increased their product and service awareness in the FTF zone leading to increased sales among farmers. This was attributed to the implementation of a combination of promotional activities in the field that gave a boost to awareness among farmers. However, without the Activity's support, the companies report that they will not continue all the promotional activities. The companies have identified the ones that are most effective in the field and will continue them based on the resources available to each of them.

Most companies mentioned face-to-face meetings, field demonstrations, and video shows being the most effective forms of promotion in the field. These were more effective for the introduction of new products, such as new seed varieties, bio-solutions, and climate-smart products. Some companies mentioned the use of digital platforms are effective and these will be continued, though they also stated that the accessibility to smartphones and capacity of female farmers is an impeding issue.

From interviews with dealers and retailers about the promotional activities, they said that Activity -supported promotional activities improved their relationships with farmers and improved their sales of the respective agro-inputs. Demand from farmers for these products is increasing, but the promotional activities need to continue to strengthen this demand.

Influences

- **The Activity influences:** The Activity's support reduced risks and the costs of piloting and introduced promotions for companies in the FTF zone. The major benefit from working with the Activity was that these activities were implemented simultaneously and in an organized and timely manner, allocating sufficient financial resources, which otherwise would not have been possible for the companies.
- **Non-Activity influences:** Most types of field promotional activities, such as miking,¹² and farmers meetings were already implemented by the companies in other parts of Bangladesh. Hence, the companies had experience about their effectiveness in the field.

Opportunities for Follow-Up

While the promotional activities assisted in boosting demand among farmers regarding seeds, care for crops, bio-solutions, and more, the companies say that continued promotion is required for another two to three seasons to strengthen demand. Use of digital platforms could be an effective solution to reduce costs of

¹² Public gatherings using microphones to get attention and broadcast messages.

promotional activities, however, farmers do not all have access to these platforms, so tools need to be adjusted accordingly.

OUTCOME 9: MARKET ACTORS HAVE ADOPTED PROMOTION AND SERVICE STRATEGIES TARGETED AT FEMALE FARMERS.

This outcome statement refers to promotional activities implemented by private sector partners of the Activity, particularly targeting female farmers or female members of farming households, herein referred to as “s”. Private sector partners stated that female farmers are more careful compared to male farmers about GAP application, particularly crop care. While women play important roles in farming, they also pursue and remind men to follow good practices in the field. Hence, the private sector companies find it useful to strengthen female farmers’ access to information and knowledge on agro-inputs and other information relating to their business.

Due to multiple roles and workload that women have in farming households, as well as restrictions on mobility, such as visiting the marketplace and interacting with market actors directly, female farmers usually have less access to agricultural information compared to the male farmers. Hence, innovative strategies and strong trust and relationship building mechanisms are required to reach female farmers in the communities.

Agro-input companies and banks, which partnered with the Activity, deployed several strategies to reach female farmers in the FTF zone. These included the following:

- Recruitment of female field staff
- Organizing courtyard meetings in and around farming households
- Conducting farmer field meetings near the farming plots
- Appointing female farmers for demo plots, particularly for vegetables and homestead crops
- Appointing female bank agents to provide credit facilities

Interviews with female field staff of companies relayed the following in terms of their reach to female farmers:

- A *Dynamic Agro Ltd.* staff member mentioned that out of every farmer meeting with 25 participants, usually seven are females. She also mentioned that female farmers in her locality have better access to information due to the promotional activities, compared to previous years. Being a female, it has been helpful for her to interact with female farmers in the field, particularly to go into the houses and for yard meetings to educate them about company products and production know-how.
- A *NAAFCO Ltd.* staff member said that she usually meets around 150 female farmers in a month; the field meetings usually consist of 20 to 25 female participants. NAAFCO has even hired female temporary field officers to collect farmer information to develop a farmer database. This was done through female staff, as they were perceived to be more trustworthy by farmers and are willing to share their details.
- A *UOMCSL* staff member said that she meets around 50 female farmers regularly to disseminate information and promote company services. In terms of promotional strategies, the yard meetings and video shows have been very beneficial for women farmers. Additionally, mobile phone-based contact mechanisms were introduced, but during the pandemic, she said that she visited individual houses of farmers to provide advice as both female and male farmers were always not able to use smartphones due to lack of skills.

However, despite the companies’ willingness to recruit female staff, the numbers are still low. UOMCSL mentioned that they will continue targeting women farmers because women are more serious about following the instructions on farming products compared to men. For this, they plan to recruit four more female CBSPs in the upcoming year (from the six female staff working currently). They could have hired more but stated that women have household chores and do not have time to work outside. Also, lack of skilled females to engage as staff in the region had led to lower recruitment.

Influences

- The Activity **influence:** The planned promotional activities were supported by the Activity and proved to be effective in reaching female farmers. These will be continued by the companies based on their own capacity.
- **Non-Activity influences:** Most types of the field promotional activities to target female farmers were already being implemented by the companies in other parts of Bangladesh. Hence the companies had experience about their effectiveness in the field to reach female farmers.

Opportunities for Follow-Up

The companies state they will continue targeting female farmers in the field. Mechanisms to foster higher recruitment of female staff by companies may need to be assessed and supported. Furthermore, use of digital platforms could be an effective solution, as mentioned in Outcome 8, to reach female farmers while also reducing costs of field activities. However, the capacity of female farmers to use these platforms needs to be assessed further and tools adjusted accordingly.

OUTCOME 10: MARKET ACTORS HAVE IMPROVED COOPERATION WITH PUBLIC RESEARCH INSTITUTIONS.

This outcome statement refers to the relationship of private sector agro-input companies, particularly the providers of bio-solutions, with public research institutions. These companies, Xplore and KONIKA, needed to engage with research agencies for quality sourcing of the strains for their bio-solution products.

A couple of years ago, field checks by government bodies showed that the quality of bio-products sold by companies were not good due to their sourcing raw materials from poor quality suppliers. As a result, policies were formulated whereby the private sector should source only from government approved laboratories. Currently, companies without a fully established laboratory must purchase the strains from the public agencies at a government approved rate (see Outcome 4). Other bio-solution providers (non-Activity partners), such as Rash Agro, mentioned that despite having their own labs, they have signed an agreement with two public research agencies, BARI and Bangladesh Institute of Nuclear Agriculture (BINA) to ensure regular quality check of their products. The purpose is to ensure alignment with the requirements of quality as per government standards.

The Activity partners Xplore and KONIKA had some earlier interactions with the public agencies, but the relationship was strengthened because of the Activity's intervention. Interviews with the companies' management relayed that they have developed good relations with the designated officials in the agencies, namely BARI and Rural Development Academy (RDA).

Influences

- The Activity **influence:** The Activity's interventions strongly contributed to stronger relationships with BARI and RDA:
 - For Xplore, the strengthened relationship helped in planning ahead and placing demand to BARI about the requirement of the strain. However, the supply of strains was hampered due to the pandemic and renovation of the public laboratory facility. BARI staff expressed that for better relationship, companies should, a) provide support for the BARI officials to visit the field to understand farmers reaction about the product and, b) highlight BARI's name in the product packaging more explicitly.
 - For KONIKA, RDA seemed satisfied with their interactions with the company. RDA also showed interest to increase the supply of Trichoderma strains to KONIKA, as they are expanding their lab facilities.
- **Non-Activity influences:** None identified from the assessment.

Opportunities for Follow-Up

The companies need to maintain continued interactions with the research institutes and ensure timely ordering of strains for the bio-products.

OUTCOME 11: MARKET ACTORS HAVE USED DIGITAL PLATFORMS TO EXPAND SALES, COORDINATE AND TRANSACT.

Agro-companies are acknowledging the benefits of and increasingly adopting a range of digital platforms and technologies, in particular cable television networks, and peer-to-peer learning using social media platforms like WhatsApp and Facebook to provide information to farmers, market products, and monitor activities on a larger scale with greater frequency and at more cost effectively.

Digital technology is increasingly being used across two levels:

(1) Providing services to farmers – information sharing, promotion of products or services, and ensuring forward and backward linkages

For these purposes digital technology is aimed at increasing frequency, product, service reinforcement, and reaching scale at lower cost. For example, ACI Motors uses Facebook and YouTube to share demo videos and promote products. Following social media boosting, their product inquiries increased by 42 percent in just a year (from 2020-21). They plan to continue to use YouTube to share more of their informative videos. ACI Motors is also using a service application to monitor the use of CHs and connecting farmers to service personnel in each area so that farmers can readily connect with them for troubleshooting through the mobile phone. UOMCSL CBSPs confirmed that they were able to respond to farmer queries immediately without having to wait for next in-person meetings. Similarly, Bayer mentioned that they were able to increase interactions with farmers from 10 to 15 farmers per day to 25 farmers per day (two to three interactions per farmer per month).

(2) Streamlining processes – for internal data management, coordination, monitoring, learning, and due diligence.

This aims at improving efficiency, that is, by reducing cost and redundancies. For example, Bombay Sweets was able to consolidate and have a repository of farmers for the first time in their company. This has helped them develop a system to trace farmers that are supplying products to them beyond the lead farmers who are their current contact. Crop Clinic Advisors of Bayer can share learnings within themselves and with farmers using WhatsApp and Facebook groups. Banks are moving from cash-based to virtual platforms for both due diligence purposes and for servicing more farmers (e.g., Bank Asia's farmer card). They see digitalization as a key step towards achieving scale.

Farmers can readily communicate within their network and with agro-companies to receive information as and when required and resolve queries related to crop production, post-harvesting handling, and sales. However, poor digital literacy and lack of affordability of data enabled phones continues to be an issue, even more so for women, and there is a preference for the in-person medium among both farmers and some actors.

Recognizing the lack of affordability of smartphones and the need to design more targeted, user-centric information product, as opposed to bulk marketing, telecoms provider Robi, in partnership with the Activity and 15 agro-companies, introduced a low-cost product bundle offer for farmers, called *Krishi Bhai*, which included a smartphone, sim card, and data package. This has resulted in some increase in data usage by farmers in the FIF region and the sale of 1,360 phones, however, the adoption of this bundled offer and the app varied, so it may not be continued as planned.

While companies like Bayer have used it for internal communication between staff, poor networks and the need to create Gmail accounts was a challenge for farmers to use the app. In addition, the risk of data privacy, such as the list of pricing and the names of distributors, becoming available to competitors through the app was another perceived limitation for companies to continue. According to Robi, the key outcomes from this were twofold. First, is the relatively less costly internet package offer triggering the increased use of data by farmers for browsing and gathering information from other social media platforms. Second, is the learning from a telco

perspective of the resource requirements and challenges associated with hosting such an app. There is a clear appetite for telecom operators to work on making data bundles available in the rural areas, but the model of agri-content information still needs to be further tested for commercial feasibility and scalability.

Influences

- **Activity Influences:**
 - **Overcame mobility restrictions and continue engagement during COVID-19:** Facilitation to motivate companies to take up digitization and/or increase use of existing digital platforms to respond to adverse situations, such as COVID-19, when in-person meetings were not feasible
 - **Ensure relevance and appropriateness:** The Activity supported agro-companies by reviewing their information content to ensure relevance and appropriateness across different technology media.
 - **Demonstrate the cost advantages:** The Activity's support was seen as useful to demonstrate the cost and time benefits of digitization and identify challenges to inform improvement in service offers in the future (e.g., learnings from Krishi Bhai App and its shortcomings).
- **Non-Activity Influences:** Mobility restrictions during COVID stimulated the need for companies to shift to digital platforms. In addition, increased mobile network penetration and other services, such as Bkash and Rocket, increased general awareness of digital platforms.

Opportunities for Follow-Up

Digital penetration is seen as critical to ensure product and service promotion and information delivery can be done in a cost-effective way at scale. However, this comes with some risk of exclusion of groups who are limited by poor digital literacy skills and affordability. (See Outcome 12.) It is therefore important to include digital literacy as part of any intervention or business model that promotes digital technology. In addition, to encourage increased adoption of digital technology it is important to demonstrate to farmers the financial value of getting the information. Companies are therefore recommended to use the platforms to offer more value-added services than just using it as a communication or promotional platform, such as connecting farmers with service agents or giving information on quantity and pricing.

OUTCOME 12: ADVANCES IN DIGITAL ADOPTION ARE EXCLUDING MARGINALIZED GROUPS (NEGATIVE).

There is a risk of a digital divide and exclusion of farmers, particularly women who have poor digital literacy and inaccessibility to technology platforms.

Although farmers are aware of the benefits of using digital technology in relation to its reduced cost, increased flexibility, and ease of readily available information, limitations to digital platform use include the following:

- **Ownership of phones (more applicable for women):** Compared to men, a smaller number of women own phones, let alone smartphones. Generally, in households that have only one phone, it is generally owned and managed by the male members of the household (e.g., husband, father, or son) or, in some cases, the daughter.
- **Affordability of smartphones (for both men and women):** Access to smartphones continues to be a challenge.
- **Poor digital literacy (more applicable for women)**
- **Privacy concerns over the use of WhatsApp or Facebook group (more applicable for women):** This is not so much applicable for open links. Companies are also thinking of promoting female only groups.

Influences

- **Activity Influences:** The Activity's support enabled the testing of different models and highlighting the risks to companies, such as those related to digital exclusion.

- **Non-Activity Influences:** Perceived gender norms across different areas influence women's access and ownership of technology products.

Opportunities for Follow-Up

- Consider the risks of exclusion when designing models that use digital platforms.
- Include digital literacy as an embedded service (e.g., ACI Motors service app).
- Test out models that encourage women's networks on social media platforms, such as female-only groups or engagement of lead female farmers to manage online groups to avoid risk of privacy invasion.
- Continue encouraging a combination or portfolio of modalities for information dissemination so that it reduces the risk of exclusion.

CONCLUSIONS

Conclusions

The Activity played a significant role (and in some instances is solely responsible) for the emergence of many consequential changes in the performance of agricultural market systems in southern Bangladesh. No effort at systemic change is completely free of negative consequences. The study team found that at least two negative outcomes (supply constraints hampering the marketing of new products and digital illiteracy threatening to exclude some marginalized groups) pertained to its work.

However, aside from those two outcomes, the 10 positive outcomes identified through this OH tell a larger story of significant boosts in the dynamism, information flow, and growth rates of firms serving farmers in the Activity's target market systems in the FTF zone.

As described in this report, at least four important themes emerged from the analysis of outcomes related to the Activity's work. These include:

1. The Activity **extended and deepened market actor engagement in the FTF zone.**

The OH found significant evidence that many market actors had entered the FTF zone for the first time and discovered viable markets for their products and services. Others, despite having already operated in the area, nonetheless managed to expand significantly by adopting new approaches to reach rural residents. In all cases, the Activity played a significant role in facilitating these results.

2. The Activity **helped market actors experiment with innovations and operational improvements.**

Many of the outcomes analyzed in this report involve experimentation with new forms of farmer outreach, service provision, information transfer, and other innovations that together paint a picture of the increased level of experimentation induced (at least partly, in all cases) by the Activity. This is vital, as economic development necessitates a process of localized experimentation; the Activity played an important role in de-risking heightened experimentation by dozens of Bangladeshi companies.

3. **With the Activity's support, several actors developed new, specialized services or discovered markets for relatively niche products.**

While less dynamic market systems are often characterized by many actors working with relatively similar business models (i.e., lots of actors doing more or less the same thing), more dynamic environments feature a larger diversity of business models exploring consumer appetites for specialized services and niche products. The Activity's support to many of its partners contributed, at least in part, to a blossoming of newly stylized services and niche product offerings in southern Bangladesh.

4. The Activity **facilitated a massive increase in the flow of useful information moving between all types of market actors in the FTF zone.**

Lastly, but perhaps most importantly, the Activity certainly facilitated a large increase in the volume and accuracy of useful information flowing between farmers, retailers, buyers and other market actors in southern Bangladesh. Information is the blood of any market system—the basis upon which market actors make decisions and interact with one another. Boosting the completeness, timeliness and accuracy of information, especially where information piggybacks on commercial relationships, enhances the sustainability of new behaviors and commercial relationships and lays the groundwork for more development gains in the future.

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