

Development of Value chains in High Value Crops
National Agricultural Technology Program – Phase II Project
(NATP - 2)

Annual Progress Report

2021 - 2022



THE WORLD BANK
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Hortex Foundation

As Strategic Partner of the

Department of Agricultural Extension (DAE)

Sech Bhaban, (3rd Floor), 22 Manik Mia Avenue, Dhaka-1207

June 2022

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The Producer Organization (PO) of Sreemangal constructed their own CCMC.

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Executive Summary

Hortex Foundation has been working as a 'Strategic Partner' of the DAE for the NATP-2 project, providing technical services in value chain development for selected high value crops (HVCs) with emphasis on improved postharvest management (PHM) practices to work for a better marketing system. NATP-2 project activities at Hortex could only be started from January 2018 whence all project staff could be mobilized. This annual report covers activities for the fiscal year 2021-22 and includes data, in applicable cases, from project inception, i.e., from 2016-17.

During 2021-22, all the CCMCs and Collection Points (CPs) functioned, while the capacities of the CCMCs were greatly enhanced as each was supplied with more equipment and enhanced facilities. The CCMCs continued to provide improved PHM practices, demonstrations, linkage between traders and farmers, etc.

During the year 2021-22, a total of 10,192.30 tons of agricultural commodities were marketed through the CCMCs and CPs which adds up to a total of 35,569.38 tons since project inception. Different agricultural commodities were traded which included the six selected HVCs (brinjal, bitter gourd, sweet gourd, tomato, banana and aromatic rice). The sale volumes are elaborated through Annex Tables 3.1 and 3.4 by months, agri-commodities, upazilas and by years respectively. Export of vegetables continued to countries like, Malaysia, Dubai, Qatar and Saudi Arabia. Mostly brinjal, teasel gourd, bitter gourd, bottle gourd, lemon, etc. amounting to 2,318 metric tons from 2017-18 up to 2021-22 were exported to these countries.

Training of CIG farmers and others continued this year also for a total of 2,699 persons. Since project initiation to June 2022 this amounted to 19,724 persons, who ranged from DAE officers to farmers and traders, for a total of 20,291 client days. Topics included PHM practices, marketing, governance, contract farming, food safety and quality, CCMC+CP operations, record keeping, etc. All five Exposure visits of PO-MMCs were carried out.

All the 60 Business Planning Workshops (BPWs) were completed with the PO-MMCs by June 2022 in two rounds. The first round BPWs were work output oriented, fully participatory and were followed up in the second round for necessary adjustment to the Plans after experiencing business activity.

So far 20 PO-MMCs obtained registration from relevant GOB authorities. PO-MMCs' funds invested in business & assets including savings showed that they had between seven and 15 lakhs taka. All of them availed AIF-3 matching grant and acquired mini- to big trucks for their HVC transport.

All seven remaining National Workshops were held; such as on: Improved Management of Mango for Export, BP for PO-MMC, WTO-SPS Compliances for Enhancing Agricultural Trade, Small Scale Processing of Horticultural Crops, Improving Smallholder Farmers' Access to Markets in NATP-2, VCD by PO.

Hortex Foundation started online marketing on its own with the portal 'hortexbazarbd.com' from June 2020 and a total of 57 tons of agri-commodities were sold valued at Tk. 32 lakhs up to June 2022. Strongly recommended that hortexbazar be a separate commercial entity with proper business professionals, capital and transport.

Profitability analysis based on income-expenditure of the CCMCs/CPs demonstrated that 12 PO-MMCs have already more than enough income to cover all their costs proving their sustainability. More will follow.

Significant success can be ascribed to the construction of own CCMCs by the POs of Jhikorgachha and Sreemangal, which are much bigger, more vigorous in HVC trading and making very high incomes. They already earn much more to cover all their costs. In Belabo the district administration has allocated them a GOB *khasland* for building their own CCMC. This depicts their achievements in vegetable and related business drawing increasing margins and empowering them to secure their place in the market.

Challenges are faced in widening adoption of PHM practices from lone CCMC in an upazila, scarcity of clean water for proper washing of HVCs, limited availability of crates, rented CCMC in fear of eviction by owner, and especially the departure of Experts from project much before project closure. The lessons learnt were: the need for unambiguity among all project actors, appreciating the uniqueness and diversity of PO-MMCs in CCMCs and their expectations, training mode in participatory way and by related experts, need for long-time assistance to smallholders to make them entrepreneurs. The main focus now remains on engaging more with the PO-MMCs to fully implement their Business Plans so that they increase their income to cover all their costs for operating the CCMCs & CPs. Sustainability Plan is activated as the PO-MMCs started paying rents and other costs from their incomes as per the Business Plans.

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Abbreviations

AAO	Additional Agriculture Officer
AAEO	Assistant Agriculture Extension Officer
AEO	Agriculture Extension Officer
AIF	Agricultural Innovation Fund
BARI	Bangladesh Agricultural Research Institute
BPW	Business Planning Workshop
CCMC	Commodity Collection & Marketing Centre
CIG	Common Interest Groups
CP	Collection point
DAE	Department of Agricultural Extension
DPP	Development Project Proposal
GAP	Good Agricultural Practices
Hortex	Hortex Foundation
HVC	high value crop
IFAD	International Fund for Agricultural Development
ISM	Implementation Support Mission (of the WB and IFAD)
LBF	Local Business Facilitator
MMC	Market Management Committee (of the PO to run CCMC affairs)
NATP-2	National Agricultural Technology Program- Phase II Project
PD	Project Director
PHI	Pre-harvest Interval
PHM	postharvest management
PMU	Project Management Unit, NATP-2
PO	Producer Organization
SAAO	Sub-Assistant Agriculture Officer
SPS	Sanitary and Phytosanitary Standards
ToT	Training of Trainers
UAO	Upazila Agriculture Officer
WB	The World Bank
WTO	World Trade Organization

1.0 Introduction

Hortex Foundation is working as a 'Strategic Partner' of the DAE for the NATP-2 project, providing technical services in value chain development for selected high value crops (HVCs) with emphasis on improved postharvest management (PHM) practices and to work for a better marketing system. NATP-2 project activities at Hortex could only be started from January 2018 whence all staff could be mobilized. This Annual Progress Report covers activities for the year 2021 - 22 and includes data from 2016-17 up to June 2022.

The activities are piloted in 30 upazilas of 22 districts for vertical expansion of six selected HVCs, namely, brinjal, bitter gourd, sweet gourd, tomato, banana and aromatic rice (Table 1.1) but was eventually modified for four upazilas (Table 1.1 a). Figure 1 shows the 30 upazila locations on the map of Bangladesh. Also there are other identified vegetables and fruits for horizontal expansion of the practices.

Table 1.1: Selected HVCs for vertical expansion shown against Value Chain Cluster upazilas in NATP-2.

Brinjal- 6 clusters	Bitter Gourd – 5 clusters	Tomato - 6 clusters		Sweet Gourd - 5 clusters	Banana – 5 clusters	Aromatic Rice - 3 clusters
		Winter	Summer			
1.Raipura, Narshingdi	1.Kaliganj, Jhenaidah	1.Chandina, Comilla	5.Bagharpura, Jashore	1.Sadar, Bogura	1.Shibganj, Bogura	1.Birganj, Dinajpur
2.Shibpur, Narshingdi	2.Madhupur, Tangail	2.Dakkhin Surma, Sylhet	6.Jhikorgachha, Jashore	2.Baraigram, Natore	2.Palashbari, Gaibandha	2.Chirbandar, Dinajpur
3.Sadar, Jashore	3.Belabo, Narshingdi	3.Mirsarai, Chittagong		3.Delduar, Tangail	3.Kapasia, Gazipur	3.Nakla, Sherpur
4. Islampur, Jamalpur	4.Sadar, Naogaon	4.Godagari, Rajshahi		4.Sadar, Kishoreganj	4.Sadar, Khagrachhari	
5.Sreemangal, Moulvibazar	5.Mithapukur, Rangpur			5.Savar, Dhaka	5.Muktagachha, Mymensingh	
6.Parbatipur, Dinajpur						

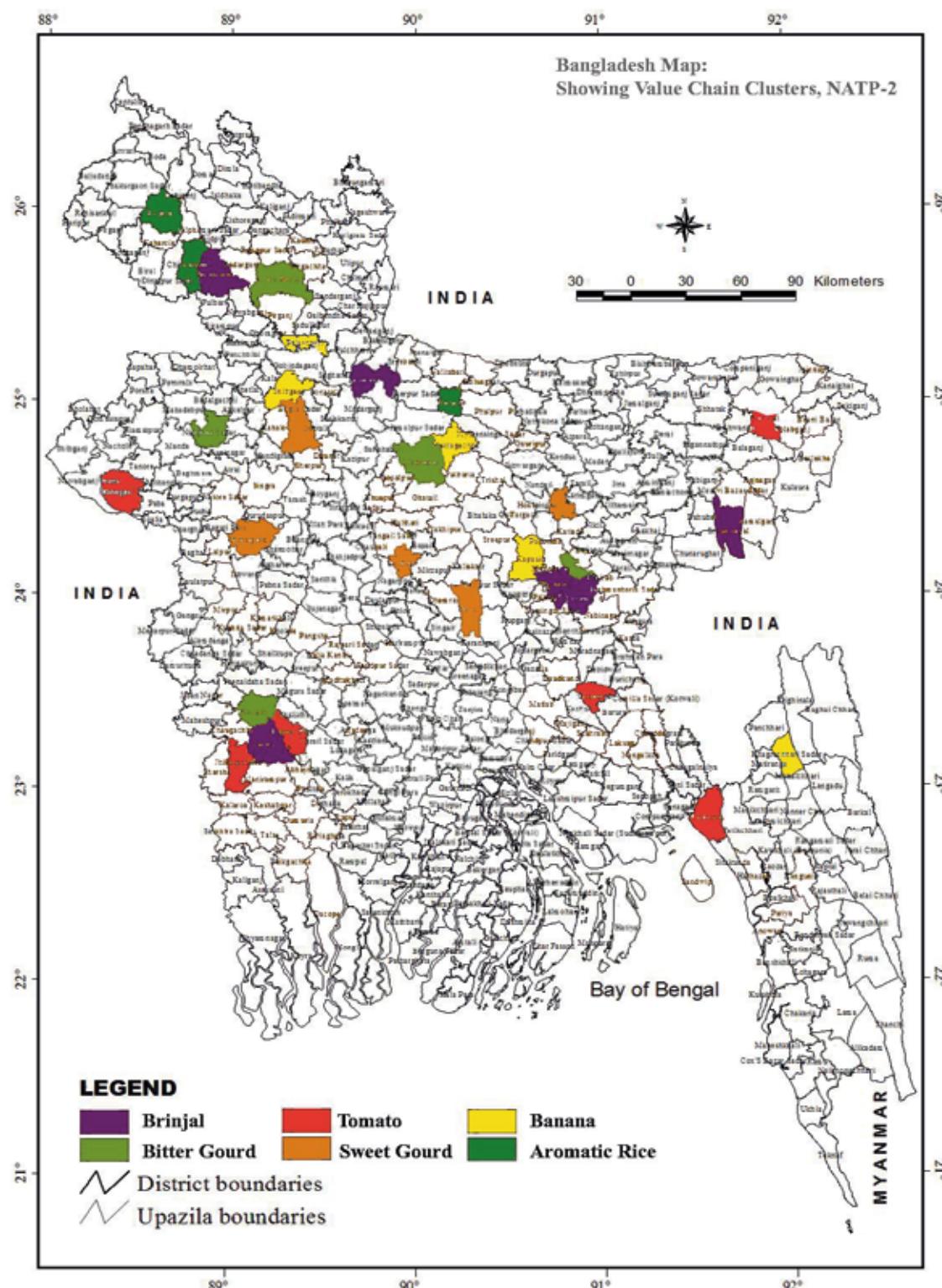
Table 1.1 a: Changes in selected HVCs

Sl. No.	Name of Upazila, district	Selected HVC as per DPP	Changed HVC adjusted due to higher coverage
1.	Jhikorgachha, Jashore	Summer tomato	Pointed gourd
2.	Delduar, Tangail	Sweet gourd	Lemon
3.	Kishoreganj sadar	Sweet gourd	Tomato
4.	Sreemangal, Moulvibazaar	Brinjal	Lemon

1.1 Objective

The **objective** of this strategic partnership is to provide technical support to DAE in value chain development in the selected upazilas having small farmers organized in production clusters as common interest groups (CIGs) and producer organizations (POs) through improved PHM practices and better market linkages involving the selected HVCs.

Fig 1: Locations of the 30 pilot upazilas having the value chain clusters.



1.2 Implementation Strategy, activities and work modalities

Hortex Foundation is providing “technical services on value chain development” by carrying out various capacity building and market linkage activities. These activities are highlighted below.

- (a) customized training courses for DAE officials, target farmers in the CIGs, POs, the identified traders and related professionals in the value chains;
- (b) organizing the CIGs and POs and acquainting them with better governance mechanisms including financial management;
- (c) establishing Commodity Collection & Marketing Centres (CCMCs) and Collection Points (CPs) through minor repairs or lease, refurbishing with basic furnitures and operationalizing with support of simple items like sorting mats, grading table, plastic crates, rickshaw-vans, washing bay, etc.;
- (d) providing hands-on training to the CIG/PO farmers and other value-chain actors on post harvest practices of their produces in handling, sorting, grading, washing, packaging, carrying, etc. for value addition;
- (e) linking the CIGs /POs with markets and traders in order to gain better prices; and
- (f) mentoring the CIGs/ POs to apply for the Agricultural Innovation Fund (AIF) support in improving their investment ability and sustainability.

These activities are further strengthened by

- (g) undertaking surveys and studies to characterize value chain performances for feedback and validation of the project activities;
- (h) organizing communication campaigns, and popularising appropriate postharvest management (PHM) practices through demonstrations, posters, leaflets, fairs, etc.;
- (i) carrying out public relations through workshops and seminars on contemporary issues for food safety, sensitizing the facts about the huge post-harvest losses to emphasize the need for proper PHM.

In order to share experiences from similar efforts in other countries, related project persons will join such international seminars or workshops to share and exchange results &/or ideas.

The execution of the project activities in value chain development at the upazila and block levels is MOSTLY contingent upon implementation by the DAE personnel. They are: Upazila Agriculture Officer (UAO), Additional Agriculture Officer (AAO), Agriculture Extension Officer (AEO), Assistant Agriculture Extension Officer (AAEO), from the office of the UAO, and the Sub-Assistant Agriculture Officers (SAAOs) at block level.

Technical support from Hortex for imparting relevant knowledge, skills, roles and activities in value chain development has been provided through six 'Training of Trainers' (ToT) courses for the upazila level and selected district level officers of DAE. They in turn have been training the CIG farmers, traders and others in addition to training the AAEO/SAAOs. Hortex is arranging the whole work through expertise support in (i) Post Harvest Management, (ii) Supply Chain Integration and Marketing Development, (iii) Training Management, and (iv) Monitoring and Evaluation, including backstopping from time to time to the DAE personnel in the field. In each of these 30 upazilas, Hortex has deployed LBFs (Local Business Facilitators), mainly to help operationalize the CCMCs, assist the POs and Market Management Committees (MMCs) to gradually take over the functions of the CCMC, monitor the local markets for HVC landing and export, keep contacts with CIGs, operate CPs, maintain linkages with traders and other market actors while remaining in constant contact with the SAAOs and the UAO.

Hortex is keeping regular liaison with other project counterparts and participants, carrying out concurrent monitoring for activities and outputs, and reviewing progress of the Project periodically using appropriate tools and data gathering system, in order to maintain project activities on course to ensure that the designed outcomes are achieved.

2.0 Supply Chain Development and Market Linkage Activities

The year started with lockdown from 1st July 2021 due to the resurgence of the corona pandemic that created worldwide havoc in 2020 including in Bangladesh. The lockdown was temporarily lifted between 15th and 22nd July 2021. After the lockdown was lifted, offices finally resumed from 18th August 2021. Such a closure at the start of a financial year affected activities in supply chain development for the NATP-2 project at Hortex Foundation significantly.

2.1 Completing the Marketing Solutions – The CCMCs and CPs

Establishment of all the 30 Commodity Collection and Marketing Centres (CCMCs) were completed by early 2019 and all the 30 CPs were completed by early 2021 (Annex Table 1).

The Commodity Collection and Marketing Centres (CCMCs) stand as pivot to the supply chain development activities enabling the essential postharvest management (PHM) practices of sorting, grading, washing, drying and packaging for the vegetables/fruits of the CIG and non-CIG farmers in the project areas. Further marketing solutions as Collection Points (CPs) function as a platform for aggregation and bulking. All the CCMCs continued to function during the reported year and the assets provided in the previous years were detailed out in previous Annual Reports. CCMCs were equipped with washing and drying facilities and were supplied with sorting mats, plastic crates, grading tables, etc. Similarly the CPs were provided a weighing scale, some plastic crates, few chairs to initiate the marketing activities. Gradually further support in logistics were provided as detailed in Annex Table 2. Photo1 shows a CCMC and Photo 2 shows a CP.



Photo 1 & 2: The CCMC of Chirirbandar (left) at Hatkhola Bazaar, and the CP of Palashbari at Purbo Noyanpur Bazaar.

Operation and Management of the CCMCs & CPs

The PO members, more specifically its executive body - the MMC, along with the LBF organize and manage the activities in the CCMC. The MMC meets each month regularly. These meetings are also participated by local traders sometimes, who are buying from the CCMCs.



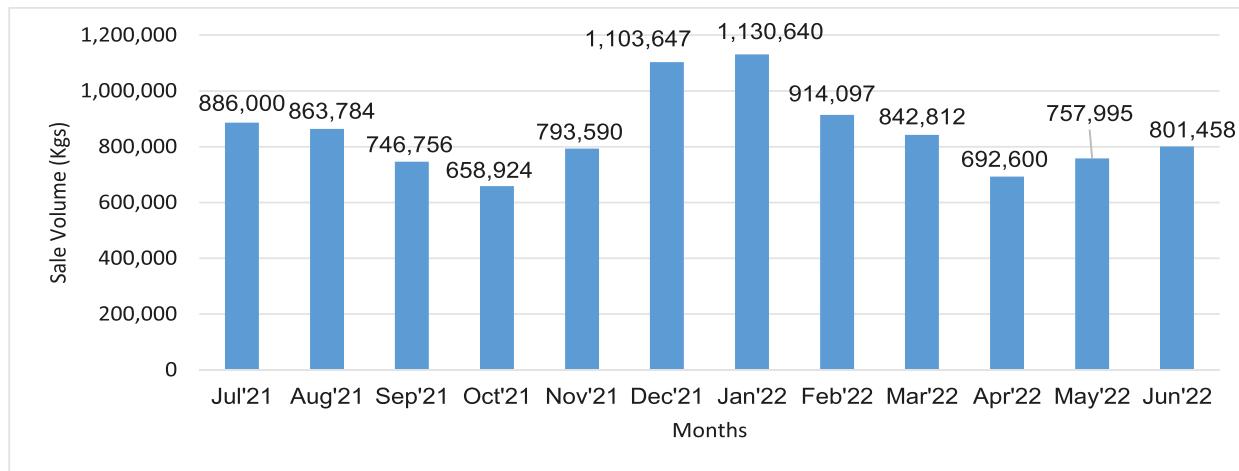
Photo 3 & 4: Aromatic rice packaged in Chirirbandar CCMC; pointed gourd washing & drying in Jhikorgachha CCMC.

The establishment of a CCMC in a marketplace enabled its exposure to both farmers and traders. Both the CIG and non-CIG farmers have access to the CCMC and can use the sorting, grading, washing and packaging facilities there. Local traders mostly procure the assembled commodities in the CCMCs, as also traders from outside the area sometime come to buy. Opening of the CCMCs has helped mobilize the CIG farmers and it has become easier for them to come to the CCMCs and sell their produces. The practice of selling from farmgate to the *farias* (collectors) by the CIG farmers is thus decreasing in the areas where the CCMCs operate. As the neighbouring non-CIG farmers also have access, it makes a positive impact in society and that reflects the way CCMCs are viewed. Increasingly, the PO-MMCs are taking lead in the trading through the CCMCs, especially after drafting their Business Plans later in the reporting year. Photo 3 & 4 show the initiative of Chirirbandar PO-MMC in aromatic rice business, as also Jhikorgachha PO-MMC controlling the HVC business.

2.2 Agri-commodity marketing

During the year 2021-22, a total of **10,192.30** tons of agricultural commodities were sold through the CCMCs and CPs as depicted below in Fig 2 in a month-wise manner. Despite the lockdown in July 2021, the marketing volume remained appreciably high, but thereafter the volumes of marketed HVCs gradually declined until the end of the kharif season. From Nov 2021 the marketing volumes started appreciating. After the sales peak of January 2022, rabi season sales declined until April 2022. Unlike the previous year, the effect of Covid-19 pandemic did not affect vegetable marketing as learnings from the past helped mitigate disruptions. However, the closure of Shibganj CCMC due to highway widening and the PO's inability to find a new CCMC location, kept it inoperative for nearly four months and affected its banana marketing. Ultimately Hortex interfered to open the CCMC at Mahasthangarh Bazaar. Changes of LBFs in Birganj and Nakla also disrupted marketing at those CCMCs/CPs for short periods.

Fig 2: Volumes of agricultural commodities sold through CCMCs and CPs during Jul 2021 – Jun 2022.



Note: Values at bar tops indicates the total quantities in kgs for the respective months.)

Over the years, from inception of the project activities in 2016-17 to June 2022 the total marketing volume of HVCs came to **35,569.37** metric tons (Table 2.1).

Table 2.1 Volumes of agri-commodities marketed over the years thru the CCMCs and CPs between 2016-17 and 2021-22.

Sl No.	Year	Volume of agri-commodities marketed (ton)	Number of CCMCs + CPs functioning	Major HVCs marketed (in order of most volumes)
1.	2016 – 17	100.00	01	Brinjal, Radish, Bitter gourd, Sweet gourd, Ash gourd, etc.
2.	2017 – 18	965.31	05	Lemon, Brinjal, Bitter gourd, Teasel gourd, chili, etc.
3.	2018 – 19	5,125.706	28	Brinjal, Lemon, Aromatic rice, Potato, Country bean, etc.
4.	2019 – 20	7,851.533	30+04	Banana, Country bean, A. Rice, Brinjal, Tomato, etc.
5.	2020 – 21	10,689.401	30+30	A. rice, Brinjal, Country bean, Banana, Potato, Lemon, etc.
6.	2021 – 22	10,192.303	30+30	A. rice, Brinjal, Lemon, Country bean, Banana, Potato, etc.
Total 35,569.376 tons			60	A. rice, Brinjal, Potato, Country bean, Banana, Lemon, etc.

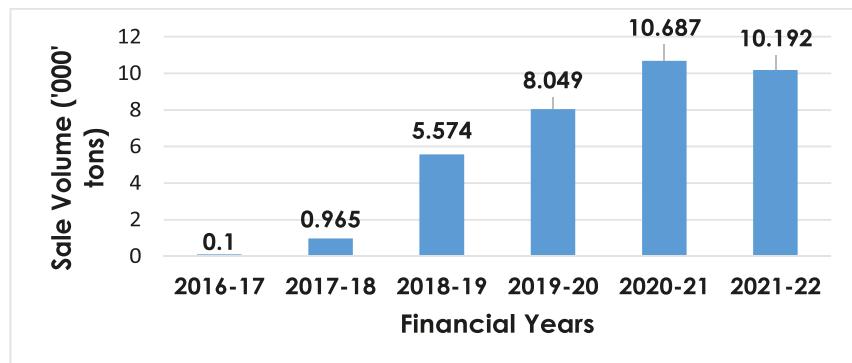
Annex Table 3.1 provides the month-wise marketing of agri-commodities during the reporting year 2021-22, followed by volumes of marketing by upazilas (Annex Table 3.2). Among the upazilas, Nakla followed by Muktagachha marketed the most amount of HVCs at 869 and 746 tons through their CCMCs+CPs. Nakla benefited from larger volumes of rice production and marketing while Muktagachha marketed much more lemon than its designated banana. The third-highest upazila marketing HVCs was Savar at 649 tons, while Godagari with 628 tons and Jashore Sadar marketing 547 tons were at 4th and 5th places respectively. The Bagharpura CCMC marketed a meagre 90 tons due to low tomato turn-out on which it mainly operates.

Annex Table 3.3 shows the crop wise marketing for the reporting year. Rice was the highest marketed HVC at 1064 tons, while the second-most marketed crop was brinjal at 984 tons. The third-most marketed crop was lemon at 847 tons, followed by country bean at 727 tons, then banana was the fifth highest at 578 tons and at sixth highest volume was potato, marketing 539 tons. During the year, a total of 56 crop items were marketed through the CCMCs & CPs as depicted in Annex Table 3.3.

Along the years, the most marketed HVCs are also mentioned. It may be observed that the rankings for most traded HVCs vary over the years. This is due to the gradual establishment of CCMCs and CPs over the years in different parts of the country and also because more items and volumes came for aggregation and for PHM at the CCMCs.

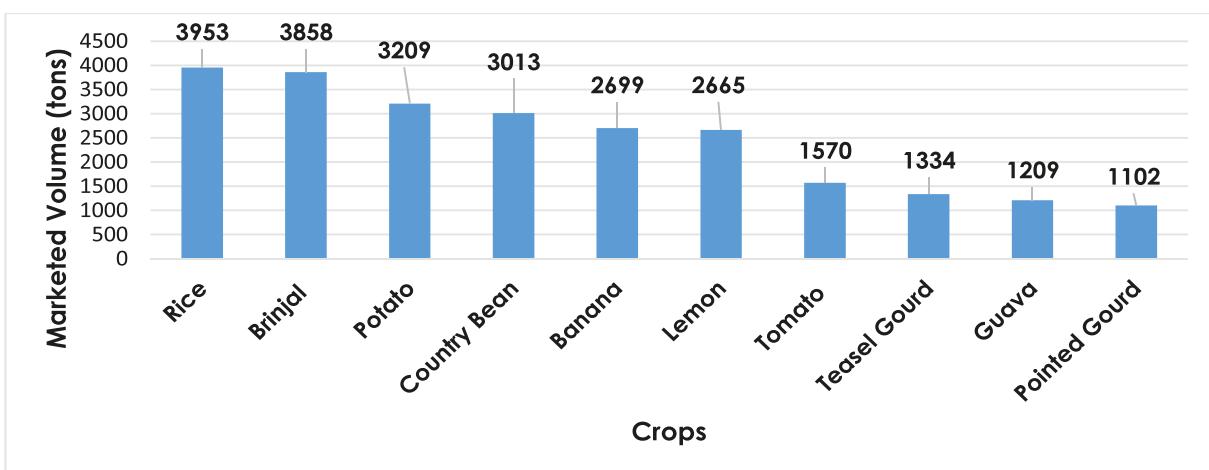
The rise in marketing volume therefore appears much more remarkable as shown in Fig 3 for the years.

Fig 3: Progress in agri-commodity marketing thru CCMCs and CPs over the years 2016-17 to 2021-22.



As may also be seen from Annex Table 3.4 a total of 65 different HVCs were traded during the whole project period so far. Among the agri-commodities, the top ten marketed HVCs during the period between 2016-17 and 2021-22 has been depicted below in Fig 4 and the top five were rice (3953 tons) followed by brinjal (3858 tons), then potato (3209 tons), country bean (3013 tons) and banana (2699 tons).

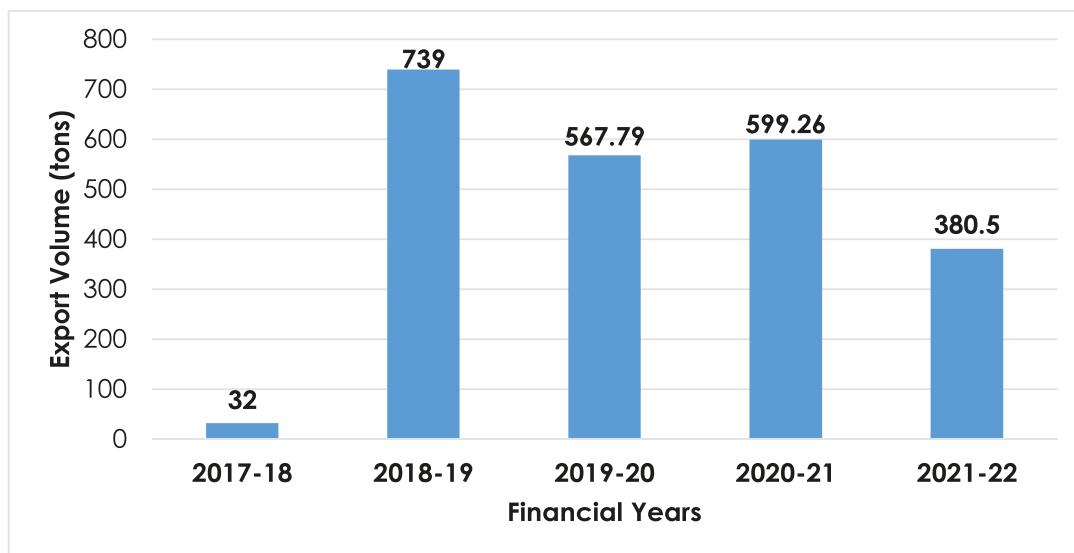
Fig 4: The ten most-sold agri-commodities thru the CCMCs & CPs during the years 2016-17 to 2021-22.



2.3 : Export of vegetables through CCMCs

A significant volume of vegetables has been exported over the years to countries like, Malaysia, Dubai, Qatar, Kuwait Saudi Arabia, etc. using the facilities of some of the CCMCs (Fig 5).

Fig 5: Progress in agri-commodity export thru the CCMCs over the years 2017-18 to 2021-22.



Over 2318 metric tons of vegetables have been exported so far (Annex Table 5). Mostly brinjal, teasel gourd, bottle gourd, bitter gourd, lemon and potato have been exported to these countries. These have been exported using the CCMCs at Shibpur & Belabo of Narshingdi, Mithapukur of Rangpur and Chandina of Cumilla districts during July 2018 to June 2022. During the reporting year much less volume (380.5 tons) was exported mainly due to the disruptions of lockdown early in the year and affected more seriously compared to previous years.

2.4 Training programme implementation

During 2021-22 a total of 2,699 persons received training, of which 2,250 CIG farmers received training on maturity & harvesting index, PHM, food safety, etc. In this year 300 CIG women farmers received Food processing training, but only in 10 upazilas. Also 149 persons involved in Small and Micro Agribusiness received training on PHM, especially on handling during business transactions.

As already mentioned, this year an extra training was on Small and Micro Agribusiness and Small Scale Food Processing training for women. Only in 10 upazilas women received Small Scale Food Processing training and also received petty material and equipment support to encourage them to begin their efforts in food processing, like preparation of pickles, jam or jelly, preservation of vegetables for some duration, etc. (Photo 5). Table 2.2 below provides the name of those 10 upazilas and a list of the materials they received as an incentive for them to engage in the trade.



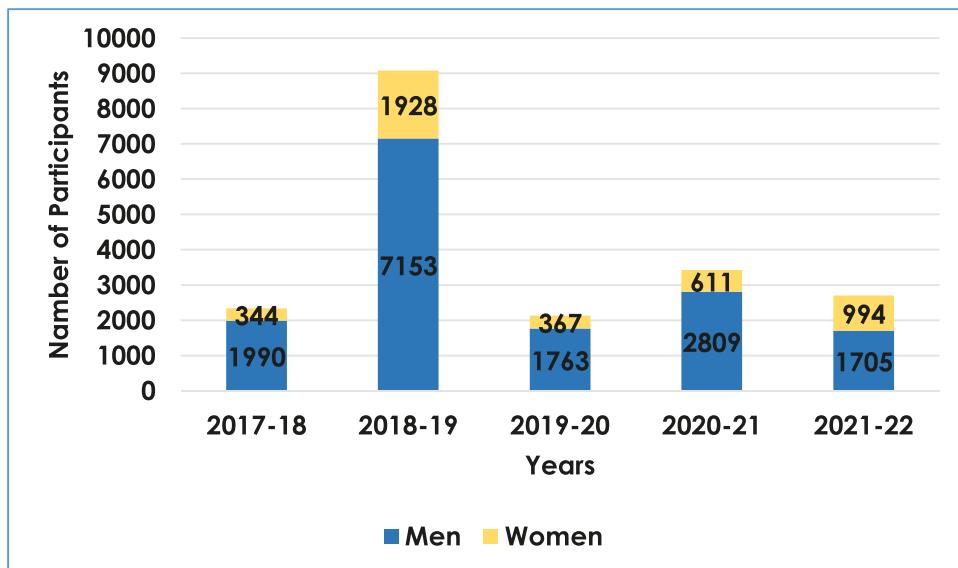
Photo 5: A training session of the CIG women on Small Scale Food Processing, Raipura, 20 December 2021.

Table 2.2 : Materials provided to women trainees in Small Scale Food Processing Training in the 10 selected upazilas.

Name of the Upazilas	List of materials with quantities each participant received as incentive
1. Delduar, 2. Madhupur, 3. Muktagachha, 4. Kishoreganj Sadar, 5. Kapasia, 6. Savar 7. Shibpur, 8. Belabo, 9. Raipura, 10. Chandina	1) Citric acid- 100 gm, 2) Potassium-50 gm, 3) Pectin-33 gm, 4) Glacial acetic acid- 100 ml, 5) Pat bottle 100 ml- 1 piece, 6) Autolock glass bottle 550ml- 2 pieces, 7) Peeler – 1 piece, 8) Slicing board – 1 piece, 9) Scissors – 1 pair

From 2017-18 to 2021-22, a total of 19,724 persons have received training over 696 events (batches) for a total of 20,291 client-days of training. Fig 6 below depicts the year-wise attendance of the participants in a gender disaggregated way.

Fig 6: Number of participants attending different training events on value chain development topics between 2017-18 and 2021-22.



Since inception, a total of 4,244 women attended different value chain development training programme events that constituted close to 22% of the total participants. Annex Table 5 summarises all the training events completed so far between 2017-18 and 2021-22.

The CIG farmers received training on maturity and harvest indices, contract farming, PHM practices, marketing, CCMC functionalities, food safety and quality, and especially, hands-on training on sorting, grading, washing, drying and packaging.

It has to be noted that a range of clients received training under the value chain development component from the inception of the project to the reporting year 2021-22 when all training events were completed. The trainees included the DAE officials in the upazilas, districts, and in block levels who are engaged in providing extension services to the CIG farmers. A total of 147 DAE officials (UAO, AAO, AEO, ADD, DTO, DD) received the ToTs in 2018, who in turn acted as trainers to train the CIG farmers, POs, traders, etc. ToT courses included production planning, maturity and harvest indices, PHM practices, marketing, CCMC function, food safety and quality, etc. Similar course were provided the block level DAE officers – the SAAOs, and all 300 of them were trained in 2018. A total of 14,000 CIG farmers received the PHM-related training. PO members received a total of 3,808 number of client-days of training. The LBFs received one foundation and three refreshers training, also with some additional topics, even additional days of training on occasions.

It is important to note here that all the designed training events of NATP-2 project to develop value chain efforts have been completed during this year.

2.5 Business Planning Workshops

It was long felt at Hortex foundation that the prime movers of the CCMCs and CPs were the POs and its MMC who were to operate as entrepreneurs. Therefore early in 2019, Hortex proposed for organizing workshops for each of the PO-MMCs to design their business plans. Finally through RDPP the workshops were approved in late May 2021. The BP Workshop module was prepared and for validation, discussed in a National Workshop in September 2021. The module was finalized as per recommendation from the workshop. Accordingly, the required master flip-charts for the workshops were designed and prepared.

There were in total two rounds of workshops in the design for each PO. In the first round, the Business Plans were prepared in the day-long exercise by each of the PO-MMCs. After gaining some experience from implementing the plan, the second round workshop re-worked with the plan for refinement and adjustments through structured sessions over a day.

Method of Workshop implementation

The first round of the BPWs were conducted in all 30 upazilas between 05 January 2022 and 14 March 2022. At the outset of a Workshop proceedings, a set of master flip-charts were presented that contained the outline and description of a typical Business Plan for such a group of farmers. Accordingly, the concept and contents of a Business Plan using those flip-charts were explained to the attending PO-MMC members. Then it was explained how they were going to draft the Plan. So five working groups were formed from the PO-MMC members for completing required tasks. Each group comprised of at least five of the members.



Photo 6: A BPW session with the PO-MMC in Belabo, 10 January 2022.

The 1st group listed the daily activities of a CCMC. The 2nd group listed the seasonal and periodic activities required to operate a CCMC. The 3rd group listed the markets where they send the agri-commodities they have been marketing, the prices that prevailed and the quantities of those that would be marketed. The 4th group drew the crop marketing calendar of possible crops with which they plan to engage in business. They also noted the connection and contract with their farmers for possible early or late marketing of the produces for obtaining better prices. The 5th group worked on plans for raising fund/capital for the proposed business, the system for profit sharing and re-investment, financial management procedures, etc. The PO-MMC members were given flip-charts, markers and continuous guidance on how to depict their group outputs regarding the given assignments on the flip-charts (Photo 6).

After the groups completed their work, one by one they presented their outputs visualising through the flipcharts to all the PO-MMC members. Each presentation was followed by a vibrant discussion on the given outputs. In some cases additions and corrections were adopted in this plenary. After the presentations, their work outputs were summed up through a Business Work Plan depicting over a Gantt chart for the next full year. It identified persons from the PO-MMC to take up specific responsibilities on daily activities, periodic activities, probing the markets for demand, prices, organizing aggregation/bulking of HVCs from CIG farmers and consequent marketing expeditions, raising shares for needed capital, regulation of shares, customizing share-holders' meeting and distribution of profits, book-keeping, etc. After completing the Business work plan for the next year, it was explained to them how they can now write their Business Plan in proper text covering all the sections of such a plan on their business objective, the items (goods) of the business, the analysis of the markets using outputs from 3rd and 4th group, the financial analysis from the work of the 5th group, etc.

In the second round of the BPWs, the earlier Business Plan document from the first round was examined from their practical experiences gained and adapted accordingly by consulting the hitherto recorded business data and through discussion. The second round of the workshops were held with all the 30 PO-MMCs between 09 May and 14 June 2022.

In between, from 10 April to 25 April 2022 another round of exercises were carried out for records keeping on business finance, especially cost calculations, management and utilization of the margins from the business, etc. Only five selected representatives including the Treasurer and Secretary from each PO-MMC congregated in five selected venues across the country. This event also allowed exchanges between the neighbouring POs to inquire about HVC trading between themselves.

2.6 Exposure visits

The limited budget for the Exposure Visits allowed only five events to carry out, although there were demands for more. These visits are detailed below in Table 2.3.

Table 2.3: Exposure Visits by PO-MMCs to the better performers, NATP-2 at Hortex.

Sl. No.	Visitors	Hosts	Date visited
1.	PO-MMC, Madhupur, Tangail	PO-MMC & the CCMC, Muktagachha	20 Mar 2022
2.	PO-MMC, Bagharpura, Jashore	PO-MMC & the CCMC, Jhikorgachha, Jashore	22 Mar 2022
3.	PO-MMC, Nakla, Sherpur	PO-MMC & the CCMC, Islampur, Jamalpur	23 Mar 2022
4.	PO-MMC, Birganj, Dinajpur	PO-MMC & the CCMC, Chirirbandar, Dunajpur	12 Apr 2022
5.	PO-MMC, Dakkhin Surma, Sylhet	PO-MMC & the CCMC, Sreemangal, Moulvibazar	25 Apr 2022

The visitors asked and learnt about the host's better ways of CCMC management and the business.

2.7 National Workshops

During the reporting year all the remaining seven National Workshops were organized. Table 2.4 below depicts the titles and other details of the workshops.

Table 2.4: National Workshops held by Hortex Foundation during 2021-22.

Sl. No.	Date held	Title of Workshop	Keynote Speaker	Chief Guest at the Workshop
1.	23 Aug 2021	Improved Management of Mango to Enhance Export Assuring Quality & Safety	Dr. Atiqur Rahman PHM Expert, NATP-2, Hortex Foundation & PSO BARI	Dr. Md. Abdur Razzaque, MP Honorable Minister for Agriculture
2.	15 & 16 Sep 2022	Business Planning for PO-MMC	Dr. Mofarahu Sattar, M&E Expert, NATP-2, Hortex Foundation	Md. Motiur Rahman Project Director (Addl. Secretary), NATP-2
3.	28 Feb 2022	Adoption and Implementation of WTO-SPS Compliances for Enhancing Agricultural Trade	Md. Ahsan Ullah, Coordinator-APAARI	Md. Ruhul Amin Talukder, Additional Secretary (PPC), Ministry of Agriculture, Govt of Bangladesh
4.	30 Mar 2022	Small Scale Processing of Horticultural Crops for Rural Income Generation	Dr. Golam Ferdous Chaudhury, SSO, BARI	Dr. Md. Abdus Sattar Mondal, Emeritus Prof. & Former Vice Chancellor, BAU, Mymensingh
5.	21 Apr 2022	Improving Smallholder Farmers' Access to Markets in NATP-2	Dr. Mofarahu Sattar, M&E Expert, NATP-2, Hortex Foundation	Mr. Md. Sayedul Islam, Secretary, Ministry of Agriculture, Govt of Bangladesh
6.	11 May 2022	Increasing Farmer's Income through Postharvest Loss Reduction of Fruits & Vegetables	Dr. Md. Atiqur Rahman PHM Expert, NATP-2, Hortex Foundation	Mr. Md. Hasanuzzaman Kallol, Additional Secretary (Extn.), Ministry of Agriculture, Govt of Bangladesh
7.	23 Jun 2022	Value Chain Development by Producer Organization	Md. Bazlur Rahman SCI & M Expert, NATP-2, Hortex Foundation	Md. Motiur Rahman, PD (Additional Secretary), NATP-2

The first national workshop of the year on improved management of mango on 23rd August 2021 was held at the BARC Auditorium. All other workshops were held both virtually and in limited presence of participants at the Conference Room of the Hortex Foundation. But the online virtual organization allowed a larger participation across the country including experts from different universities, research organizations, field officials and industry representatives.

2.8 Status of the POs and their Fund build-up

All the 30 POs were formed and their executive committees, also known as the MMC, were also formed just after Hortex Foundation started the project activities. However, it is important to note here that a number of PO-MMCs underwent reshuffle – some even three times. All the POs have bank accounts, obtained trade licenses, and have regular savings. All the POs were able to raise their fund between Tk. 7 lakhs and Tk. 15 lakhs (Table 2.5).

Table 2.5 : Fund Raised by the POs for Asset creation and Business Capital.

Sl. No.	POs at the CCMC (Upazila,District)	Fund Raised	Sl. No.	POs at the CCMC (Upazila,District)	Fund Raised
1.	Birganj, Dinajpur	7.0	16.	Islampur, Jamalpur	8.0
2.	Chirirbandar, Dinajpur	8.0	17.	Delduar, Tangail	8.0
3.	Parbatipur, Dinajpur	7.5	18.	Madhupur, Tangail	7.0
4.	Mithapukur, Rangpur	8.5	19.	Muktagachha, Mymensingh	8.0
5.	Palashbari, Gaibanda	8.5	20.	Kishoreganj Sadar	7.0
6.	Shibganj, Bogra	7.0	21.	Kapasia, Gazipur	7.0
7.	Bogura Sadar	8.0	22.	Savar, Dhaka	8.0
8.	Naogaon Sadar	7.0	23.	Shibpur, Narsingdi	9.0
9.	Baraigram, Nator	7.0	24.	Belabo, Narsingdi	7.0
10.	Godagari, Rajshahi	10.0	25.	Raipura, Narsingdi	7.0
11.	Kaliganj, Jhenaidah	7.5	26.	Dakhin Surma, Sylhet	10.0
12.	Jashore Sadar	8.0	27.	Sreemangal, Moulvibazar	14.0
13.	Jhikorgachha, Jashore	15.0	28.	Chandina, Cumilla	7.5
14.	Bagharpura, Jashore	7.5	29.	Mirsarai, Chattogram	7.5
15.	Nakla, Sherpur	7.0	30.	Khagrachhari Sadar	7.0

All the POs have availed the AIF-3 matching grant and bought mini- to big trucks. The MMCs has been meeting regularly in the CCMCs, and get engaged in discussions regarding market linkage, savings, taking HVC business initiatives following their Business Plans, managing the mini-truck (obtained through the AIF-3 matching grant), as already mentioned. After conducting the BPWs with the PO-MMCs, all of them have Business Plans, have raised funds for the business and have started HVC businesses.

2.9 Utilization of AIF-3 awards

All of the 30 POs have availed the AIF-3 matching grant (as already mentioned above) and purchased mini- to big trucks for their own member farmers' transport needs of the produces. They are also renting out their transport to increase their financial capability.

2.10 Status of registration of the POs

So far 20 POs have obtained registration from the Department of Cooperatives (Table 2.6). The rest of the POs have applied with the authorities. The process of registering has been affected because of limitations on the part of the officials responsible in the in rest of the

upazilas for clarifying whether a PO like the ones from the CCMCs can receive a registration. PMU has been trying to resolve the impasse, which will hopefully clear the process.

Table 2.6: Status of registration of the POs.

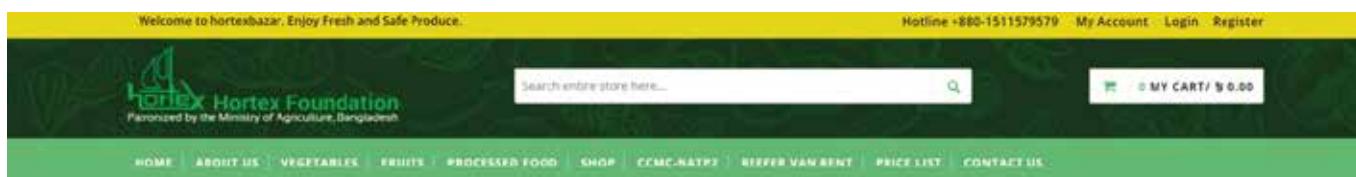
POs having Registration			POs applied for registration		
Sl. No.	PO in the Upazila/CCMC	Sl. No.	PO in the Upazila/CCMC	Sl. No.	PO in the Upazila/CCMC
1.	Parbatipur	11.	Madhupur	1.	Birganj
2.	Mithapukur	12.	Kishoreganj Sadar	2.	Chirirbandar
3.	Palashbari	13.	Kapasia	3.	Shibganj
4.	Bogura Sadar	14.	Shibpur	4.	Godagari
5.	Naogaon Sadar	15.	Belabo	5.	Jhikorgachha
6.	Baraigram	16.	Raipura	6.	Bagharpura
7.	Kaliganj	17.	Dakkhin Surma	7.	Nakla
8.	Jashore Sadar	18.	Sreemangal	8.	Muktagachha
9.	Islampur	19.	Chandina	9.	Savar
10.	Delduar	20.	Khagrachhari Sadar	10.	Mirsarai



Photo 7 & 8: Registration certificates of the PO-MMCs of Raipura and Shibpur obtained during the year.

2.11 hortexbazar: Online marketing by Hortex Foundation

Online marketing of fresh vegetables, fruits and other processed agro-products was started by Hortex Foundation from June 2020. The portal <https://hortexbazarbd.com> was developed as a full-phased e-commerce site having all the user-friendly features. After a couple of weeks' test run, the hortexbazarbd.com was officially inaugurated by the Agriculture Minister Dr. Muhammad Abdur Razzaque MP on 24th June 2020.



The masthead of hortexbazar

Fruits remained the mainstay of sale. Different fruits sold were:

Mango	Pineapple	Dragon fruit
Jackfruit	Papaya	Green coconut
Banana	Guava	Zara Lemon
Litchi	Burmese grape	... and more

The different vegetables sold were:

Pumpkin	Wax gourd	Arum/Eddo
Pointed gourd	Bitter gourd	Stolon of taro
Teasel gourd	Sponge gourd	Broccoli
Cucumber	Snake gourd	Radish
Brinjal	Bottle gourd	Red amaranth
Yard long bean	Green papaya and more
Okra	Jackfruits seed	

The different processed agro-products sold online were both aromatic and parboiled rice, cashew nut, jiggery, honey, spices, etc.

Up to June 2022 a total of 57 tons of different agri-commodities were sold at a value over Tk. 32.50 lakh.

The agri-commodities were sourced from farmers organized in CIGs (Common Interest Groups) comprising 20 or 30 farmers around the CCMCs and from other places.

Table 2.7 below summarises the agri-commodities marketed through the online portal for fruits, vegetables and processed products.

Table 2.7: Agri-commodities marketed through hortexbazarbd.com & supplied by the CCMCs and other places (up to June 2022).

Period	Vegetables (Kg)	Fruits (Kg)	Agro processed products (Kg)	Total quantity (Kg)	Total sale value (Taka)
From inception to 30 June 2022	13703	40415	3536	57655	32,50,691.00

The team handling online marketing at Hortex felt that **customers preferred hortexbazar produces** for its high quality. **Customers also trusted the fresh produces to be safe** as they found it to be a government initiative and that these were sorted, graded and processed at the CCMCs in the production clusters. The team also felt that **online marketing of agri-commodities was having a very high potential** and could be hugely expanded in Dhaka city.

The market potential or the trust of the customer in hortexbazar however, was neither going to secure the Hortex online marketing, nor its expansion unless the challenges it faced could be addressed. Hortex Foundation functioned like a public office and therefore, the team that started the online business was far from being any commercial actor. It had no capital, no professionals to run a delivery system, no transports, nor a warehouse. Therefore, Hortex Foundation should have been authorised to make hortexbazar a separate lawful commercial entity to continue this online marketing. It must therefore, have

- ✓ A legal sanction for the hortexbazar as a commercial entity under Hortex Foundation having a standard operating procedure (SOP)
- ✓ A team of market-professionals to run the venture commercially
- ✓ A substantial capital
- ✓ A full delivery system complete with transports
- ✓ A warehouse with proper facilities for storing fresh produces
- ✓ Other supports or facilities, as may be deemed necessary.

Forming hortexbazar into a separate commercial entity might take a while, but the online marketing must continue. **It is important to note here that Hortex Foundation had not been allocated any fund for this online venture, nor had it used any fund from the**

budgeted amount of NATP-2. Therefore, a capital fund and a mini-truck for delivery services needs to be arranged without delay by NATP-2 to let this marketing endeavour thrive and grow.

The market-linkage for the CCMCs and NATP-2 can thus be established in a wider realm to create a robust value chain and enhance the prospects of sustainability.

2.12 Study on PHM practices adoption, PH loss reduction and effect on income

A study was commissioned by Hortex Foundation to assess the adoption of PHM practices, reduction of PH loss due to such adoption and effect on farmers' income due to these.

The specific objectives of the assignment were: to estimate the extent of uptake by farmers of the improved PHM practices for selected HVCs; to estimate PH loss reduction as a result of the practices followed in the CCMCs; and to estimate the effect on farmers' income due to the value addition/PHM exercises at the CCMCs.

Ten Upazilas of seven districts were sampled for the study based on vegetables and fruit clusters. The study included 600 intervention farmers (83.33%) and 120 control farmers (16.66%). The bulk of the respondents were in their thirties and forties (45.28%), followed by 51-65 age group (28.33%). The respondents were dominated by male (85.69%) and low participation of the female (14.31%), which was due to the overall participation of female farmers in different levels of farmers' organizations (POs & CIGs) and the CCMCs. The average family size was 4.94 people, which was higher than the national average household size (4.06). Majority of the respondents had primary (41.94%) and secondary (34.72%) level of education, and about 9.58% were illiterate.

The overall adoption indicators revealed that intervention farmers adopted upgraded PHM practices for vegetables and fruits to a medium degree, whereas control farmers adopted them to a low degree. When it comes to sorting and grading vegetables and fruits, intervention farmers were more than the control farmers (72.67% vs. 65.00%). Washing vegetables and fruits had a similar acceptance rate, with 71.83% and 57.50% of intervention and control farmers, respectively. Adopting such practices, the rate of washing practices was found higher in vegetables than in fruits. Packaging was used by 45.83% of intervention farmers and 38.33% of control farmers for vegetables and fruits, respectively. During the field investigation, it was discovered that packaging materials were not readily available in the local market, and proper packaging were only available in the posh markets, while branding still had a chance to pay off at a lower level. Formal retail market prices of vegetables and fruits did not cover the cost of packaging that limited the adoption of packaging at the POs level. The level of adoption of proper transportation of vegetables and fruits at intervention and control farmers' level was found 63.83% and 49.17%, respectively.

Postharvest losses in vegetables and fruits were reduced for both intervention and control farmers' levels. However, intervention farmers suffer more loss and more loss reduction than control farmers in majority of the selected vegetables and fruits. The majority of intervention farmers (85.33%) and control farmers (70.83%) agreed that improved PHM practices at the CCMCs level are minimizing postharvest losses of vegetables and fruits. Both intervention and control farmers agreed that the adoption of PHM practices at the CCMC level impacted by medium level in reducing postharvest loss of vegetables and fruits.

The annual average income of intervention farmers was higher (Tk. 349,112) than that of control farmers (Tk. 306,650).

The findings proved that improved PHM practices were being implemented at the intervention farmers' level as a result of the Hortex Foundation's collaboration with the DAE. Therefore it proved that establishing and growing organizations such as CCMCs across the

country would aid in reducing postharvest losses of vegetables and fruits. It is thus demonstrated that institutional interventions have a significantly high probability of sustaining postharvest loss reduction initiatives in vegetables and fruits, and that these types of clusters should be expanded across the country.

2.13 Sustainability Assessment of the CCMCs and CPs

The sustainability assessment of the CCMCs and CPs used a profitability analysis approach based on the incomes and expenditures in operating the CCMCs/CPs. The **incomes constituted** the profits from HVC business by the PO-MMC, revenues earned from the mini-truck, revenues from the rickshaw van, service charges at CCMC/CP, and fees for use of crates by borrowers. The **expenditures** were for rent of the CCMC+CP, cleaning cost of the CCMC+CP, meeting costs of the PO-MMC and any cost incurred in their meeting with others for business or related matters, office costs for stationaries and other petty supplies, repair costs of rickshaw van and other incidental expenses. The Business Planning Workshops (BPWs) and the follow-ups were helpful in carrying out the income-expenditure analysis later. According to the profitability analysis the following CCMCs were deemed sustainable due to their higher profits and ability to cover all costs:

1. Chirirbandar	5. Godagari	9. Bagharpura
2. Parbatipur	6. Kaliganj	10. Belabo
3. Mithapukur	7. Jashore Sadar	11. Sreemangal
4. Bogura Sadar	8. Jhikorgachha	12. Mirsarai

Annex Table 6 provides the income and expenditure figures of operating the CCMCs/CPs for all the upazilas. The figures are presented in six-monthly totals.

Early signs for incomes generated from the mini-trucks availed through AIF-3 by the PO-MMCs in other upazilas, who received those near the fag end of the year, indicate that 10 others will also have enough earnings to cover all their costs and will be sustainable.

Lessons learnt were: the need for unambiguity among all project actors, appreciating the uniqueness and diversity of PO-MMCs in CCMCs and their expectations so that approaches are shaped accordingly, training mode in participatory way and by related experts, need for long-time assistance to smallholders to make them entrepreneurs. **Challenges** were faced from scarcity of clean water in rural areas, unavailability of crates, limited scope for PHM demonstration, fear of cancelling lease of CCMC by owner, PO members being novices in HVC business and struggle to run CCMC functions, etc.

Sustainability Plan is to consolidate the gains of the PO-MMCs in the remaining nine months of the NATP-2 project to make all the CCMCs/CPs sustainable include: engaging more with the PO-MMCs- particularly to follow-up on their business plans that also includes work plans; in record-keeping and financial management; special attention for low income-CCMCs, etc. The **exit strategy** is already set in motion as the PO-MMCs deposit rent and other cash costs into a closed account that will become a contingency fund for them after June 2023. The DAE officers in the upazilas gradually takes over advising and mentoring roles of the PO-MMCs for sustaining the CCMCs/CPs as the project draws to a close.

2.14 Documentation and Publication

Like previous years Hortex Foundation continued publishing on a range of topics. It included a monograph on exportable mango production, on Hortex achievements, on the BPWs, the success stories in VCD, newsletters, etc. As usual, Hortex also published the Annual Report for documenting its activities and records after completing each financial year (Photo 9).

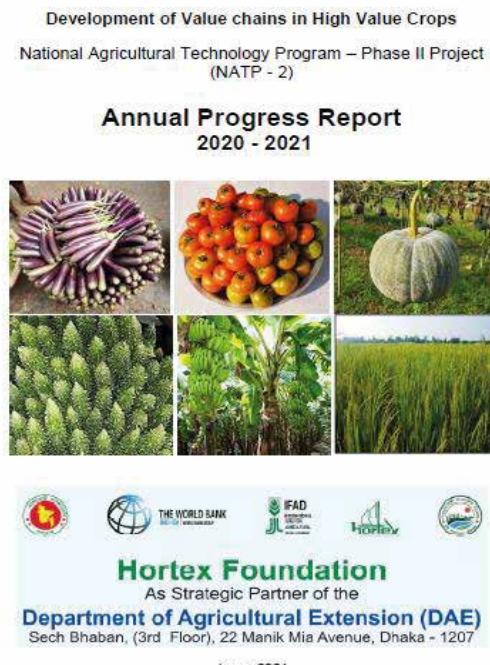


Photo 9: Cover of the Annual Progress Report 2020-21.

3. Monitoring & Evaluation for Value Chain Development

The M&E process was designed in a well-planned manner for properly carrying out the value chain development activities by Hortex Foundation for the NATP-2 project. It has been a continuing phenomenon. Both the R-DPP and PAD of the World Bank listed the monitoring tasks mainly to be on (i) data on agri-commodities marketed through the marketing structures, such as CCMC and CPs, (ii) the marketing solutions provided (CCMCs, CPs, renovated markets, etc.), and (iii) client-days of training provided by Hortex Foundation for value chain development work and better marketing. To this end monitoring data were regularly collected in well-designed formats.

The three principal items for complying with the Results Framework and Monitoring as enumerated below in Table 3.1 follows the format from the PAD for NATP-2 and the figures are adjusted for the value chain development part implemented by Hortex Foundation.

Table 3.1: Progress achieved against the results framework in value chain development, NATP-2, Hortex Foundation, up to June 2022.

Baseline value		Cumulative or Annual values (targets and actuals)							Achieved up to Jun 2022	Comments
		Year 1 (2016-17)	Year 2 (2017-18)	Year 3 Mid term (2018-19)	Year 4 (2019-20)	Year 5 (2020-21)	Year 6 (2021-22)	Project end		
1. Market Access: Volume (in tons) of agricultural commodities sold annually through new marketing structures/arrangements promoted by Hortex Foundation										
Total volume: 0 t	Target	100	1,000	3,000	5,000	5,835	6,000	27,360		As per R-DPP 130% achieved
2. Market access: Marketing solutions implemented by the project (cumulative)										
Marketing solutions: 0	Target	02	10	31	55	60	--	60	60	'Actual'- figures are only from Hortex Foundation
	Actual	02	09	31	34	60	--	60		
3. Client-days of training provided [CORE INDICATOR]										
0 (0%)	Target	00 (0%)	3,000 (35%)	14,027 (35%)	3,614 (65%)	3,420	(2,078)	19,670*	20,291 (103%)	
	Actual	----	2,818 (94%)	9,224 (66%)	2,130 (59%)	3,420 (100%)	2,699 (130%)	20,291 (103%)		

Accordingly, Table 3.1 depicts the progress made in agri-commodity marketing, the structures (CCMCs and CPs) for marketing solutions and client-days of training for the implementing years covering the period until June 2022. Agri-commodity marketing has already been described under section 2.2 as 35,569 tons of agri-commodities were marketed achieving 130% of the revised project target using the mentioned market structures as marketing solutions. The Annex Tables 3.1 to 3.4 provide in details the progress made in agri-commodity marketing during this period in terms of months, upazilas, crop items, and by years. In the current year, a total of 56 different agricultural commodities were traded which included the six selected HVCs mentioned earlier.

Needless to mention again that all the 30 CCMCs and 30 CPs were full functional (detailed in Annex Table 1). A total of 20,291 client days of training have been completed which included topics on PHM practices, marketing, production and business planning, contract farming, food safety and quality, and especially this year for women on food processing.

This year, a more significant aspect of M&E for the assessment of income margins gained due to improved PHM practices by the farmers were carried out through a comprehensive study. The main findings has been mentioned earlier under sub-section 2.12. The study found that annual average income of CCMC related farmers at Tk. 349,112 was higher than that of non-related farmers at Tk. 306,650.

4. The Success Stories of Smallholder Farmers in Vegetable Marketing

This year witnessed significant successes of the smallholder farmers organized in the POs. It has been a long and laborious journey of Hortex Foundation in NATP-2 project for improved market access for the smallholder farmers. The efforts essentially translated into empowering the smallholder farmers in vegetable marketing. The **stories** from **Sreemangal**,

Jhikorgachha and Belabo PO-MMCs tell us the successful journey of their empowerment in vegetable marketing.

Success story of the PO-MMC Sreemangal

The PO-MMC of Sreemangal twice underwent re-shuffle before the new young leadership took over and made bold moves to change their fortunes for good. They realized that the CCMC in Notun bazaar of Sreemangal was not attractive enough to the farmers and so they shifted it to the heart of the vegetable market. But very soon they realized that the market was controlled by the *aratdars* (stockists) who always offered low prices. So they took the bold move of shifting the CCMC away from Sreemangal town to the vegetable growing areas of Saitola and Dengarbon and constructed their own CCMC at Saitola investing nearly Tk. 10 lakh from the members' own contribution. They built it real big, measuring 40 ftX40 ft flanked by a 6ft wide verandah in front (cover photo). They also availed the AIF-3 matching grant and bought a mini-truck that they have put to real good use. The Business Planning Workshop couldn't have come at a better time for them. Equipped with the plan, they marketed the PO's produces collectively away from the fangs of the *aratdars* to other markets for much higher prices, such as, to Moulvibazar Poschim bazaar, Rajnagar, Juri, Goalabazar, Gainghat, and even faraway places like Naogaon, Godagari, etc. They just don't go with product to sell, in the return journey they bring in other agri-commodities for the much needed markets of Sreemangal. This HVC business alone is enough for them to cover all their costs. They can roll their capital between Tk. fifty thousand to one lakh per transaction to make net profits over forty thousand taka a month. They have also been able to earn prime value as they process the products at the CCMC for sorting, washing, drying, grading and proper packaging. Their determination and resolve has earned them strong support from the UAO, Sreemangal. They will get licenses from the UAO for further businesses in fertilizers, seeds, and pesticides.

Success story of the PO-MMC Jhikorgachha

The Jhikorgachha CCMC also constructed their own CCMC with their own contributions in the same Barbakpur market, but with almost 2000 sq ft covered space with a wide yard in front good enough for three big trucks to load vegetables at the same time.



Photo 10: The PO-MMC built their own CCMC in Barbakpur Bazaar.

Earlier they bought a big truck of seven ton-capacity availing the AIF-3 matching grant, but invested much more of their fund to buy such a big truck and also availed suppliers' credit. The PO-MMC is driving the HVC business in full swing with the help of the truck and can sell to higher priced markets in different places.

The CCMC stands in a vegetable belt and the farmers no longer need to go to the bigger town market and can get the same price but can save on transport cost. The farmers informed that each year when the prices crash to Tk. 4 or 5 per kg for pointed gourd, they would not harvest and let the crop die out as cost of harvesting and transporting those to the market would incur losses. Now the existence of this CCMC in the midst of their fields is enabling them to harvest and the support of rickshaw van from the CCMC is good enough to bring them extra margins. The PO-MMC now has more income than their costs. In June 2022, they earned Tk. 52,010 and spent Tk. 25,500 covering all costs of the CCMC and CP including rent and other bills.

Success story of the PO-MMC Belabo

The PO-MMC in Belabo was able to get links with potential traders and exporters to earn better prices by supplying quality vegetables regularly through the CCMC. The PO-MMC of Belabo successfully marketed a total of 1309 tons of fresh vegetables, such as brinjal, cucumber, yard long bean, country bean, bitter gourd, bottle gourd, pumpkin, zara lemon, etc. from the beginning of the CCMC operations to June 2022. Out of this, 730 tons were exported to Qatar, Kuwait, Dubai, Saudi Arabia, Malaysia and Singapore. The PO-MMC coordinated the contracts between the CIG farmers around the CCMC and the exporters for supplying required quality vegetables and obtained 10-15% higher price compared to the usual local market. Besides that, the PO-MMC also linked with the online vegetable marketing portal hortexbazarbd.com and continued supplying farm-fresh vegetables for online selling. They availed the AIF-3 matching grant and bought a 2.5 ton-capacity JAC mini-truck valued at Tk. 15 lakh. They decided for a bigger truck because they were able to foresee the HVC marketing potential. Their income includes service charge between Tk 2000 & 2200 monthly from the users of the CCMC; Tk 600 as rent from the two manual rickshaw vans, and nearly Tk 25,000 from the mini-truck. They are able to cover their costs of CCMC and CP operations from their incomes. In June 2022, Belabo PO-MMC had a net income of Tk. 27,100 against a total cost of Tk. 3,300.

Hearing about their success, the UNO of Belabo upazila visited them, which was followed by the Deputy Commissioner's visit. They observed the process followed in the CCMC for fresh vegetables marketing. Being very impressed, they provided the PO-MMC a piece of government *khas-land* nearby to build a proper and permanent packhouse. Soon the PO-MMC will build their own CCMC there with help from the district administration. They are now planning to buy more mini-trucks, a cooling van and are dreaming to build a proper cold storage for vegetables to further expand the business from the CCMC.

5. Financial progress

Financial progress was initially slow due to a late start. As activities started rolling, expenses increased over the years. These are summarised below in Table 5.1. The table shows that over time expenditure has grown with increasing activities. So far Taka **1220.97** lakh has been spent. The details are provided in Annex Table 7.

Table 5.1: Summary of the financial progress of Value Chain Development, NATP-2, Hortex Foundation during 2016-17 to 2021-22.

(in lakh taka)

	Financial year						Total
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	
RADP Budget	22.40	233.00	450.00	300.00	306.00	630.00	1,941.40
Expenditure	19.70	198.71	431.00	287.14	284.42	588.89	1,809.86
Achievement	88%	86%	95%	96%	93%	93%	93%

6. Procurement progress

Table 6.1 below provides the progress of procurement by Hortex for NATP-2. A total of five packages on goods were procured during the year 2020-21. This brings to a total of 30 packages of goods and 15 service packages procurement from inception to 2020-21.

Annex Table 8 provides the details of the procurement for the year 2021-22.

Table 6.1: Summary of procurement packages completed for Value Chain Development, NATP-2, Hortex Foundation during 2016-17 to 2021-22.

(no. of packages)

Procurement Package (completed)	Years					
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Goods	3	6	11	5	5	9
Services	-	11	3	1	-	3

7. The Challenges

Challenges to sustaining the efforts have still quite formidable. These are mentioned below.

1. Expanding the **adoption of PHM practices has been restricted** because a lone CCMC in an upazila can only demonstrate the process to the limited people coming to that market. But an upazila usually has between 20 and 30 or more markets. Horizontal expansion of practices thus remains a challenge.
2. Adoption limitations are further compounded because **clean water source is scarce** in most of the rural areas. This improved PHM practice is essential to ensure proper washing of vegetables. People are used to washing vegetables in bulk in the usual small ponds or drainage streams that are dirty and unacceptable. More often than not, such ponds or streams are highly infested with harmful microorganisms, including faecal matter.

3. At the same time, **quality plastic crates are unavailable** in the market to allow farmers carry their produces without inflicting damage in order to reduce huge postharvest losses. The crates currently available in the market are not durable and also costly.
4. CCMCs/CPs were mostly established in **rented structures**, and so remain **under threat of eviction**. The owner can anytime serve the notice for vacating the property.
5. The **PO-MMC members** being **new to entrepreneurship** are prevented by their mind-set as farmers and **struggle to overcome a repulsive attitude towards the business ways** and behaviour as against their farming profession habits. Continuous guidance and mentoring for a long period is therefore essential.
6. Consultants in Hortex Foundation will complete their inputs (man-months) in the project much earlier than the scheduled project closure in June 2023. All of them but one will leave between October and November. This will create a big void in providing much needed mentoring and tutoring support to the PO-MMCs. After the PO-MMCs developed their Business Plans following the BPWs, a continuous follow-up did prove highly rewarding. The novice entrepreneurs of the PO-MMCs made remarkable progress through these follow-up tutoring and guidance visits by the Consultants. Their continuity could have a greater achievement for sustainability of all the CCMCs/CPs.

8. Lessons Learnt

The **lessons learnt** since the beginning of operating the CCMCs/CPs and during the course of this study had been invaluable. Some of these are mentioned below:

1. The **CCMCs/CPs are diverse and unique as also the PO-MMCs**, who are destined to operate these. The diversity is due to their locations scattered over the country and characterized by the varied landscape, agriculture, crop varieties, etc. The PO-MMCs are unique and all are different due to their own space and culture, while their expectations, ideas, interests, choices, commitments vary widely. This creates a significant difference between project goals and the expectations and goals of the people around the CCMCs/CPs who are in charge of running those. It is thus necessary to **address this gap and orient the approach of the interventions accordingly**.

Example of the diversity & uniqueness: A mini-truck operates less number of days per month in the far-flung upazilas compared to the ones in the vicinity of Dhaka. Whereas Jashore sadar being a far-flung upazila, is constrained by competition from other mini-truck owners, who are in plenty in the area. At the same time, Jhikorgachha, also far-flung but adjacent to Jashore sadar, found good prospect with a much bigger truck due to the PO-MMC's high business acumen, as also they have invested in building their own CCMC. This illustrates the fact that difference in locations can aid or constrain a common course and that uniqueness of PO-MMCs lead to differences in outlooks and decision making.

2. **Project functionaries at all strata need to be unambiguous** to forge a common approach when dealing with improving market access for the smallholder farmers. Failures and unpleasant experiences from different past projects necessitates this. There must be a functional level of clarity and understanding and of setting clear boundaries as to what the project interventions can do and achieve and what it cannot do. To illustrate the above learning, it is important to mention that some PO-MMCs were misguided by certain officials that the project will organize selling their products in Dhaka high-end markets while the POs will only need to aggregate and process them in the CCMCs. In reality such attempts in the past failed because superstores and other big outlets in Dhaka have their own chosen supply chain and approaches by past projects were only occasionally accepted for HVC supply –

the continuous uptake was avoided. The smallholder group cannot match the volumes they need to market with that of the superstores and for required frequency. Payments by the superstores in Dhaka against shipments also take long period that the small farmer groups cannot afford to deal with. Therefore such wrong messages to small farmer groups affected the progress of needed actual undertakings.

3. Mode of training followed in the project in a traditional classroom-style lecture divided in five topics a day has been ineffective. Instead the training should be open for discussion and be based on the outputs through group work by training participants for any or all topics. The review of topics at the end through the ouputs proves to be most effective as experienced in case of the BPWs and other later knowledge and skill development efforts.

4. Resource persons for training CIG farmers and PO members in VCD related topics (PHM, Marketing, Food Safety) should be carried out by RELEVANT EXPERTS/ CONSULTANTS ONLY as others designated in the project largely proved ineffective.

5. BPWs and their follow-ups proved that POs can appreciate business skills development as the kind and type of product popularity or demand and prices evident in the market continuum can be demonstrated to them. The main argument of continuous monitoring of prices of their products in the nearby and short-distance markets by the designated PO-MMC person/persons can greatly help them in their day-to-day HVC trading.

6. A gap in the continuity of support and mentoring of PO-MMCs due to the disruptions of recurring pandemic waves damaged the progress seriously. After normal visits to CCMCs/CPs resumed, the PO-MMCs were found to have forgotten many of the critical learning as to why the whole affairs of CCMCs were organized. The needs and implications of PHM and value addition, the very basic reasons, could not be recounted by them in many places. It happened despite the fact that communications with PO-MMCs were kept over telephone during the movement restrictions from lockdowns.

This also illustrates the fact that **development assistances** throughout the developing world which attempted **to build rural institutions with small farmers** never succeeded with three or five years' projects, but **needed continuous support and mentoring across many more years, usually between 12 and 15 years**. Continuity toward supporting the PO-MMCs therefore necessitates the continuity of the efforts through an uninterrupted NATP phase-3 project.

7. The grass-root level supports to the PO-MMCs (through LBFs) remained **inadequate**. Firstly due to their qualifications that was tied to their project benefits, and secondly the inadequacy of the logistics they needed. Though later in the R-DPP they got a pay-rise, it didn't automatically improve their standing, skill or qualification – they were already there – the project could not replace them straightaway with better recruits. Their transport needs to move among the CIGs or the supports for digital reporting and data inputs were not created. Although in R-DPP, tablets for LBFs were allocated, the system remains to be improved considerably.

9. The way forward

During the remaining project period the main thrust will be to re-focus on the objectives and stress on the achievements and successes by the PO-MMCs around the CCMCs/CPs. The achievements by the PO-MMCs in income generation and making margins from mini-truck and the undertaken other businesses, etc. will be further stressed and encouraged. The CCMCs/CPs that could not exhibit good prospects and had deficiencies mainly due to

limitations and shortcomings of the PO-MMCs in properly engaging with the affairs, will receive extra attention in these aspects. It will be therefore essential to improve the institution-building process of the deficient PO-MMCs as well as the rest.

The main thrusts will be to:

- Engage more with the PO-MMCs for them to emerge as institutions of cooperative agribusiness and development through visits and meetings;
- Follow-up with the Business Plans of the PO-MMCs to guide them according to the set work-plans to successfully conduct their businesses. This would entail developing their skills on business cost & return analysis, market demands & advanced planning for products, proper record keeping, market analysis for prices & supply locations, etc.;
- Arrange exchange visits or visual communications among the PO-MMCs to for better marketing and for experience sharing;
- Work out immediately the arrangements in advance to deal with the situation when the consultants leave completing their inputs in Hortex later in 2022, so that the appropriate and continuous support for the PO-MMCs remain unhindered;
- Assist in income generation and expenditure management with the objective of being self-sufficient;
- Help in asset development to expand income sources;
- Special attention and stronger support to be given to low-earning PO-MMCs with for raising their sustainability prospects.

The Sustainability Plan for the CCMCs

The sustainability plan has already been activated as PO-MMCs are paying for the rents of their CCMCs+CPs by depositing the rent amount in a closed bank account of the PO-MMC while the rent from the Project goes to the owner-lessor. Since long the POs were informed that the NATP-2 Project/Hortex will gradually withdraw all support including rent and other costs from the CCMCs as they grow with business income, savings and assets utilization. Hortex Foundation made agreement with each of the 30 PO-MMCs to execute the rental proposal plan, which has started from August 2022. According to the plan, PO-MMCs paid 20% of the rent in the month of August 2022 in a special closed bank account of PO-MMC and gradually will pay the whole rent and other receivables from the NATP-2 project by February 2023. In this way, PO-MMCs will finally deposit 100% rent for the CCMCs from the month of March 2023 and also pay for other costs. This habit of payment will thus continue and after closing of the project they will easily pay all costs including rents.

The amount thus deposited will not be available to the PO-MMC during the project period and this regular depositing habit will build their capacity to pay for the expenses. This closed account finally becomes a contingency fund for the PO-MMC. This fund will only be available under a contingency plan under the supervision of the UAO. During the recent Business Planning Workshops (BPWs), all the PO-MMCs have shown the work-out in their plan how to generate revenue to cover all their costs including rent. So, efforts are underway to help them consolidate their income from given items, AIF-3 supported asset and the evolving business. So the rent support and costs like meeting costs are being withdrawn and they are

already paying for these costs. However, the advisory support and guidance from Hortex will continue throughout the project period.

Once the rents are fully paid by the PO-MMCs and the costs are no longer borne by the Project, the exit will initiate their financial independence, though they will continue to receive guidance and advice from DAE.

Current activities only concentrate on monitoring and guiding the PO-MMCs to implement their Business Plans and these are to be tied with UAO and SAAO around the CCMC for proper continuity of advising, guiding and mentoring.

In the meanwhile, attempts will continue for linkage with markets in Dhaka and other high-end markets for selected quality vegetables.

Since Hortex has launched the online marketing of fresh produces at www.hortexbazarbd.com, with different CCMCs already marketing their products, a further expansion of this value chain development will just be a matter of time.

Annex Table 1: Location of the CCMCs and the POs.

Sl. No.	Upazila	District	Location of CCMC	Location of CPs
1.	Birganj	Dinajpur	Pnochish mile	Bot toli bazaar
2.	Chirirbandar	Dinajpur	Hatkola Bazaar	Krishnapur
3.	Parbatipur	Dinajpur	Khayerpukur haat	Uttara
4.	Mithapukur	Rangpur	Baldipukur Bazaar	Abhirampur
5.	Palashbari	Gaibandha	Bazaar	Purbo Noyanpur
6.	Shibganj	Bogura	Mahasthangarh Bazaar	Sanyasi Dhondakola
7.	Bogura Sadar	Bogura	Pollimangal Haat	Ananda bazaar
8.	Naogaon Sadar	Naogaon	Tetulia Bazaar	Gobindopur
9.	Baraigram	Natore	Bonpara Bazaar	Bagdoub bazar
10.	Godagari	Rajshahi	Rajabari haat	Damkura haat
11.	Kaliganj	Jhenidah	Kaliganj bazaar	Baliadanga
12.	Jashore Sadar	Jashore	Barnagar Bazaar	Bhagolpur
13.	Jhikorgachha	Jashore	Barbakpur Bazaar	Mohinikathi
14.	Bagharpura	Jashore	Dadpur Bazaar	Habulya
15.	Nakla	Sherpur	Tarakanda bazaar	Joy Bangla bazaar, Dhanakusha
16.	Islampur	Jamalpur	Islampur Bazaar	Porar char
17.	Delduar	Tangail	Putiajani Bazaar	
18.	Madhupur	Tangail	Kuragachha Bazaar	Shalikha
19.	Muktagachha	Mymensingh	Gabtali bazaar	Rasulpur bazaar
20.	Kishoreganj Sadar	Kishoreganj	Jalalpur bazaar	Member market, Bilborulla
21.	Kapasia	Gazipur	Chandpur bazaar	Tilsunia bazaar
22.	Savar	Dhaka	Dakkhin Meitka	Shyampur
23.	Shibpur	Narsingdi	Kharakmara Bazaar	Palpara
24.	Belabo	Narsingdi	Baroicha Bazaar	Rahimer kandi
25.	Raipura	Narsingdi	Lochonpur Bazaar	Uttar Bakhornagar
26.	Dakkhin Surma	Sylhet	Rakhalganj bazaar	Turukkhola
27.	Sreemangal	Moulvibazaar	Notun bazaar	Tikoria
28.	Chandina	Cumilla	Nimsar bazaar	Purbo Ramchandrapur
29.	Mirsarai	Chattogram	Bhangadokan	Mahanagar,Fakir Astana bazar
30.	KhagrachhariSadar	Khagrachhari	Chhotonala bazaar	Bhai-bon bazaar

Annex Table 2: Logistics and other support provided to the CCMCs.

Sl. No.	Name of the Upazila	Rickshaw Van	Plastic Crates	Sorting Mat	Executive Chair (CCMC)	Eye Table (CCMC)	Plastic table (CP)	Plastic Chair CCMC & CP	Fan	Grading Table	Top Loading Balance	Digital Camera	Mobile Tablets (Samsung)	Pump Motor & Submersible pump	Tube-well	Washing House	White Board
1.	Birganj	2	218	30	1	1	25	2	1	2	1	1	1	2	2	2	1
2.	Chiribandar	2	238	30	1	1	25	3	1	2	1	1	2	2	2	2	1
3.	Parbatipur	2	373	30	1	1	25	4	-	2	1	1	1	1	1	1	1
4.	Mithapukur	2	373	30	1	1	25	3	1	2	1	1	2	2	2	2	1
5.	Palashbari	2	383	30	1	1	25	3	1	2	1	1	1	2	2	2	1
6.	Shitganj	2	363	30	1	1	25	4	1	2	1	1	2	2	2	2	1
7.	Bogura Sadar	2	363	30	1	1	25	3	1	2	1	1	2	2	2	2	1
8.	Naogaon Sadar	2	363	30	1	1	25	2	1	2	1	1	1	2	2	2	1
9.	Baraigram	2	368	30	1	1	25	3	1	2	1	1	1	2	2	2	1
10.	Godagari	2	363	30	1	1	25	4	1	2	1	1	1	1	2	2	1
11.	Kaliganj	2	363	30	1	1	25	4	1	2	1	1	1	1	1	1	1
12.	Jashore Sadar	2	378	30	1	1	25	3	1	2	1	1	1	2	2	2	1
13.	Jhikorgachha	2	368	30	1	1	25	4	1	2	1	1	1	1	1	1	1
14.	Bagharpara	2	368	30	1	1	25	1	1	2	1	1	1	1	1	1	1
15.	Nakia	2	278	25	1	1	25	2	1	2	1	1	1	-	-	-	1
16.	Islampur	2	383	30	1	1	25	4	-	2	1	1	1	1	1	1	1
17.	Delduar	2	379	30	1	1	25	3	1	2	1	1	2	2	2	2	1
18.	Madhupur	2	363	30	1	1	25	2	1	2	1	1	2	2	2	2	1
19.	Muktagachha	2	363	30	1	1	25	3	1	2	1	1	1	2	2	2	2
20.	Kishoreganj Sadar	2	368	30	1	1	25	4	1	2	1	1	1	1	1	1	1
21.	Kapasia	2	363	30	1	1	25	-	-	2	1	1	1	1	1	1	1
22.	Savar	2	391	30	1	1	25	2	-	2	1	1	1	2/1(SP)	2	2	1
23.	Shibpur	2	371	30	1	1	25	2	1	2	1	1	2	2	2	2	1
24.	Beliab	2	371	30	1	1	25	2	1	2	1	1	2	2	2	2	1
25.	Rajpura	2	371	30	1	1	25	3	1	2	1	1	1	1	1	1	1
26.	Dakkhin Surma	2	368	30	1	1	25	4	1	2	1	1	2	2	2	2	1
27.	Sreemangal	2	368	30	1	1	25	7	1	2	1	1	2	2	2	2	1
28.	Chandina	2	373	30	1	1	25	2	1	2	1	1	2	2	2	2	2
29.	Mirsarai	2	363	30	1	1	25	2	1	2	1	1	1	1	1	1	1
30.	Khagrachhari Sadar	2	367	30	1	1	25	3	1	2	1	1	-	-	-	-	1

Annex Table 3.1: Month-wise marketing volumes of agri-commodities sold through the CCMCs & CPs during July 2021–June 2022.

Month	Volume(kg)	Reporting from the Upazilas	
		CCMCs	CPs
Jul-21	886,000	29 Upazilas (Except Shibganj)	All 30 Upazilas
Aug-21	863,784		
Sep-21	746,756		
Oct-21	658,924	27 Upazilas (Except Shibganj, Bogura Sadar & Nakla)	29 Upazilas (Except Nakla)
Nov-21	793,590	29 Upazilas (Except Nakla)	28 Upazilas (Except Nakla & Shibpur)
Dec-21	1103,647	30 Upazilas	
Jan-22	1130,640		
Feb-22	914,097		
Mar-22	842,812		
Apr-22	692,600		
May-22	757,995		
Jun-22	801,458		
Total (Jul 2021 to June 2022) = 10,192,303 kgs (10192.303 tons)			

Annex Table 3.2: Upazila-wise total volume of agri-commodities marketed through the CCMCs & CPs: - July 2021 – June 2022.

No.	Name of the Upazila	Volume (kgs)	No.	Name of the Upazila	Volume (kgs)
1.	Birganj	419,467	16.	Islampur	518,977
2.	Chirirbandar	131,693	17.	Delduar	274,284
3.	Parbatipur	424,044	18.	Madhupur	290,858
4.	Mithapukur	125,611	19.	Muktagachha	746,990
5.	Palashbari	112,840	20.	Kishoreganj Sadar	133,000
6.	Shibganj	251,744	21.	Kapasia	182,670
7.	Bogura Sadar	154,190	22.	Savar	649,745
8.	Naogaon Sadar	144,777	23.	Shibpur	298,110
9.	Baraigram	159,730	24.	Belabo	443,587
10.	Godagari	628,700	25.	Raipura	123,245
11.	Kaliganj	512,595	26.	Dakkhin Surma	504,593
12.	Jashore Sadar	547,746	27.	Sreemangal	396,677
13.	Jhikorgachha	303,749	28.	Chandina	185,929
14.	Bagharpura	90,949	29.	Mirsarai	199,717
15.	Nakla	869,010	30.	Khagrachhari Sadar	367,076
Total = 10,192,303 kgs (10,192.303 tons)					

Annex Table 3.3 : Volumes of agri-commodities marketed through the CCMCs & CPs during Jul 2021 – Jun 2022. (in order of volumes marketed)

No.	Name of Vegetable/fruit	Volume (kgs)	No.	Name of Vegetable/fruit	Volume (kgs)
1.	Rice	1064,735	29.	Snake gourd	79,082
2.	Brinjal	984,225	30.	Okra	73,964
3.	Lemon	847,422	31.	Spinach	72,082
4.	Country Bean	727,102	32.	Jujube	67,072
5.	Banana	578,102	33.	Ridged Gourd	51,937
6.	Potato	539,659	34.	Sponge gourd	51,788
7.	Teasel Gourd	407,769	35.	Ash Gourd	44,818
8.	Guava	350,454	36.	Litchi	36,556
9.	Tomato	346,472	37.	Beet	34,555
10.	Pointed Gourd	341,104	38.	Jackfruit	28,859
11.	Papaya	293,627	39.	Coriander	27,990
12.	Bitter Gourd	282,671	40.	Watermelon	21,304
13.	Indian Spinach	244,982	41.	Dragon fruit	19,825
14.	Bottle Gourd	216,131	42.	Garlic	16,650
15.	Yard Long Bean	206,582	43.	Palmyra palm (Taal)	16,204
16.	Cabbage	199,830	44.	Onion	15,598
17.	Radish	193,921	45.	India Olive	14,565
18.	Green Chilli	192,510	46.	Malta	14,233
19.	Cauliflower	180,247	47.	Aonla	13,144
20.	Red Amaranth	173,235	48.	Hog Plum	12,974
21.	Mango	172,636	49.	Jute leaf	11,354
22.	Amaranth	169,710	50.	Wood Apple	6,998
23.	Cucumber	160,374	51.	Carrots	6,624
24.	Taro	143,075	52.	Moringa Stick	6,143
25.	Sweet Gourd	140,649	53.	Blackberry	4,642
26.	Pineapple	100,309	54.	Elephant foot yam	1,600
27.	Taro Stolon	94,568	55.	Sweet Potato	180
28.	Broccoli	89,330	56.	Golden Apple	131
Total = 10,192,303 Kgs (10192.303 tons)					

Annex Table 3.4: Agri-commodities marketed from CCMCs+CPs over the years.

Crops	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Brinjal	28000	223620	782822	681764	1157607	984225
Bitter Gourd	11000	73300	75734	169569	179230	282671
Sweet Gourd	11000	16400	121501	254706	166778	140649
Pointed Gourd	0	42130	119166	270035	329612	341104
Teasel Gourd	0	56700	235626	336718	297574	407769
Bottle Gourd	5000	0	86018	96621	213224	216131
Ash Gourd	10000	17560	41884	28944	79130	44818
Ridged Gourd	0	6000	11653	80877	63386	51937
Tomato	3000	7210	311732	529238	372447	346472
Banana	0	38200	344330	911481	826408	578102
Lemon	0	242550	610657	398804	565286	847422
Potato	0	45000	1008335	707874	908224	539659
Green Chili	0	48030	27503	79699	106962	192510
Papaya	0	0	37294	60215	106787	293627

Crops	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Taro Stolon	0	0	4997	56645	71786	94568
Cucumber	0	17800	99842	212353	222539	160374
Cabbage	4500	9200	82430	162377	158040	199830
Red Amaranth	0	6940	31321	55659	70136	173235
Country Bean	3500	2000	472120	895987	912444	727102
Cauliflower	4500	13500	65069	148323	194314	180247
Radish	12000	37210	13417	67185	108505	193921
Rice	0	0	576818	804630	1507245	1064735
Carrots	3000	0	2950	6677	204	6624
Indian Spinach	0	9760	33313	75294	145104	244982
Coriander	0	8080	3544	21565	27066	27990
Onion	0	0	29220	949	1575	15598
Pineapple	0	0	8716	6502	75697	100309
Wood Apple	0	0	1000	2644	2334	6998
Guava	0	1000	38410	314365	504575	350454
Yard Long Bean	0	0	20052	106230	148838	206582
Taro	0	0	1610	50887	81398	143075
Blackberry	0	0	0	0	19152	4642
Moringa (stick)	0	0	2690	0	2279	6143
Aonla	0	0	0	0	8708	13144
Snake gourd	0	4280	33694	52597	102695	79082
Okra	4500	2080	15193	35859	35679	73964
Jute leaf	0	9320	38415	32697	35301	11354
Sapota	0	0	320	0	350	0
Sponge gourd	0	0	2884	22739	39423	51788
Mango	0	0	65438	45081	136287	172636
Jackfruit	0	0	2789	22422	43655	28859
Litchi	0	0	102835	34568	75537	36556
Rozelle Leaf	0	0	200	0	0	0
Golden Apple	0	0	0	0	230	131
Palmyra palm (Taal)	0	0	0	17053	16869	16204
Watermelon	0	0	472	0	29552	21304
Pomelo	0	0	0	8326	7648	0
Garlic	0	0	10692	9696	0	16650
Hog Plum	0	0	0	6939	16598	12974
India Olive	0	0	0	10732	4766	14565
Elephant foot yam	0	0	0	520	0	1600
Broccoli	0	0	0	6970	80600	89330
Spinach	0	1340	0	6337	28175	72082
Jujube	0	0	0	98758	68411	67072
Turnip	0	0	0	460	15880	0
Strawberries	0	0	0	580	0	0
Amaranth	0	26100	0	17921	242912	169710
Sweet Potato	0	0	0	14770	0	180
Pea	0	0	0	292	4748	0
Muskmelon (Bangi)	0	0	0	5700	0	0
Tamarind	0	0	0	842	0	0

Crops	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Dragon fruit	0	0	0	2985	4680	19825
Beet	0	0	0	0	0	34555
Burmese Grape	0	0	0	0	11175	0
Malta	0	0	0	0	51631	14233
Total	100000	965310	5574706	8049661	10687396	10192303

Annex Table 4: Volumes of agri-commodities exported thru CCMCs between 2017-18 and 2021-22.

Years	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Volume (tons)	32	739	567.79	599.26	380.50	2318.55

Annex Table 5 : Training programmes carried out for different client groups during 2017-18 to 2021-22.

Training by Client group	Year										Total no. of client days		
	2017 – 18		2018 - 19		2019 – 20		2020 – 21		2021 – 22				
Batches	No. of participants	No. of client days	Batches	No. of participants	No. of client days	Batches	No. of participants	No. of client days	Batches	No. of participants	No. of client days		
ToT for DAE Officers	4	94 (12)	188	2	53 (19)	106	-	-	-	-	-	300 (98%)	
SAAOs	10	300 (32)	600	--	--	--	--	--	--	--	--	600 (100%)	
LBFs	2	30X2=60	120	2	30X2=60	120	-	-	-	-	-	240 (100%)	
CIG Farmers	64	1910 (300)	220	6600 (1601)	34	1020 (265)	74	2220 (499)	75	2250 (690)	14000 (100%)	14000 (100%)	
POs	--	--	--	65	1948 (308)	29	660 (95)	40	1200 (112)	-	-	3480 (109%)	
Traders	--	--	--	15	450	15	450 (07)	-	-	-	-	900 (100%)	
Micro and Small Agri-Business	--	--	--	--	--	--	--	--	--	5 (04)	149	150 (99%)	
Food processing	--	--	--	--	--	--	--	--	--	10 (300)	300	300 (100%)	
Total	80	2364 (344)	2818	304	9111 (1928)	9224	78 (367)	2130	114 (611)	3420	120 (994)	2699 (103%)	19670** 20291 (100%)

Figures in the parentheses indicate number of women participants, except for the last column.

** In the R-DPP, that became effective on 27th May 2021, the total number of client days got reduced and were re-assessed to 19670.

Annex Table 6 : Incomes and Expenditures from CCMC and CP operations.

Sl. No.	CCMCs/ CPs	Income & Expenditure in CCMC+ CP operations					
		Jul '21 to Dec '21			Jan '22 to Jun '22		
		Income	Expenditure	Difference	Income	Expenditure	Difference
1.	Birganj	4,700	30,380	-25,680	9,010	63,859	-54,849
2.	Chirirbandar	8,258	7,643	615	25,815	8,013	17,802
3.	Parbatipur	34,400	39,690	-5,290	68,293	20,318	47,975
4.	Mithapukur	1,38,400	67,250	71,150	2,79,700	88,490	1,91,210
5.	Palashbari	31,800	31,100	700	36,500	57,481	-20,981
6.	Shibganj	92,000	1,06,710	-14,710	1,00,300	1,10,730	-10,430
7.	Bogura Sadar	91,900	79,730	12,170	2,09,955	1,08,050	1,01,905
8.	Naogaon Sadar	32,562	64,671	-32,103	48,747	69,412	-20,665
9.	Baraigram	6,300	98,900	-92,600	8,500	93,600	-85,100
10.	Godagari	1,20,150	58,250	61,900	1,73,620	63,200	1,10,420
11.	Kaliganj	60,630	1,11,150	-50,520	1,44,200	1,11,540	32,660
12.	Jashore Sadar	76,639	76,000	639	1,51,130	72,300	78,830
13.	Jhikorgachha	1,43,600	50,500	93,100	3,82,240	36,500	3,45,740
14.	Bagharpura	1,75,720	37,020	1,38,700	2,83,400	1,34,030	1,49,370
15.	Nakla	n/a	n/a	n/a	5,550	22,800	-17,250
16.	Islampur	20,755	48,550	-27,795	52,970	1,31,326	-78,356
17.	Delduar	76,675	81,850	-5,175	56,900	95,940	-39,040
18.	Madhupur	2,750	49,850	-47,100	3,600	50,400	-46,800
19.	Muktagachha						
20.	Kishoreganj Sadar	52,700	85,550	-32,850	92,170	94,650	-2,480
21.	Kapasia				26,482	44,605	-18,123
22.	Savar	3,200	94,617	-91,417	4,050	92,890	-88,840
23.	Shibpur	10,200	41,693	-31,493	8,600	39,048	-30,448
24.	Belabo	1,83,270	45,770	1,37,500	1,62,850	7,250	1,55,600
25.	Raipura	5,600	42,509	-36,909	4,800	44,060	-39,260
26.	Dakkhin Surma	8,590	96,360	-87,770	75,510	1,06,405	-30,895
27.	Sreemangal	1,42,216	1,53,031	10,815	2,02,825	69,116	1,33,709
28.	Chandina	38,150	11,819	-80,669	73,700	1,12,815	-39,115
29.	Mirsarai	46,621	1,07,000	-60,379	1,20,338	1,09,267	11,071
30.	Khagrachhari Sadar	12,580	23,725	-11,145	27,865	79,350	-42,485

Annex Table 7: Financial Statement.
RADP allocation and financial progress : 2016-17 to 2021-22

(in lakh taka)

* Only RPA, no GOB allocation

Annex Table 8: Procurement Progress of NATP-2, Hortex Foundation, FY 2020-21

Goods: A total of 09 procurement packages were completed during 2021-22 as detailed in the table below.

Sl. No.	Package Name	Package No.	Qty	Allocation (Taka)	Expenditure (Taka)	Status
01	Rickshaw Van for POs fitted with powered driving (41 to be power-fitted) and 15 new powered Van)	GD/Hortex-NATP2/35	56	18,00,000.00	15,51,200.056	Completed (by OTM/NCB)
02	Transport Crates for POs	GD/Hortex-NATP2/42	4250	30,06,000.00	27,58,254.250	Completed (by OTM/NCB)
03	Sorting Mat for POs	GD/Hortex-NATP2/36	300	3,00,000.00	2,99,100.00	Completed
04	Other Processing, Transport or quality control small Equipment for POs	GD/Hortex-NATP2/37	LS	4,00,000.00	3,99,750.00	Completed
05	Mobile Tablets	GD/Hortex-NATP2/38	32	5,00,000.00	4,96,000.00	Completed
06	Printing & Binding (Documentation)	GD/Hortex-NATP2/39	LS	4,00,000.00	3,99,600.00	Completed
07	Office Supplies (Stationery, seals & Stamps)	GD/Hortex-NATP2/40	LS	2,00,000.00	1,99,970.00	Completed
08	Refurbishing, Improving the collection points/CCMCs of selected traders	GD/Hortex-NATP2/41	LS	5,00,000.00	4,98,000.00	Completed
09	Other Processing, Packaging development for Local & Export Market for POs	GD/Hortex-NATP2/43	LS	4,00,000.00	3,99,500.00	Completed
Total		09 Goods Packages		75,06,000.00	70, 01,374.30	

Services: A total of 03 procurement packages were completed during 2021-22 as detailed in the table below.

#	Package Name	Package No.	Qty	Allocation (Taka)	Expenditure (Taka)	Status
01	Training Management Expert (Continuation)	SD/Hortex-NATP2/19	12 mm SIC (3 CV)	41,25,000.00	30,00,000.00	Completed (8 mm in 2021-22)
02	Value Chain Analysis of 5 Selected crops covering 30 cluster areas and Conducting studies & surveys on existing markets of 30 upazilas including Postharvest loss Estimation	SD/Hortex-NATP2/20	03 study (6 mm) SIC (3CV)	15,00,000.00	15,00,000.00	Completed
03	Compiling a database of service providers along the value chain for POs. Analysis of collected data & website updating of markets Apps development linking CCMC	SD/Hortex-NATP2/21	02 study (5 mm) SIC (3 CV)	2,75,000.00	2,75,000.00	Completed
	Total	03 Service packages		59,00,000.00	47,75,000.00	

Annex 9: Glimpses of some value chain development activities



Photo 9.1: The mainstay of trading in Bagharpura CCMC has been tomatoes – brought using van and crates provided by the NATP-2 project.



Photo 9.2: Sorting potatoes in Parbatipur CCMC.



Photo 9.3: Packaging of guava and papaya in Kaliganj CP.



Photo 9.4: The PO-MMC in Kaliganj is loading the mini-truck (bought by availing AIF-3 grant) at the CP with guava and papaya.



Photo 9.5: PO-MMC Sreemangal took initiative to do business with other CCMCs. Here in Naogaon Sadar CCMC they sold pineapple, and are seen buying pointed gourd from them.

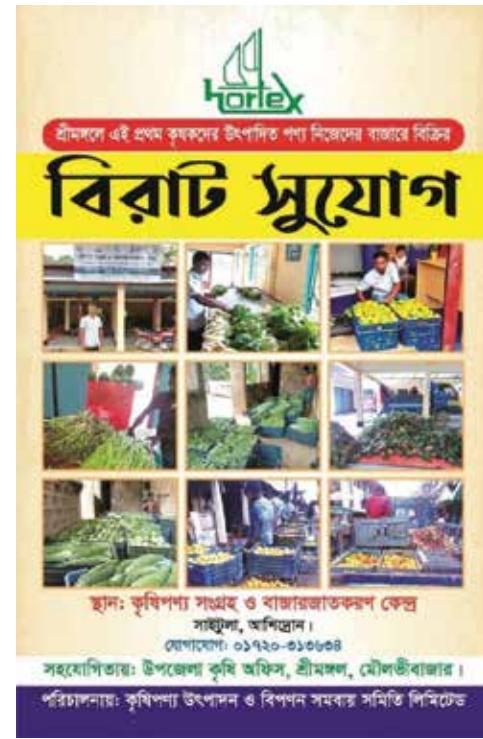


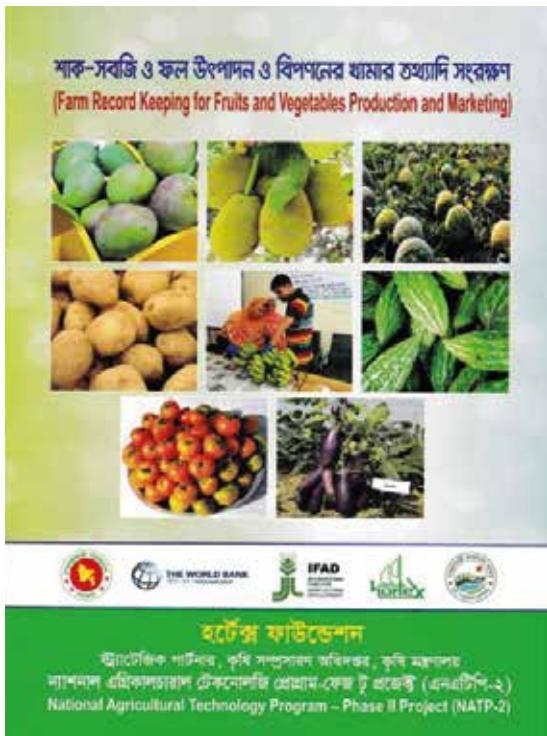
Photo 9.6: PO-MMC Sreemangal printed leaflets advertising to farmers for HVC trading.



Photo 9.7: Teasel gourd packaging at Belabo CCMC for export.



Photo 9.8: Loading of the packaged teasel gourd on the mini-truck of Belabo CCMC.



রাষ্ট্রান্বিয়োগ্য আম উৎপাদন ও উন্নত সংগ্রহোত্তর ব্যবস্থাপনা
Exportable Mango Production and Improved Postharvest Management



ম্যাশিন এক্সিপার্ট প্রোগ্রাম-ফেজ ২ (এনএটপি-২)
হটেক্স ফাউন্ডেশন, স্ট্যাটেজিক পার্টনার অব ডিএই (DAE), কৃষি মন্ত্রণালয়

জুন ২০২২

Photo 9.9: Hortex Foundation designed and published the Farm Record Keeping Book to aid Good Agricultural Practices (GAP) and thereby initiate traceability.

Photo 9.10: Cover of the publication on Exportable Mango Production and Improved Postharvest Management

Annex 10: List of Personnel.

Md. Manzurul Hannan
Managing Director
Hortex Foundation
&
Coordinator
NATP-2 Project

Project Personnel (NATP-2)

Dr. Md. Atiqur Rahman	Post-Harvest Management Expert	Md. Rokebul Islam	LBF, Nakla, Sherpur (joined 19 May 2022)
Md. Bazlur Rahman	Supply Chain Integration & Marketing Expert	Md. Josim Uddin	LBF, Islampur, Jamalpur
Md. Qudrat-E-Ghani	Training Management Expert (Joined 01 Nov 2021)	Md. Jafar Ali Khan	LBF, Delduar, Tangail
Dr. Mofarahus Sattar	Monitoring & Evaluation Expert	Md. Forhad	LBF, Madhupur, Tangail
Biplab Das	Accounts Officer	Md. Limon Talukdar	LBF, Muktagacha, Mymensingh
Md. Mizanur Rahman	Data Analyst	Md. Tifur Rahman	LBF, Sadar upazila, Kishoregonj
Md. Masud Haque	LBF, Birganj, Dinajpur (up to 10 Nov 2021)	Md. Tazul Islam Khandaiker	LBF, Kapasia, Gazipur
Md. Abdul Based	LBF, Birganj, Dinajpur (joined 10 Nov 2021)	Md. Robel Molla	LBF, Shibpur, Narshingdi
Md. Asraful Islam	LBF, Chiribandar, Dinajpur	Md. Saifuddin Bhuiyan	LBF, Belabo, Narshingdi
SDM Monjurul Hasan	LBF, Parbatipur, Dinajpur	Md. Alamgir Hossain	LBF, Raipura, Narshingdi
Md. Sahadat Hossain	LBF, Palashbari, Gaibandha	Md. Gopal Mondal	LBF, Savar, Dhaka
Md. Mazharul Islam	LBF, Mithapukur, Rangpur	Md. Sharif Ahmed	LBF, Dakkhin Surma, Sylhet
Md. Jahanur Islam	LBF, Shibganj, Bogura	Ajit Kairi	LBF, Sreemangal, Moulvibazar
Md. Abu Rayhan	LBF, Sadar upazila, Bogura	Sajib Ahmed	LBF, Chandina, Cumilla
Sreekanto Kumar Sarker	LBF, Sadar upazila, Naogaon	Shibu Chandra Roy	LBF, Mirsarai, Chattogram
Md. Nizam Uddin	LBF, Baraigram, Natore	Satten Tripura	LBF, Sadar Upazila, Khagrachhari
Md. Rofizuddin	LBF, Godagari, Rajshahi	Md. Nurul Islam	Driver
Md. Hafizur Rahman	LBF, Kaliganj, Jhinaidah	Abu Saleh Chowdry	Driver
Md. Torikul Islam	LBF, Sadar upazila, Jashore	Md. Sumon Mia	Driver
Md. Mahamudul Hasan	LBF, Jhikorgacha, Jashore	Md. Delwar Hossain	Driver
Md. Raihan Hosen	LBF, Baghpara, Jashore	Md. Rasel Ali	Dispatcher/Office Support
Mark Rahman	LBF, Nakla, Sherpur (up to 19 May 2022)	Mithun Chandra Das	Office Support staff

Hortex Foundation Personnel

Mitul Kumar Saha	Mojibur Talukder	Driver
Md. Mamun Hossain	Md. Forkan Ahmed	Driver
Joynal Abedin	Md. Maklesur Rahman	Driver
Syed Miraz Mahmud	Abdul Matin Mollah	Support Staff
Moniuddin Md. Nurul Absar	Zitu Mia	Night Guard (died on 01 Jan 2022)
Md. Nawab Ali	Hosneara Begum	Cleaner

