



FEED THE FUTURE

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



Feed the Future Bangladesh Aquaculture and Nutrition Activity

Quarterly Progress Report: January – March 2022



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Acronyms

AIN	Aquaculture for Income and Nutrition
AOR	Agreement Officer's Representative
BFRI	Bangladesh Fish Research Institute
CLA	Collaborating, Learning, and Adapting
CoP	Chief of Party
DCoP	Deputy Chief of Party
DoF	Department of Fisheries
DU	Dhaka University
EMMP	Environmental Mitigation and Monitoring Plan
FtF	Feed the Future
GIP	Genetic improvement program
GIS	Geographical Information System
GoB	Government of Bangladesh
ICT	Information and Communications Technology
iDE	International Development Enterprises
IEE	Initial Environmental Examination
IPHN	Institute of Public Health Nutrition
INFS	Institute of Nutrition and Food Science
INGO	International Non-Governmental Organization
MoHFW	Ministry of Health and Family Welfare
MEL	Monitoring, Evaluation and Learning
MIS	Management Information System
MMC	Market Management Committee
NGO	Non-Governmental Organization
SBCC	Social and Behavior Change Communication
SDC	Swiss Agency for Development and Cooperation
SoP	Standard Operating Procedure
SOW	Scope of Work
ToR	Terms of Reference
USAID	United States Agency for International Development
ZOI	Zone of Influence
ZOR	Zone of Resilience

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1. Executive Summary

The Feed the Future Bangladesh Aquaculture and Nutrition Activity (Aquaculture Activity) is a USD 24.5 million, five-year assistance program, awarded to WorldFish on February 6, 2018, which is expected to continue until February 5, 2023. Aquaculture Activity aims to improve the livelihoods of at least 400,000 beneficiaries, including smallholder fish farmers and other actors in the aquaculture value chain. The interventions put emphasis on cross fertilizing knowledge, and sharing expertise so that the skills of the actors are developed, facilitating sustainable growth in the market. The Activity is being implemented by engaging partners from both private and public sectors located at 21 south-western districts and 2 south-eastern districts of Bangladesh, which are known as Feed the Future Zone of Influence (ZOI) and Zone of Resilience (ZOR), respectively.

A key activity that has started to yield results this quarter is a large scale study undertaken by the program to investigate and document evidence of systemic change that has occurred as a result of its facilitation work in the aquaculture value chain. The study is being conducted at three different tiers: (1) implementing partners (IPs), (2) service providers and agents, and (3) farmers/beneficiaries. The first stage of the study, consisting of the IPs, has been completed and it is revealed that 63% of the IPs were satisfied with the changes they integrated in their business models with support from Aquaculture Activity, 30% were highly satisfied and 9% were moderately satisfied. None of the partners said they were dissatisfied with the performance of the intervention. Highest percentage (54%) of IPs said that their customers were satisfied with the service they extended while 41% were highly satisfied and the rests (4%) were not fully satisfied. All the partners confirmed that the intervention introduced some kind of innovation/transformation to their business, while 72% said that they have made autonomous changes to their business model since it was piloted with Aquaculture Activity assistance (*Annex 1*). This is an important indicator of systemic change, showing that the private sector partners are taking ownership over their business model and are likely to continue with them without further support from Aquaculture Activity. This study is therefore indicating the effectiveness of a Market Systems approach to strengthening the aquaculture sector in Bangladesh.

A significant and evolving challenge to the continuing success of all program work has to be the impact of the ongoing war in Ukraine on the cost of food, fuel, and raw materials, particularly agricultural inputs. In poor households, the purchase of such items consumes most available income, and so, with little if any savings or affordable credit available to families in rural aquaculture communities, their resilience to these economic shocks will be very limited. As most of Aquaculture Activity's work involves supporting more effective commercial interaction between the private sector and aquaculture farmers it is likely that this will be impacted by these challenges of higher commodity prices, and so the program will continue to closely engage with its partners to understand any need to re-focus activities in response to such pressures. For example, it may be pertinent to review training materials for farmers to support the use of less expensive locally produced feed rather than continuing to drive adoption of commercial products which may be becoming unaffordable in a market where consumer demand for fish will also be impacted by the same factors of price inflation. In the next quarter, Aquaculture Activity will continue to leverage on its knowledge of the aquaculture value chain in order to respond where necessary to the effects of this conflict on beneficiaries' livelihoods

Summary of highlights for the Quarter 2 of Year 5

Key activities performed	Remarks
Established and continued partnership with 27 partners	A total of USD 1,267,944 has been invested, with Aquaculture Activity contributing 39% of the total in the form of cost-sharing grants
Successfully completed 12 planned interventions with partners	Aquaculture Activity has improved access to institutional finance for smallholder fish farmers and aquaculture market actors including women and youth; increased access to information on aquaculture technologies; improved access to inputs and aqua medicinal products; and linked rural fish producers to consumers by strengthening distribution channels.

Key activities performed	Remarks
Key Market System activities	As part of the ongoing study on systemic change, during this quarter the Aquaculture Activity Team made field visits to ongoing and closed intervention partners to assess impact and seek opportunities to build on successes generated to date. Aquaculture Activity aims to bring systemic change in the market through working in the following thematic areas - improving access to a) finance, b) quality inputs, in particular feed, c) information through digital platforms, d) increasing access to forward market, with special emphasis on international market, and e) establishing one-stop service center.
Access to Finance for Women Producers	Mukti Cox's Bazar has disbursed BDT 4.305 million (USD 50,965) loans to 93 women dry fish actors during the reporting period. The micro-financing initiative helped 730 dry fish actors who sold 403 metric tons safe dry fish with a value of BDT 2,292,016 million (USD 27,134). The access to loan products, combined with improved financial knowledge, is expected to help these farmers to recover the losses that they incurred in 2021 due to nationwide lockdown. Bank Asia disbursed BDT 4.5 million (USD 53,571) in loans to 99 fish farmers (5 women) during this reporting quarter. KiU through its digital lending platform disbursed BDT 11.98 million (USD 139,627) loans among 363 farmers of which 304 were women. Shushilan under its microcredit program disbursed BDT 7,693,000 (USD 91,584) to 265 fish farmers including 256 women.
COVID-19	There was limited impact of COVID-19 during the reporting quarter and the field team adopted appropriate mitigation measures to address the anticipated potential risks.
Year 5 progress review workshop	The year five progress review workshop took place in the last week of this quarter. It aimed to review progress, capture learning, generate evidence of systemic changes, and set future plans for the Aquaculture Activity. Changes and impacts made by the Activity in its different IRs and Sub-IRs were identified through group work, along with defining future strategies in the remaining months of year five. There were also sessions on the processes of Corporate Functions of WorldFish.
Opportunities identified	Partners have commenced adapting and expanding their activities as a result of the support they have received from Aquaculture Activity as noticed from results generated from the comprehensive study described above. These systemic changes have become more visible, particularly in the areas of getting access to inputs, access to finance, business through e-commerce, and adoption of best management practices (BMP) by the partners. This will form the core of programmatic output in the remaining program period.

New Partnerships:

Aquaculture Activity developed partnerships with 7 organizations – 4 youth enterprises, 1 enterprise and 2 NGOs during the reporting period with a total value of USD 113,778 where Aquaculture Activity contributed USD 73,489 (65%) and partners contributed USD 40,289 (35%) (*Annex 2*). The new contracts were mostly in the areas of either youth economic empowerment or supporting aquaculture in the very thin markets found in the ZoR. The brief descriptions of the new partnerships are as follows-

- **Bolipaara Nari Kalyan Somity (BNKS):** BNKS will promote nutrition-sensitive aquaculture and build capacity of fish farmers, fish nursery operators, and fish harvesting groups in Thanchi Upazila, Bandarban.
- **Tahzingdong:** Tahzingdong will develop the aquaculture market actors and strengthen the

aquaculture market systems in Alikadam, Bandarban. They will develop capacity of fish farmers so that these farmers adopt nutrition-sensitive aquaculture technology; improve their business skills and increase productivity and income. Besides, Tahzingdong will develop fish nursery operators to create access to quality fingerlings at an affordable price. A fish-harvesting group will also be developed to create forward market linkage.

- **Plenary Aqua:** Plenary Aqua is a youth-led intervention that will support the supply and processing of Ready-to-Cook (RTC) fish business with a focus on increasing the marketing efficiency of RTC products.
- **FishBooth:** The concept of FishBooth was first introduced in September 2020 with support of the Activity with the aim to introduce quality aquaculture inputs and expert guideline services in the remote hilly areas. Based on the success of the earlier intervention, FishBooth will expand its business of aquaculture advisory services and inputs to a wider customer group through increased marketing and promotional activities.
- **Palngki Konna:** Palngki Konna is a youth enterprise that will promote dry fish powder product with better branding and marketing strategies.
- **Green Biofloc:** Green Biofloc will popularize and expand the bio-floc business.
- **FishTech Hatchery Limited:** Through a new contract, FishTech Hatchery Ltd. will further strengthen the domestic supply chain of the Pituitary Gland (PG). They will promote the brand “Diamond PG” into the market. This has been a major success for the program to date. FishTech will conduct develop and distribute communication materials as an integral part of their business. A study will be conducted to assess the performance of of domestic and Indian PGs.

Completed partnerships:

12 contracts with partners were successfully ended in the 2nd quarter of year 5;

- **CHHIP FOOD BD-** promoted fish consumption to meet the nutrition demand of children, adolescents, pregnant and lactating women, meeting the need for protein, essential fats, and micronutrients through RTE/RTC fish-based products.
- **FishTech Hatchery Ltd.-** established two natural PG (Pituitary Gland) processing plants to collect, process, and market quality PG locally.
- **The Right Kind (TRK)-** The Right Kind with its tech partner SourceTrace International established a digital advisory platform and digital trading for aquaculture sub-sector
- **Bangladesh Shrimp & Fish Foundation (BSFF)** - advocated with various govt. stakeholders (primarily with DOF, BFRI, DGDA, BAU) to promote ‘judicial’ use of quality and approved aqua inputs with an emphasis on compliance issues.
- **Shah Amanath Traders and Cox’s Bazaar Shop-** promoted better quality dry fish products and advocated better dry fish management practices through social media, leaflet, sticker, display board in ZoR.
- **Mukti Cox’s Bazar-** disbursed USD 50,965 as loan to 93 women entrepreneurs engaged in dry fish business.
- **Nutri-Champs-** 3 Nutri-champs have increased the level of production, sales, and consumption of fish along with disseminated the important nutrition messages and demonstrated best cooking practices among university students and communities.
- **Enliven-** offered 100 aquaculture women entrepreneurs a gradual development by pieces of training, supports, skills, network building for sustaining their businesses during, and post COVID 19 situations.
- **AIT (Agro Industrial Trust)-** promoted LSP-driven distribution model to increase availability of quality fish feed.

Ongoing Interventions:

- **Sea Natural Food Limited and MarGEN-** promoting ready-to-eat (RTE) processed fish through a variety of retail channels, making it affordable, and accessible to consumers from all walks of life, as a viable and palatable alternative to chicken and other meat-based products already available in the market place.
- **KNB and FishTech partnership-** improving access to quality extension services, fish feed, and seed for smallholder farmers.
- **Petrochem Bangladesh Limited (PCL)** Createing a market-driven, women-inclusive distribution model to create access for rural farmers with aqua products.
- **Matrix Business Development Ltd** – strengthening business connections between small feed millers with relevant market actors to create access to quality ingredients for local production of quality feeds at a competitive price, increase production, and facilitate effective maintenance services for their machines.
- **Sardar Agro and Afil Aqua**– introduced In-Pond Raceway System (IPRS) technology, as a first mover in southern Bangladesh.
- **BMTH** – supporting the growth of *mola-based* (a small indigenous fish species) aquaculture systems through increasing access to seed for aquaculture farmers and nurseries, and brood for hatcheries, thereby delivering improved nutrition to rural families.
- **KAAS Trade** – promoting Better Management Practices (BMPs) through improving access to quality and approved Aqua Medicinal Products (AMPs) for aquaculture farmers, nurseries, and hatcheries.
- **KiU Global** – developing a digital lending platform to drive better access to formal and mainstream financial institutions for aqua farmers.
- **MWorld (Macher Gari)** - promoting an app-based innovative transportation system for hatcheries, nurseries, and grow out farms, to enable the efficient and cost-effective carriage of fish whilst complying with all the required quality and compliance standards.
- **IMEXpro** – promoting science-based aquaculture practices and the use of small-scale aqua machinery (e.g., Secchi disk, pH meter, DO meter) at the farm level .
- **Aftab Feed** - promoting LSP-driven feed business, built around an app-based advisory services for smallholder farmers.
- **Shushilan** - promoting access to finance, combined with nutrition-sensitive messaging for rural families.
- **Bank Asia** – improving access to formal financial products and services for aquaculture stakeholders.
- **GRAUS-** developing fish market actors and strengthening market linkages engaging 250 new and 330 graduated farmers in Bandarban sadar, Rowangchari & Nihongchari upazila
- **Maa Mothsha Hatchery and Nursery-** producing and marketing high quality carp seed with support from Aquaculture Activity. They have developed an aquaculture business plan to extend and sustain their business in the Bandarban region.
- **Satata Poultry-** improving the supply of quality inputs and advisory services to fish farmers and nursery operators of Lama and Alikadam upazila, Bandarban. Satata Poultry will extend technical advisory services to address existing value chain constraints including testing of water quality parameters, and delivery of appropriate high-quality feeds and seed at to farmers.
- **Gorai-** providing market promotion services to selected fish hatcheries to improve their linkage and develop their business on quality fish seed.

- **MarGen (Cool chain)**- improving the post-harvest management practices through establishing a farm-to-fork cool chain for fish.

Monitoring, Evaluation, and Learning (MEL):

The Activity initiated to update its Theory of Change (ToC) in this quarter. A detailed learning capturing mechanism was also outlined. The Activity has completed data collection from IPs, market actors and final service recipients under the qualitative study on ‘measuring changes in the market system’. A hired third party firm was engaged to work on Tier-1,2,3 data transcription, analysis, synthesis and reporting. And, as a progress, the firm has submitted the report on IPs in this quarter. The report on market actors and final service recipients is expected to be completed by next quarter. The MEL team deployed 25 Data Enumerators (DEs) mainly to collect quarterly performance data and GIS survey. Some were also engaged in qualitative data collection.

Key results: The key performance indicators of Aquaculture Activity and its progress are given in *Figure 1*.

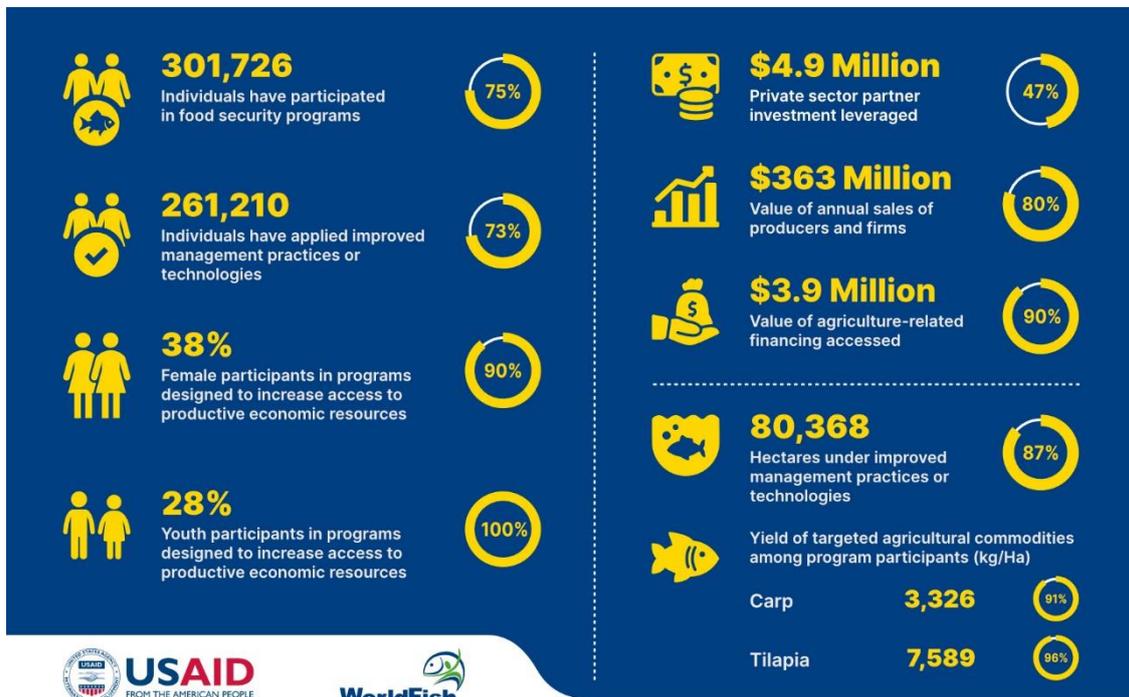


Figure 1: Infographic of Aquaculture Activity key performance indicators progress

The Activity leveraged USD 1,752,219 as investment, of which USG committed amount is USD 701,978 and private sector’s investment is USD 1,050,214. Bank Asia, City Bank, Mukti Cox’s Bazar and Shushilon disbursed USD 603,525 as customized loans packages to 1,444 stakeholders during the reporting period (

Table 1).

Strategy Review: The conclusions of the review, which was conducted last year, were followed to track and assess the impacts and sustainability of the current and previous interventions through a comprehensive direct and indirect impact study described above. The team has re-engaged partners to understand how the aquaculture space has evolved with the Activity’s support for the private sector and NGO actors.

Table 1: Feed the Future Bangladesh Aquaculture and Nutrition Activity Indicators performance data summary

Indicator	Level	Unit	2022 Target	2022 Results Up to Q2	% ACHV	2023 Target (Up to Feb)
EG.3.1-14-Value of new USG commitments and private sector investment leveraged by the USG to support food security and nutrition [IM-level]	Private sector partner leveraged amount	US Dollars	2,292,555	1,050,241	46%	144,089
	USG commitment amount	US Dollars	1,921,184	701,978	37%	288,178
	Sub-total	US Dollars	4,213,739	1,752,219	42%	432,266
EG.3-2-Number of individuals participating in USG food security programs [IM-level]		Number	354,748	73,991	21%	24,832
EG.3.2-24-Number of individuals in the agriculture system who have applied improved management practices or technologies with USG assistance [IM-level]		Number	300,824	*		22,697
EG.3.2-25-Number of hectares under improved management practices or technologies with USG assistance [IM-level]	Commodity: Carp	Hectare	91,543	*		6,577
	Commodity: Tilapia	Hectare	1,108	*		80
	Sub-total		92,651			6,657
EG.3-10-11-12-Yield of targeted agricultural commodities among program participants with USG assistance [IM-level]	Yield: Carp	Kg/Ha	3,493	*		3,667
	Yield: Tilapia	Kg/Ha	7,741	*		7,896
EG.3.2-26-Value of annual sales of producers and firms receiving USG assistance [IM-level]	Commodity: Fish	US Dollars	433,257,135	*		31,113,803
	Firm -Enterprises	US Dollars	19,815,448	*		1,201,667
	Sub-total	US Dollars	453,072,584			32,315,470
EG.3.2-27 Value of agriculture-related financing accessed as a result of USG assistance	Number of recipients	Number	2,021	1,444	71%	505
	Size of recipient	US Dollars	816,597	603,525	74%	42,979
GNDR-2 Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources [IM-level]	Number of female program participants (GNDR-2 numerator)	Number	1,617	1,347	83%	404
YOUTH-3 Percentage of participants in USG-assisted programs designed to increase access to productive economic resources who are youth (15-29) [IM-level]	Number of youth program participants	Number	101	345	342%	25

* Measured once annually

2. Introduction

The Feed the Future Bangladesh Aquaculture and Nutrition Activity aims to improve the sustainable livelihoods of fish farmers and other aquaculture market actors by applying a market systems approach. Aquaculture Activity takes the approach where the emphasis is on facilitation rather than direct implementation. Activity staff identify critical underlying issues constraining the sector and encourage co-investment by private sector companies and NGOs through grants to address these issues. A key

principle is to encourage capacity building in existing value chains rather than supporting unsustainable capacity building initiatives that fade away at the end of the project support. The Activity focuses on improved nutrition through more productive aquaculture and has strong cross-cutting elements of the environment, youth, and gender which are inculcated into sub-grantees.

The Activity is now into its fifth year of implementation, and is at a mature stage with significant learning from its interaction with all actors in the aquaculture value chain. The program is currently concluding a process of critical assessment of impact and sustainability of its past and current interventions. The Activity focused this quarter on market resilience, promotion of women and youth focused initiatives, access to affordable finance, the promotion of e-commerce and e-information platforms, and the further use of LSPs to foster greater impact and long-term sustainability.

3. Activity goal and objectives

The overarching goal of this Activity is to achieve inclusive aquaculture sector growth through a market system approach. Specific objectives are:

- 1) Increased productivity of aquaculture production systems.
- 2) Strengthened aquaculture market system, with particular attention to expanding opportunities for women and youth.
- 3) Increased awareness and adoption of nutrition-related behaviors, with a particular focus on women and youth.

4. Activity targets

The Activity has the following higher-level targets during its implementation period:

- 1) 400,000 men, women, and youth in the FTF ZOI and ZOR have improved access to better quality aquaculture inputs, services, and/or market channels
- 2) 30 percent expansion of investment by the private sector in the FTF ZOI and ZOR in aquaculture production and market related to inputs and services (e.g., seed, feed, production/ market related information, technology, etc.)
- 3) 30 percent increase in productivity from ponds and *ghers* in the FTF ZOI and ZOR
- 4) 20 percent increase in the number of households adopting improved nutritional practices (consumption of nutritious food, dietary diversity and hygiene practices)

5. Approach

The Activity is applying a combination of market systems and supporting direct delivery approaches in its interventions through engaging the private sector and NGOs to reach smallholder farmers and relevant market actors. In all but very thin markets in the ZoR, Aquaculture Activity is facilitating the process rather than delivering the interventions directly, stimulating co-investment which will then transfer ownership to the private sector and NGOs. The approach includes analysis of the field context, identification of the problems and the underlying root causes of poorly functioning markets, and methods of catalyzing private sectors to bring market-based solutions. These problems and solutions are interrogated through a series of regular co-creation meetings. The Activity Team regularly follows investment rationale steps that justify the Activity investments that should leverage co-investment by the private sector. The approach in some areas of the ZoR involves initial direct support to catalyse activity in very thin or moribund markets, with interventions designed to stimulate some sustainable change after the initial support. This initial work should then trigger market activity which may then be further supported through a purer Market Systems approach.

The Activity is also seeking sustainability from the start by building capacity and resilience of local systems so that the interventions last beyond the Activity period. It follows the adopt, adapt, expand, respond (AAER) framework to underpin its market system approach to the systemic change of Aquaculture. It helps to analyze whether systemic change is happening, or requires further program action in order to take hold. In the yearlong pilot investment period, the Activity closely monitors and learns how the early systemic change symptoms in the adopt and adapt stage create win-win situations for market players such as private companies as well as for small and poor farmers across ZOI and ZOR. Once it shows promising results in terms of sustainability and profitability, the Activity goes for

further investment to strengthen the business model to move to the expand phase to push the boundaries of the model to re-engage in order to include new players or new areas to serve more market actors with more benefits.

6. Geographical focus

The Activity is being implemented across 21 south-western districts under 3 divisions, and 2 south-eastern districts under the same division, which are popularly known as Zone of Influence (ZOI) and Zone of Resilience (ZOR), respectively (Table 2 and Figure 2). These areas present significant challenges in relation to the development of aquaculture sector and livelihoods opportunities. The growth in aquaculture in these areas can play an important role in changing this scenario by increasing production and income opportunities, through catalyzing systemic change in the market.

Table 2: Aquaculture Activity working districts

Division	District
Barishal	Barishal, Bhola, Jhalakathi, Pirojpur, Barguna, and Patuakhali
Dhaka	Faridpur, Gopalganj, Madaripur, Rajbari, and Shariatpur
Khulna	Jashore, Jhenaidah, Magura, Narail, Bagerhat, Khulna, Satkhira, Chuadanga, Meherpur, and Kushtia
Chattogram	Cox's Bazar and Bandarban

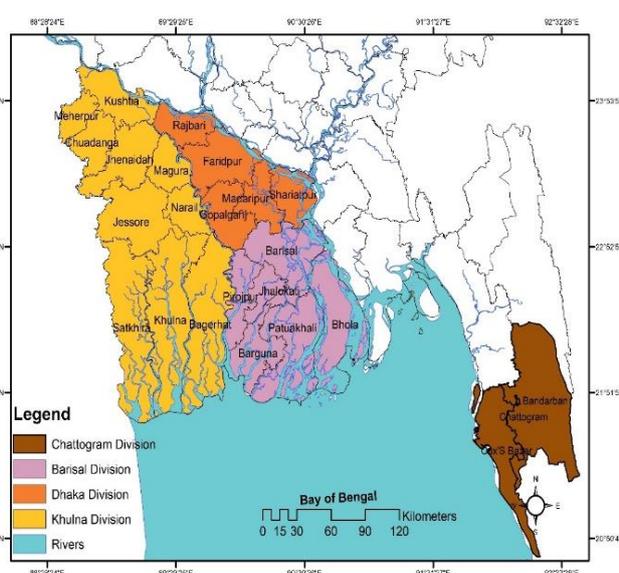


Figure 2: Aquaculture Activity working area

7. Quarter 2 of Year 5 (January-March 2022): Progress against the approved workplan:

IR 1. Increased Aquaculture Productivity

Context: Availability of quality fish seed and feed is a major constraint in the sustainable and profitable development of the aquaculture sector in Bangladesh. Fish hatcheries rarely maintain sufficient stock of quality broods to ensure genetic purity of the offspring, and pay little attention on biosecurity and other techniques to produce safe seed, as the infrastructure, machineries, and production facilities of fish feed producers, and availability of quality raw materials, are not always adequate to address these issues of input quality. In response to this, the Activity has been supporting the sub-sector to increase availability of quality fish seed and feed, as well as popularizing improved pond management practices.

Sub-IR 1.1 Increased availability of improved fish seed

Output- 1 Increased availability of high-quality brood fish and seed

1.1.1 Strengthen seed distribution channels through branding and promotion to ensure access to quality fish seeds

Gorai Films provides market promotion services to selected fish hatcheries who follow better management practices but are unable to tap into new market opportunities due to lack of a fish seed marketing strategy. Gorai took a formal business development approach to improve marketability of quality fish seeds to nursery operators, fingerling traders and fish farmers. During the reporting quarter,

Gorai conducted 32 business promotion events reaching 775 fish farmers with information on quality fish seed and their sources. As a result, fish farmers have increased their knowledge about selection and appropriate use of quality fish seeds and their sources from nearby hatcheries.

1.1.2 Wider scale adoption and replication of the hatchery branding model to ensure access to quality seeds

Gorai took a formal business development approach to improve marketability of quality fish seeds to nursery operators, fingerling traders and fish farmers.

Results from the piloting showed that hatchery branding model has limited impacts on hatcheries' business as these businesses are geographically concentrated and focused on a local business model. Therefore, a wider scale replication of the hatchery branding model is not needed at this moment.

1.1.4 Sustainable production and marketing of mola seed through establishing mola brood bank

Bhola Monosex Tilapia Hatchery (BMTH), has been producing and disseminating mola (*Amblypharyngodon mola*) seed to fish farmers. In addition, BMTH took the initiative to breed mola naturally in hapa.

During the period, BMTH established 22 breeding hapas, 40 nursing hapas and constructed 1 additional nursery pond. Out of trained 1,000 farmers, 300 farmers placed orders to procure approximately 3 million mola fingerlings worth BDT 0.6 million. BHTH will start selling these fingerlings to farmers from April'2022. At present, the natural breeding of mola and regular feeding, sampling, bio security management, etc. activities are ongoing.

1.1.5 Improve access to Mola seeds through induced breeding at 4 to 5 hatcheries in ZOI The Aquaculture Activity team has selected 5 hatcheries. The team is in the process of developing technical capacity of hatchery owners and their staff on mola induced breeding. The key activities with regard to the induced breeding of mola include hands on training on mola breeding, minor renovation of breeding tanks, dissemination of mola seed, developing a booklet on Mola induced breeding and monitoring performance.

1.1.6 Strengthen the supply chain of indigenous carp Pituitary Gland (PG) to produce and market quality PG locally

Aquaculture Activity supported FishTech Hatchery to establish a high performing supply chain of Pituitary Gland (PG) collected from local sources. Through this supply chain, FishTech collects PG from fish markets, processes it at their own lab, and supplies high-quality PG to different fish hatcheries at a competitive price. FishTech has trained 218 fish cutters and 49 PG collectors on PG extraction from fish heads, together with cleaning, and preservation methods. This has created employment opportunities for fish cutters and PG collectors in the aquaculture value chain, especially for local youth and women. It has established 2 PG processing units to ensure a steady supply of PG to the local hatcheries in 7 districts in the Zone of Influence (ZOI). To create awareness of the benefits of using PG, FishTech completed two research trials on comparative analysis of the breeding performance of synthetic hormone vs dry PG and dry PG vs wet PG. Within 6 months, FishTech Hatchery collected 2.5 kg PG from fish cutters and collectors of different fish markets of ZOI, and sold 2.38 KG to 26 hatcheries worth USD 183,241.

1.1.7 Wider scale adoption and replication of indigenous carp Pituitary Gland (PG) to ensure access to quality PG locally

In this reporting period, FishTech in partnership with Aquaculture Activity, started brand promotion of the domestic PG with the brand name "Diamond PG", for wider scale adoption of carp PG. They have planned to conduct 7 training courses on PG extraction from the fish head, preservation and managing the business for the fish cutters and PG collectors in the next quarter. They have also planned to conduct research on comparative analysis on domestic and Indian sourced PG in the next quarter.

1.1.8 Ensure access and promotion of high-quality carp seeds for development of aquaculture business in the Bandarban region

Maa Mathshya Hatchery and Nursery (MMHN) has been raising quality fish seed and supplying to the farmers in Bandarban. MMHN is aiming to become a model hatchery that provides business benefits for the entire aquaculture value chain, including fish farmers, nurseries, seed agents, patilwala, inputs suppliers and consumers.

During the reporting period, MMHN completed preparation of an overhead water tank (10 ft X 8 ftX 6 ft), “35 feet x 30 feet” shed, 4 hatching jars, 4 rectangular tanks. They have also installed a 400 feet deep tube well for water supply, installed an electric supply, developed a hatchery lab cum office, completed removal of black soil from 3 brood ponds, repaired dykes, and developed a drainage system for the ponds. MMHN have collected 208 pcs of G-3 Rui and 200 kg carp brood from Mukteshwary hatchery of Jessore, and Comilla Rupali hatchery respectively.

MMHM also developed and distributed communication materials including 30 pcs banners, 30 pcs festoons, 2,000 pcs leaflets for nursery management and fish culture 2,000 pcs stickers, business cards and 250 pcs one page year calendars.

During this quarter, MMHN organized 2 day long capacity development training courses to 5 hatchery technicians/operators. Also, they provided a day long capacity building training for 15 seed agents /nursurers (male-13, female-2) at their hatchery complex.

1.1.9 Ensure access to quality fingerling by strengthening supply and distribution networks in the Bandarban region

This intervention has been dropped, however, GRAUS will establish a hapa based Sex Reversal Tilapia (SRT) production system in community nurseries engaging 3 fish nursery operators in Bandarban in the next quarter.

Output- 2 Promoted High Yielding Varieties of Carp

1.1.10 Strengthen the brand position of Carp generation-3 (G3) to promote and increase the availability of this advanced strain

MWorld implemented several activities and events including field trials, market activation and networking meetings. As a result, more than 10,000 farmers learned about G3 rohu and 1,700 farmers stocked G3 rohu in their ponds. A total of 15 nursery owners and 4 hatchery owners received G3 rohu hatchlings from the Carp Genetic Improvement Program (CGIP) of WorldFish by mid of last year. The nursery raised hatchlings to fingerlings and was able to sell 90,000 fingerlings during the reporting period. In total, the nursery owners sold 450,000 G3 fingerlings worth of BDT 2,247,800 (USD 26,601) to 437 grow out fish farmers.

1.1.11 Identify potential hatcheries and nurseries in the aqua-clusters to widen the HYV carp culture

This was the activity targeted to reach through engaging aqua-cluster groups. The Activity team agreed not to extend further support to these groups as it was noticed that working with these groups might not add much value to the Activity at this point of the project.

1.1.12 Monitor the dissemination of HYV carp brood stock

The Activity is extending support to CGIP program through facilitating the process of carrying out an on-farm trial to assess performance of G3 rohu. In addition, the Activity is monitoring the status of existing brood stock, how they have been used to breed quality seed and disseminated. The carp hatcheries will start breeding these fish as soon as they are ready as per the below table (

Table 3). These hatcheries will be linked with other hatcheries /nurseries for wider dissemination of quality G3 rohu seed.

Table 3: Status of G3 brood stock indifferent hatcheries in Zol

Name of Hatchery	Average Weight (kg)	Rearing status	Probable breeding time
Mukteshwari Fish Hatchery	2.5	Rearing with SC, CA, MR	May /June'22
Ma-Fatima Fish Hatchery	1.2	Rearing with Bata	Ma / June'22
Rupali Fish hatchery	0.9	Rearing with SC, CA, MR, GC	June/July'22
Matri Fish Hatchery	1.5	Mixed culture	May/June'22
Modhumoti Fish Hatchery	1.4	Mixed culture	June/July'22
National Fish Hatchery	1.2	Mixed culture	June/July'22
Bhola hatchery (BMTH)	1.2	Rearing with Pangas	May / June'22

1.1.13 Strengthen the distribution channel of HYV carp seed dissemination

The aquaculture Activity is following up with hatcheries and nursery owners who have received G3 rohu in 2020 and 2021.

1.1.14 National workshop on CGIP for DoF, MoFL, and stakeholders

Hon'ble Minister MoFL and the Secretary MoFL have given their consent to participate in to the national workshop during next quarter. The Activity is planning to hold this event by June 2022.

1.1.15 Conduct field trial to assess growth performance of G3 rohu

To assess the growth performance of G3 rohu a field trial is being conducted in 10 ponds in ZOI since May 15, 2021. As of March 2022, the sampling data showed that the G3 rohu attained 16% to 92% higher body weight compared to the natural strain, and 33% to 78% higher body weight compared to the commercial hatchery strains in various replications.

Output- 3 Genetically Improved Farmed Tilapia (GIFT)

1.1.16 Provide technical assistance to the hatchery partners on multiplication and brood stock development (BRAC)

BRAC has started preparing eight cohort ponds following the male rotation breeding plan. The plan includes keeping 400 male and female breeders at a ratio of 1:1 in each cohort, and finally, a total of 3,200 breeders will be kept in eight cohort ponds. It is expected that around 0.5 million breeder fries will be produced at BRAC Magura Cohort Breeding Hatchery by November 2022 and multiplier hatcheries will buy these mixed sex fry as their future brood stock for Tilapia monosex fry production in 2023

The commercial hatchery unit of BRAC started GIFT tilapia monosex fry production and has already sold around 23 million monosex tilapia fries to 550 farmers. Around 50 million fries were under Methyl testosterone (MTH) treatment at nursing hapa in the reporting period and it is assumed that 150 million SRTs will be produced and purchased by 1,500 farmers.

1.1.17 Foster linkages with BRAC nucleus and Bhola cohort

The Activity shared a database of Tilapia hatchery with the partners, BRAC and Bhola Monosex Tilapia Hatchery. The database includes name of 200 active hatcheries, locations and contact details. Both of these partners are planning to disseminate GIFT tilapia broodstock among the hatcheries listed in the database.

1.1.18 Establish market and technical linkages with SPAITS (Scaling Systems and Partnerships for Accelerating the Adoption of Improved Tilapia Strains by Small-Scale Fish Farmers) participants

The Bureau of Socioeconomic Research and Training (BSERT) under the Faculty of Agricultural Economics and Rural Sociology- the partner of the Scaling Systems and Partnerships for Accelerating the Adoption of Improved Tilapia Strains (SPAITS) Project - has planned to organize a Training of Trainers (ToT) on ‘Tilapia Hatchery and Nursery Management’ for hatchery owners/technicians in Khulna Division. The project has also planned to organize a stakeholder workshop involving DoF, BFRI, Universities, WorldFish, NGOs, hatcheries, traders and others involved in seed and grow-out production of tilapia in Khulna Division. The ToT and the workshop will be held in Sathkhira during April-May 2022. Aquaculture Activity supported the selected tilapia hatchery owners and technicians to participate in the ToT and workshop.

1.1.19 Dissemination of quality tilapia fries to hatcheries for developing future broods

This intervention has been dropped. However, quality GIFT fries will be disseminated to the tilapia hatcheries located in ZOR from the Activity partner namely Bhola Mono Sex Tilapia Hatchery.

1.1.20 Production of quality seeds of Monosex Tilapia following better management practices and market promotion

GRAUS will establish hapa based Sex Reversal Tilapia (SRT) community nurseries in the next quarter through the best 3 fish nursery operators in Bandarban region to ensure supply of quality tilapia fries among fish farmers, as it is a climate resilient and fast-growing short life cycle fish species which can grow at higher temperatures in seasonal ponds.

Sub-IR 1.2 Increased availability of affordable quality fish feed

Output- 4 Increased availability of better quality feed through Local Service Providers (LSP)

1.2.1 Establish an Inclusive business linkage for small household fish farmers through one-stop service points and market actors linkage

The One Stop Service Center (OSSC) is the platform where a comprehensive basket of services will be available for different market actors, especially for smallholder farmers at community level. It will be differentiated from a traditional dealer point or retailer point, as several free and fee-based services can be found along with the usual core product or service. The services include- a) reliable improved feed and other inputs at affordable price, b) technical services on modern aquaculture practices like formal and informal training, information on Best Management Practices, new technologies and techniques, c) soil and water quality testing services, d) advisory services such as pond visits and advice over the phone, e) providing extension materials like leaflets, brochures, posters, etc. on different modern techniques and practices, f) transport services for delivery of products i.e. feed, seed, aqua medicinal products (AMP), etc. to farm gate, g) machineries support, and lastly, h) linkage support i.e. connecting farmers to forward market, access to finance, etc. To implement this OSSC concept, Activity identified 4 private entities with the plan to start work from next quarter.

1.2.2 Establish a joint business model to enhance the capacity of the aquaculture market chain actors while increasing their access to quality inputs

KNB, FishTech (BD) Limited and Matrix have come together under a mutual business promotion agreement to strengthen linkages between farmers and input supply chain actors with the aim to increase small & marginal farmers’ access to quality private extension services and feeds and inputs. During this reporting period, KNB organized 212 business promotion events with 5,431 fish farmers including 2,069 women farmers in rural areas of Jashore, Khulna, Jhenaidah, Chuadanga and Kustia.

1.2.3 Replicate and extend the coverage of the joint business model to enhance the capacity of the aquaculture market chain actors

The first phase of this intervention with KNB is ongoing. However, a second phase to extend the coverage of the joint business model by KNB, FishTech and Matrix has been dropped considering the very limited time left in year 5 of the Activity.

1.2.4 Produce & promote quality native carp floating feed for small and marginal household fish farmers

AIT (Agro-Industrial Trust), a partner feed company, developed and launched a floating feed using local feed ingredients. The newly formulated feed is 5 to 8% cheaper at farmers' level than the floating feed of the same company that existed before. During the period, AIT conducted 113 batches of product promotion events through tea stall campaigns. They disseminated messages on modern fish farming techniques, Best Management Practices (BMP), feeding, disease management, harvesting, marketing, LSP services, and AIT feed service centers in these events. The sessions were facilitated by LSPs, with 2,295 farmers including 165 women farmers attending.

1.2.5 Strengthen the Supply chain of quality feeds for profitable aquaculture in Bandarban

The Activity has signed a contract with Aftab Feed with the aim of strengthening access to quality fish feed in the Zone of Resilience. The smallholder farmers in this region suffer from poor growth and production of fish in pond/creek aquaculture, resulting in limited or no profits due to lack of access to quality feeds from reliable sources. Aftab Feed and SKF will establish 7 one stop service centers in the Zone of Resilience (5 by Aftab Feed and 2 by SKF). Both the dealer and sub-dealer points will be developed as OSSCs with each of the OSSC having 2 LSPs to support their business. This project will reach approximately 525 farmers from ZoR through capacity building training and feed sales.

Output- 5 Introduced and promoted app-base feed supply chain and feeding management

1.2.6 Promote digital feed supply chain management and advisory services to ensure maximum efficiency of seed distribution and utilization

In order to develop an e-platform to collate and synchronize data on market demands, supply/storage at different tiers, and production status, Aquaculture Activity established a partnership with Aftab Feed Products Ltd. During the reporting period, Aftab conducted 100 batches of courtyard meeting with participation of 2,023 farmers including 466 female farmers. They also organized 92 batches of hat (market) activation events for 2,772 fish traders, retailers, transporters, fish farmers, laborers (packaging, ice breaker, loading-unloading) and cleaners. Additionally, Aftab arranged 6 B2B linkage workshops, 3 refresher capacity building workshops and 6 new capacity building workshops, and a total of 342 participants attended these events. Dealers, sub dealers, different level market actors, and DoF officials also joined in these events. In this reporting quarter, Aftab sold 2,650 MT feed valuing USD 1.55 million through dealers, 1,076 MT feed valuing USD 0.63 million through 90 LSPs in Jashore, Khulna and Barishal region. Aftab also sold 330,000 fish fries through dealers and LSPs.

1.2.7 Introduce digital applications to strengthen linkages among market actors

Fish farmers in Bangladesh face a lot of challenges from accessing information on farming best practices to accessing quality inputs to accessing markets for selling their produce at a reasonable price. All of these constraints limit farmers' productivity and profitability, which discourages potential farmers, especially the youth, to get involved in aquaculture. While several attempts have been made to enhance the productivity of fish farmers through digital Apps, none of these attempts have been particularly successful. The main reason behind this is that the Apps are designed without an in-depth study of the key challenges farmers face. Some Apps only sought to address one or two constraints which are not very compelling from a farmer's point of view.

Usually, farmers are not comfortable installing multiple Apps on their phones to get solutions to their farming problems. Therefore, the Activity realized to develop and introduce a single App, a Digital

One Stop Solution for aquaculture stakeholders. Major features in the App will be information services and weather information, market information, price information and most importantly a Feed calculator. During this quarter, one partner, ARITS Limited was shortlisted to develop the application which will begin in next quarter.

Sub-IR 1.3 Increased adoption of improved pond management practices

Output- 6 Introduce and promote intensive farming in Aquaculture production systems

1.3.1 Promotion and adaptation of In Pond Raceway System (IPRS) in the south-western part of Bangladesh to intensify aquaculture production

Afil Aqua Fish Limited has delivered training courses on the establishment of In-Pond Raceway System (IPRS) to 63 advanced farmers during the quarter. They have delivered training on IPRS to 126 farmers till date. A total of three advanced farmers who received training on IPRS previously from Afil Aqua Fish Ltd. have started preparatory works to establish IPRS in the current year on their own.. In collaboration with Jashore University of Science and Technology (JUST), Khulna Agricultural University and Khulna University, Afil completed six scientific studies on physio-chemical parameters management, abundance and diversity of plankton and proximate composition of stocked fish in IPRS ponds. As part of the collaboration with Afil Aqua Fish, 103 students of Fisheries and Marine Resources Technology Discipline of Khulna University visited the IPRS site of Afil Aqua Fish during the reporting quarter. Afil already harvested tilapia from one of the four production cells and sold 17.30 MT tilapia and earned an income of USD 22,541. “Ekattor TV”, a private TV channel broadcasted a documentary on IPRS of Afil Aqua Fish Ltd. and shared in its YouTube channel <https://youtu.be/IJyjij7Mgi0>.

1.3.2 The wider scale promotion and adaptation of In Pond Raceway System (IPRS) in southern Bangladesh

In partnership with Afil Aqua Fish, the Aquaculture Activity has been working to scale up the IPRS technology. During the reporting quarter, a research study on the environmental impact of IPRS in the geo-ecological context of Bangladesh has began in collaboration with the Fisheries and Marine Resources Technology Discipline of Khulna university. To promote IPRS on a wider scale, Afil Aqua Fish will organize a one-day training on IPRS for advanced farmers in the next quarter.

1.3.3 Promotion and adaptation of Bottom-clean raceway system in the south-western part of Bangladesh

Sardar Agro implements a bottom sludge removal farming system technology, introduced for the first time in the south western part of the country. They have built concrete walls around a 50 decimal pond along with a central pit where the waste accumulates for daily drain out through a submersible pump. This waste is effectively used as organic fertilizer to cultivate Napier grass for dairy cows. To maintain water flow and optimum oxygen level in the pond to culture fish at higher density, they use 4 aerators and 2 root blowers.

With this system, Sardar Agro has been able to increase the stocking density of pabda fish to 5000/decimal in comparison to farmers’ existing practice of 400-500/decimal. In the 1st cycle, Sardar Agro harvested and sold 6.6 MT Pabda and 0.7 MT other fish worth USD 19,143, which was exported to India through maintaining fisheries quarantine protocol. In this quarter, Sardar Agro conducted afield training for 84 participants including 2 women to promote this technology. As a result of the training delivered, noticeable interest regarding this high-output farming model has been created among the participants.

1.3.4 The wider scale of Promotion and adaptation of Bottom-clean in the south-western part of Bangladesh

In June 2021, Sardar Agro began implementing the bottom clean raceway system for the first time in south-western Bangladesh. Since then, Sardar Agro has built capacity of 110 advanced fish farmers , of which, 10 potential farmers have started pond preparation to try the bottom clean race way system. Three Universities in Jashore and Khulna have started collaboration with Sardar Agro to conduct

research on different aspects of this technology, particularly to understand the environmental impacts and cost-benefit of bottom-cleaning raceway system.

Output- 7 Farmers adopted improved fish farming practices

1.3.5 Diversification of existing Aqua Medicine Product's sale through vertical expansion including LSPs, Institutes and lead stakeholders

The absence of quality raw materials, advisory services, and knowledge on better management practices (BMP) prevent smallholder farmers from unlocking their economic potential. To address these constraints, KAAS Trade began strengthening the distribution channel of Aqua Medicinal Products (AMP). KAAS has planned to reach 17,400 fish farmers, 360 nursery farmers, 36 hatchery owners through 45 dealers/retailers and 90 LSPs under sub-agreements with Argon, Agro Based, and Unique Agro Care.

In this reporting period, KAAS Trade delivered training courses to 53 nursery owners, and 48 last-mile local service providers (LSPs) to extend technical assistance to farmers. They also conducted 11 product demonstration & technical events through AMP Schools and 15 farmers meetings through LSPs, where 1050 farmers received technical knowledge on modern aquaculture amongst which 112 were female farmers. KAAS Trade established 30 AMP Schools i.e. One Stop Service Centers to create improved access to quality inputs, water and soil quality parameter testing facilities and advisory services for the fish farmers. All of these 30 AMP Schools were equipped with five types of water and soil testing meters and kits namely; 1) water pH meter, 2) TDS meter, 3) soil pH and moisture testing meter, 4) Total Ammonium Nitrogen testing kits (TAN) and 5) master testing kit to test pH, NO₂, NO₃, NH₃, H₂S and DO. Farmers started receiving quality products and advisory services through product promotion events organized at their one-stop service centers, the AMP Schools.

1.3.6 Ensure Advisory Services for Small-scale Aquaculture Farmers through Developing Women Micro-franchise

Farmers in remote areas struggle to access quality input and advisory services. Petrochem Bangladesh Limited (PCL), with support from Aquaculture Activity, extended advisory and aqua input services to small-scale aquaculture farmers through 60 women micro-franchisees (WMF) who are linked with the master franchisees (company dealers).

In this reporting period, PCL selected sixty (60) women micro-franchisees as well as the affiliated twelve (12) master franchisees/dealers; and provided basic, technical and business development trainings to all of the women micro-franchisees. They also established 60 Women Micro-franchise Points and strengthened these points with different types of marketing and promotional materials including signboards, a product brochure-cum-technical handbook, business record-keeping books for WMFs, leaflets, and festoons for large-scale promotion. During this period, PCL conducted five-linkage development workshops with the WMFs and the master franchisees and reached 524 smallholder farmers through 22 knowledge sharing events conducted by the WMFs.

1.3.8 Wider scale promotion of FishTech BD's aquatic disease diagnostic laboratory to reduce disease incidence and increase productivity

FishTech (BD) established a sophisticated Real Time PCR based fish disease diagnosis lab for the first time ever in the private sector in Bangladesh in February 2021 in Khulna district. Since inception the lab performed different bacteriological, viral and fungal diagnoses as well as different soil and water tests for fish farmers, hatcheries and different research institutions. During this reporting period the lab served 869 fish farmers in Jashore, Khulna and Satkhira districts and earned USD 5,443 by providing mainly water and soil tests services for white fish and some disease diagnosis for prawn. To provide lab services at the door steps of fish farmers, FishTech established 3 sample collection centers at FishTech dealer points in Jashore, Khulna and Satkhira during this reporting period.

1.3.12 Develop market actors and Channels for promoting nutrition-sensitive aquaculture in Bandarban

Aquaculture Activity established a partnership with GRAUS to promote nutrition-sensitive integrated carp-mola polyculture along with dike cropping in Bandarban. During the reporting period, GRAUS delivered 5 training sessions on integrated nutrition-sensitive aquaculture, business planning and gender, and 3 market linkage events at Naikhongchari, Rowangchari and Bandarban sadar Upazila with participation of 327 (including 136 female) aquaculture farmers, nursery operators, feed and other aqua-input sellers, fish traders, fish harvesting and Upazila Fisheries Officer. The events helped develop relationships among the fish farmers and the local aquaculture input and service providers to strengthen forward and backward market linkages.

GRAUS completed training on fish feed production technology for the 6 community feed center owners and feed agents and provided 2 pellet feed machines to facilitate feed manufacturing in the rural hilly area. GRAUS also completed training on fish harvesting, post-harvest technology and fish marketing for the 2 fish harvesting groups (male-7, female-5), and provided the groups 2 seine nets to create fish harvesting facilities to support the fish farmers. GRAUS also distributed winter vegetable seeds (red amaranth, bottle gourd & sweet gourd) and Orange Sweet Potato vines to 250 aquaculture farmers (male-135, female-115). Besides, GRAUS distributed 15 oxygen cylinders to the best 15 fish nursery operators to support a fingerling transportation facilities development initiative.

GRAUS organized 3 video documentary shows on aquaculture, nutrition and environment compliances at the village level in Naikhongchari, Rowangchari and Sadar Bandarban Upazilas with participation of 140 individuals including 85 females. GRAUS also celebrated one Farmers Field Day at Chak Headmanpara of Naikhongchari Upazila to promote the replication of nutrition sensitive aquaculture activities and better management practices among the neighboring community.

1.3.13 Strengthen supply of quality inputs and advisory services for fish farmers in Bandarban

Activity partner, Satata Poultry has created farmers' access to improved aquaculture technologies, technical advice, testing facility of pond water and soil quality, and delivery of feed to doorstep. During this quarter, Satata Poultry sold 10 MT fish feed and different kinds of aqua-medicine to 21 fish farmers from its service center. Satata Poultry provided support to 15 fish farmers for carrying fish feed and aquaculture inputs. In addition, Satata Poultry handed over 2 seine nets and 1 cast net to a local fish harvesting group and the group has already provided support to 5 fish farmers. Advertising was also carried out 4 times through miking at Lama and Alikadam Upazilas regarding their products and services. Satata Poultry provided training to 101 aquaculture farmers on improved aquaculture technology and business development, 10 fish nursery operators on better management practices and business development, and completed a market linkage event with the participation of 18 different aquaculture market actors to create farmers' access to quality inputs, services and forward markets. Satata Poultry also developed 25 banners, 25 festoons, 1000 stickers, and 2000 leaflets on fish culture and nursery management and disseminated among farmers.

1.3.14 Strengthen nutrition-sensitive aquaculture developing market actors in Cox's Bazar

The Activity signed an agreement with Protyashi to implement this intervention in the next quarter.

1.3.15 Aquaculture market channel development in Alikadam

Lack of knowledge on improved aquaculture technology and weak capacity of small-scale fish producers in Bandarban is one of the key challenges in the ZoR. Access to inputs and services are also the key constraints faced by the farmers in this region. As a result, the aquaculture production potential in Alikadam is underutilized. To improve the situation, Aquaculture Activity partnered with Tahzingdong to develop the aquaculture market channels in Alikadam. Tahzingdong will facilitate the process of strengthening and developing market linkages among aquaculture market actors, promoting collective inputs purchase and fish marketing groups and building capacity of integrated nutrition sensitive aquaculture entrepreneurs.

1.3.16 Promoting Nutrition Sensitive Aquaculture in Thanchi

Market challenges in Thanchi include lack of access to extension service on improved aquaculture practices, lack of access to quality fish seeds, feeds, and other inputs, high price of inputs and limited access to forwarding markets. To address the problem, Aquaculture Activity made a partnership with BNKS, a local NGO, to improve their lives through nutrition-sensitive aquaculture and develop aquaculture actors to ensure aquaculture inputs supply and marketing of fish in this remote hilly area.

BNKS has been on boarded on 16 March 2022, completed staff recruitment and organized project orientation session for the newly hired staff.

Challenges encountered while implementing activities in IR 1 during this quarter:

FishTech Hatchery has faced challenges due to the informal market actor who are working as PG collectors. KNB Agro Industries have faced difficulties in achieving the targeted number of farmers. Afil Aqua Fish Ltd. had hard time in collecting information in the market regarding machineries, species and environment. KAAS Trade found that training frequency and time were not adequate for developing service providers' capacity (dealers & LSPs), affecting the activity implementation, event organizing capacity and event quality. Petrochem Bangladesh Limited has faced challenges ensuring women participation in technical events, as it seems to be a challenge to ensure male and female in the same meeting and also there has been inadequate technical staff at regional level to conduct farmers meeting.

Major activity plans for the next quarter:

- **GRAUS** will a) develop 3 hapa based SRT (Sex Reversed Tilapia) nurseries, which will produce and supply quality tilapia fries among fish farmers b) provide training on integrated nutrition sensitive aquaculture, business planning and development to new 100 fish farmers c) provide refresher training to 250 graduated farmers and 15 carp-mola fish nurserers d) business development and functioning of community fish feed centers and fish harvesting groups.
- **Satata Poultry** will a) ensure a full range of aquaculture inputs support at the service center b) provide vehicle support to 35 fish farmers for carrying fish feed; c) extend advisory services and support for testing water quality parameters to farmers d) provide capacity building training to 100 aquaculture farmers e) arrange 2 market linkage events among aquaculture market actors
- **Maa Mathsha Hatchery & Nursery:** will a) commence carp hatchery in operation b) renovate spawn/fry conditioning, packing & loading area c) introduce 200 kg quality brood stock d) provide day long capacity building of 600 fish farmers and technical personnel e) celebrate stakeholder coordination festival' and f) perform 6 promotional activities through Loud Speakers.
- **BNKS:** will a) complete 6 community meetings for farmer identification & selection b) provide capacity building training for the fish farmers on Nutrition-Sensitive Aquaculture including-30 batches c) provide 2 days capacity building training on Carp mola fish nursery technologies, business planning for fish nurserers-1 batch, d) arrange market linkage events among aquaculture market actors-1 event e) demo pond set up-2 e) provide fingerlings & fish feed to 50 farmers as extension inputs, and f) ToT for staff on nutrition sensitive aquaculture.
- **Tahzingdong:** will a) complete 4 community meetings for Farmer identification & selection b) provide capacity building training for the fish farmers on Nutrition-Sensitive Aquaculture including-30 batches c) provide 2 days capacity building training on Carp mola fish nursery technologies, business planning for fish nurserers-1 batch, d) arrange market linkage events among aquaculture market actors-1 event e) provide fingerlings & fish feed to 100 farmers as extension input f) ToT for staff on nutrition sensitive aquaculture.

IR 2. Strengthened Aquaculture Value Chains

Context: Strengthening of aquaculture value chains is important to ensure that aquaculture products reach the market in good condition, waste is minimized in the supply chain and there are effective

governance and policy support mechanisms for all aquaculture value chain actors. As aquaculture production grows in particular localities, local consumers can no longer absorb local production, creating opportunities for SMEs to specialize in trading, transporting and marketing of fish and fish products. The Activity is addressing this by encouraging innovation in key value chains while providing background information that will be useful to businesses wanting to invest in value chain improvements.

Sub-IR 2.1 Increased market linkages

Output- 8 Ensured efficient ways of fish transportation systems

2.1.1 Develop and promote an uber-like model for efficient fish transportation

MWorld launched the 'Maach Gari' app to help farmers, hatchery and nursery owners to transport fish efficiently, maintaining quality and minimizing transportation costs. The app was downloaded 474 times by interested market actors. A total of 150 vehicles have been registered to provide transportation services through this app so far. During this quarter, MWorld self-invested in registering additional 50 vehicles to provide transportation services for the farmers outside of ZOI such as Comilla district. To make the app more user friendly, MWorld established a call center (09678789987) for those who do not have smartphones. MWorld conducted 108 promotional events with 2,069 participants (1,882 men and 187 women), including 1,890 farmers and 179 vehicle owners. MWorld also conducted 10 market activation events with 306 fish traders and 22 fish farmers (all male) in Jashore. Already 1158 farmers and 25 nursery owners have transported their fish through using the app and call center. They are promoting "Maach Gari" brand through Facebook by using slogan "Ashche Bari Macher Gari", meaning "Fish truck is coming at your door". 1011 people have read the content and 177 engagements were found at the post.

Output- 9 Developed effective business linkage to ensure the availability of better quality aqua inputs

2.1.3 Establish an effective and inclusive business linkage for small feed millers to get on-time access to quality input, machinery service and feed sales

Matrix Business Development Ltd. conducted 60 courtyard meetings at different geographical locations of ZOI, where 1,853 farmers including 513 females, learned about improved pond aquaculture technology, received a booklet on aquaculture, information on access to the quality feed from nearby community feed center and became familiar with app based (Nirapad Khamar, Rupali) aquaculture technology and relevant information. The key objectives of this courtyard meeting were wider dissemination of aquaculture technology at the rural level to create access to better aqua inputs through Community Feed Centers (CFCs). Currently, 50 CFCs are working at ZOI and 2 at ZOR.

2.1.4 Establish market linkage to ensure the availability of quality seed, feed and embedded service in Cox's Bazar district

This intervention has been dropped. The Activity will achieve the objectives of this intervention by partnership activities with Protyashi promoting nutrition sensitive aquaculture through LSPs in the next quarter.

Sub IR 2.2 Increased engagement of private sector in aquaculture markets

Output- 10 Built a sustainable farm-to-fork supply chain to promote processed fish foods

2.2.1 Develop a Cool Chain Management Model for the Aquaculture sector to reduce post-harvest loss

The aquaculture sector suffers from serious post-harvest loss every year due to ignorance and negligence in handling and processing at different stages of the supply chain from the harvest to retail distribution. Improper handling and processing reduce the quality of the products. Low quality fish is of great concern to food security and public health.

MarGEN Limited is developing a cool chain supply line for fish and fish products. In the reporting quarter, MarGEN completed branding of 4 puller vans for selling fish at urban locations, one freezer van (motorized) for short distance product delivery, and upgraded 5 local storage facilities. MarGEN created a dedicated fish brand ‘Halda’ and promoted the fish brand through 10 advertisements posted on various social media platforms, especially on Facebook.

2.2.2 Develop Sales & Distribution model to promote Processed, Frozen and Diversified Fish Item (RTC & RTE)

Demand for fish-derived items readily available to eat or cook, safe processed food is a significant opportunity for aquaculture sector. To increase availability and to promote processed fish products, WorldFish has signed sub-grant agreements with two organizations: Sea Natural Fish Limited (Roja) and MarGEN Limited. MarGEN sells both ready-to-cook (RTC) and ready-to-eat (RTE) processed fish products in Dhaka city while Roja promotes RTE fish products in major cities like- Dhaka, Chattogram, Narayanganj, Sylhet etc.

During the reporting period, MarGEN organized a fish fair in 15 outlets of Agora super shop in Dhaka city. Director General of the Department of Fisheries (DoF) inaugurated the event as the Chief Guest. Since then, MarGEN has been getting good response from the consumers for their RTE fish products. In the first month after the fare, MarGEN sold more than BDT 300,000 equivalent RTE products. Since then, the demand for their products has been increasing consistently. MarGEN also launched two mobile/paddle vans to sell fried RTE products as evening snacks. Each van sells roughly BDT 1500 – 2500 products every day.

All RTE products have been tested in the food technology lab of Bangladesh Agriculture University (BAU) and Sylhet Agricultural University (SAU) to ensure utmost consumer protection and quality. Besides the retail stores, MarGEN promotes their products on Facebook and YouTube.

2.2.3 Promote Fish based Ready-to-Eat (RTE) foods in the mainstream market channels

Sea Natural Fish Limited (Roja) started working in September 2021 and currently supplies RTE products based on marine fish in 193 retail stores in Dhaka, Chittagong, Sylhet, and Narayanganj city. Roja distributed 115,000 copies of leaflets as inserts in the popular daily newspapers in Dhaka, Chattogram, and Sylhet to create consumer awareness on RTE fish products. They have also developed five new recipes of RTE processed fish products with cultured fish, and are seeking to capture market share in the culture-fish based product market to retail alongside their marine fish products.

Output- 11 Increased access to financial products and services

2.2.6 Improve access to formal financial package for aquaculture stakeholders: Access to Finance

Bank Asia has entered into a second phase with the goal to expand their business in the aquaculture sector in August 2021. Till date Bank Asia conducted 28 batches of financial literacy trainings where 1465 farmers (112 women) were trained on basic financial literacy and received booklets on aquaculture technology. During this reporting quarter, Bank Asia conducted 6 batches of loan feedback sessions with 119 farmers including 22 women.

So far, Bank Asia disbursed BDT 8.4 million (USD 100,000) loans to 186 aquaculture farmers including 9 women. Among the total loans disbursed to date, Bank Asia disbursed BDT 4.5 million (USD 53,571) loans to 99 fish farmers including 5 women during this reporting quarter.

2.2.8 Promote one-stop point to ensure easy access to formal finance

Aquaculture Activity selected Khulna Mukti Seba Songstha (KMSS) to develop and promote Aquaculture Business Points for creating access to formal financing and lending facilities. These points will serve the purpose of One-Stop Service Center by increasing the access to aquaculture information, advisory services, input, testing and financial services for all types of aquaculture market actors. KMSS will start implementing the agreed interventions from mid April 2022.

2.2.9 Introduce 'digital lending' platform to promote easy, cash flow finance for the smallholder farmers

Lack of access to formal financial services is a significant obstacle to growth for fish farmers and aquaculture enterprises. Over 77% of farmers use local informal money lenders and Micro Finance Institutes (MFI) and take loans at exorbitant interest rates (25-30%) (BSFF-2018). A data-driven digital lending system (cash flow-based model) could be a potential solution to reduce perceived risk for formal financial inclusion. To explore the opportunity of connecting fish farmers to formal banking services, Aquaculture Activity made a partnership with Kiu-Bangladesh (a fintech company).

The Kiu Bookkeeping App and Lending-As-A-Service (LAAS) Platform are being used to improve access to finance (*Annex 3 & Annex 4*). Fish Farmers/ Retailers insert their business transaction data in the Kiu Bookkeeping App. Based on the transaction data, a credit rating profile is generated. Using that credit rating profile, fish farmers/retailers apply for loans to financial institutions.

During this quarter, Kiu conducted 43 batches of refreshers workshops in different areas of Khulna with 600 aquaculture stakeholders including 322 women. KiU also started follow-up activities to provide individual support to increase the usage of this mobile application.

Kiu and AB Bank Limited have made a tripartite agreement with Khulna Mukti Seba Songstha for loan disbursement to selected aquaculture farmers and other stakeholders. Furthermore, Kiu Bookkeeping App has been translated into Bangla to comply with local company process and loan application standards.

Kiu disbursed BDT 12.6 million (USD 150,000) loans to 379 aquaculture stakeholders including 320 women till date. During this quarter, BDT 11.9 million (USD 142,000) in loans was disbursed among 363 farmers including 304 women. These loans have been disbursed to the app users where farmers recorded their expenses and income that generated a credit score to support farmers' eligibility for loans.

2.2.10 Provide microfinance support to promote nutrition-sensitive aquaculture

Smallholder farmers usually access loans from local Mahajan (moneylenders) with an excessively high rate of interest that becomes a burden for them to repay. A significant portion of their income go to these Mahajan which makes it very difficult for these farmers to manage their family and business.

The Activity engaged Shushilan to introduce microfinance facilities for aquaculture market actors, especially for women fish farmers, to reduce farmers' dependency on high interest rate sources. Shushilan disbursed BDT 7.69 million (equivalent to USD 91,583) in loans to 265 fish farmers including 256 women with an annual interest rate of 12.5-14.3% depending on the context, 14 to 15 times lower than the local money lenders (Mahajan). Overall, they distributed loans to 719 including 689 women aquaculture farmers with BDT 17.81 million (equivalent to USD 206,764) since the inception of this microfinance project. Moreover, Shushilan conducted 165 courtyard sessions and provided information on aquaculture, basic nutrition, and effective utilization of credits to 2,877 women and 308 men. Shushilan field facilitators visited 2,331 aquaculture farming households for disseminating basic nutrition information and providing aquaculture services at door steps.

2.2.11 Ensure access to micro-Finance Services for dry fish business in Cox's Bazar

Dry fish actors in Cox's Bazar lack access to affordable formal finance to operate their business. Instead, there are limited opportunities for processors to get access to loans from local lenders at prohibitively high interest rates which impacts negatively on the profitability of their business. Aquaculture Activity, in partnership with Mukti Cox's Bazar, is working to provide access for dry fish actors to finance from formal institutions to address the capital shortage of the dry fish entrepreneurs.

Mukti Cox's Bazar has provided BDT 4.30 million (equivalent to USD 50,965) to 93 women dry fish actors as loans during the reporting period. They have also delivered training to 145 participants including 132 women dry fish actors on financial management and 148 dry fish actors including 136 women on savings and credit management. Mukti also organized three learning and sharing meetings in three upazilla of Cox's Bazar district where 91 (male-65, female-26) participants attended the meetings. As a result of Mukti's initiatives in the dry fish sector, 730 dry fish actors sold 402.62 metric

tons of safe dry fish worth BDT 193.60 million (equivalent to USD 2.2 million) during the reporting period. With this loan support and improved financial knowledge, dry fish producers are expecting to recover the losses they incurred in 2021 due to nationwide lockdown.

2.2.13 Improving Access to Formal Financial Package for Aquaculture Stakeholders

The cost extension phase of Bank Asia mainly aims to introduce a formal “access to finance” model in Zone of Resilience (ZOR) in the form of agent banking in Cox’s Bazar. Formal banking and lending services are absent in ZOR, making fish farmers heavily rely on informal sources of financing with high interest rates. The extension of Bank Asia’s service in ZOR will help reduce this gap of financing. Bank Asia will provide financial literacy training to over 300 farmers and targeting loan provision of over BDT 0.50 cr to the aquaculture farmers in the next 5.5 months in the Cox's Bazar area.

Output- 12 Promoted Mechanization and technology in aquaculture

2.2.14 Promote small-scale machineries to foster mechanization in the aquaculture sector

Most small-scale fish farmers are reluctant to use aquaculture machinery due to lack of knowledge of its benefits, necessary usage information and after-sales service. Aquaculture Activity made a partnership with IMEXpro (BD) Corporation, a private agribusiness company, to promote small-scale aquaculture machinery such as pH meters, DO meters and Secchi Discs that can help improve pond performance and productivity.

In this reporting period, IMEXpro completed a database of 2,210 fish farmers, 100 nurseries, and 60 hatcheries. IMEXpro established 34 service centers with signboards, 6 types of festoons containing information on small-scale aqua machinery and pH meter, Ammonia Testing Kit and Secchi Disk. 288 farmers received water/soil parameter testing and advisory services from IMEXpro’s one-stop service centers.

Output- 13 Recovered Dry fish market from the effects of the pandemic

2.2.16 Promote Dry Fish Business through Marketing and Branding

Due to the lack of proper marketing and branding strategies, dry fish entrepreneurs are struggling to maintain and grow their businesses. Aquaculture Activity made a partnership with Shah Amanath Traders (SAT) to strengthen branding and promotional activities for safe dry fish and fish products.

SAT participated in the Industry and Trade Fair at Cox’s Bazar organized by Cox’s Bazar Chamber of Commerce & Cox’s Bazar District Administration setting a stall for the promotion of its products. SAT sold 5,735 kg dry fish worth BDT 3.076 million (equivalent to USD 36,417) in this quarter through online, offline and their distributors. By employing different strategies, such as advertisements through Facebook boosting, webpage hosting and billboards, introducing smart packaging, and by following better management practices, SAT increased their sales volume by 77%.

2.2.17 Promotion and branding safe dry fish business

Lack of trust of consumers on dry fish products, producers are facing problems of selling their dry fish products, reduced profit margins due to higher production costs and high competition, Lack of appropriate marketing strategies, skills and knowledge in marketing have made a difficult situation for dry fish entrepreneurs to maintain, sustain and grow market share. In addition, there is a big concern with the quality of dry fish that is produced and sold in the domestic market due to the adulteration with various pesticides and chemicals. The Activity works with CoxsBazarShop.com, a private company, to produce and promote safe dry fish by improving their marketing techniques.

During this reporting period, CoxsBazarShop.com organized 9 awareness campaigns among tourists on safe and healthy RTE and RTC dry fish products, completed 2 sales promotion events where District Fisheries Officer of Department of Fisheries and the Principal Scientific Officer of Bangladesh Fisheries Research Institute attended, conducted consumers acceptance test for RTE Balachao dried fish products, advertised on social media like Facebook, YouTube, WhatsApp, and developed and aired

36 video clips on various dry fish recipes on YouTube. As a result of these market promotion initiatives, CoxsBazarShop.com also sold 4,074 Kg various dry fish products worth BDT 2,518,561 (USD 29,815).

2.2.18 Analyze the benefit-cost ratio of safe dry fish business for SAT

The analysis of the benefit-cost ratio of safe dry fish business for SAT will be completed in the next quarter.

2.2.19 New product and market development of dry fish business

This intervention will be implemented by the Activity partner, SAT, in the next quarter to develop new product lines of quality RTE and RTC dry fish products.

2.2.20 Promote and branding safe Dry fish business

This intervention will begin in the next quarter by the Activity partner, CoxsBazarShop.com to develop premium quality dry fish products such as Ready to eat (RTE) Balachao products and Ready to cook (RTC), safe and healthy dried fish made of various fish species and marketing all over Bangladesh through their online platform which has been supported by the Activity.

Sub IR 2.3 Improved enabling environment for inclusive growth in aquaculture

Output- 14 Developed market for new Aqua product

2.2.21 Promote processing and marketing of seaweeds

This intervention has been dropped from the Year 5 work plan, due to lack of market readiness and linkage opportunities of seaweeds products,

Output- 15 Developed advisory services for farmers

2.3.1 Promote Digital Advisory Services for Aquaculture stakeholders (TRK, SourceTrace) to effectively connect them to the backward and forward market

The Right Kind (TRK) with its technical partner SourceTrace International aims to promote widespread 360-degree advisory support along with digital trading for the aquaculture sector. It is expected that farmers will get multiple support from this two-way digital communication channel such as (a) advisory support (b) product purchasing support (c) access to finance support (d) fish selling support and (e) weather information. Also, private companies will also be able to promote and advertise their products and services in TRK's digital platform. The Right Kind named this platform as "The Right Haat" (*Annex 3 & Annex 4*).

During this quarter TRK has on-boarded over 40,000 farmers through its different advisory service points and events (e.g., cluster meetings, field visits, input sellers, call center). They have established 143 retailers as their service referral points in 6 districts in the ZOI. TRK conducted 45 cluster meetings with smallholder farmers, three orientation training sessions with government stakeholders, and 15 onboarding meetings with input retailers. The main ground activity of the project is to move door to door of farmers' houses and inform them about this advisory platform. So far, TRK has moved to the doorsteps of 10,000 farmers in person and made them aware of this digital advisory platform.

TRK increased the business model's financial viability by engaging private companies. So far, they have approached over 50 private companies and on-boarded 6 of them.

TRK's Facebook page has gained 15,000 farmer followers since inception and participated in live sessions on a regular basis. So far, 17 live sessions with various aquaculture specialists were organized, during which farmers posted questions to the experts in real time. Farmers also registered their queries as an official post and received answers within 24 hours. 500 aquaculture stakeholders have downloaded "The Right Fish" app and started getting advisory services.

2.3.3 Advocacy on ensuring optimal and sustainable utilization of aqua inputs in Bangladesh with a focus on compliance-related issues

With the intensification of aquaculture practice, use of aqua inputs such as feed and aqua medicinal products are increasing by the fish farmers in Bangladesh. However, inappropriate usage of inputs such as application of harmful doses or usage of banned inputs have severe adverse consequences on the quality of final output. Use of prohibited aqua inputs may severely compromise the quality of fish procured.

Bangladesh Shrimp and Fish Foundation (BSFF) facilitates intra-governmental and public-private sector consultation to create awareness on prohibited aqua inputs. In this reporting quarter, BSFF organized two (02) stakeholder consultation workshops and four (04) Focus Group Discussions with key government stakeholders mainly, Department of Fisheries (DoF), Bangladesh Fisheries Research Institute (BFRI), Ministry of Commerce (MoC), Directorate General of Drug Administration (DGDA) and Universities and discussed the definition and classification of permissible and prohibited aqua inputs in the country context. The key output of this intervention is a comprehensive list of 605 permissible and prohibited aqua inputs applicable for Bangladesh, which will be handed over to DoF and DGDA so that the concerned government authorities can prepare a policy recommendation going forward (*Annex 5*).

Challenges encountered while implementing activities in IR 2 during this quarter:

MWorld is facing delay in getting commissions from the registered truck/pickup drivers also farmers' adoption rates of using the digital platform is slow due to less habituation in using technical devices. MarGEN on the other hand has seen challenges while procuring directly from the farmers, which is not price-competitive compared to the local aaroths, and also it has been difficult to maintain the cool chain as it expensive for small order quantities. Roja has faced weak connection with farmers which has created delays in training farmers. To mitigate the problem Roja has made a partnership with a local NGO named Nabolok.

Major activity plans for the quarter year:

Ms. Shah Amanath Traders will conduct a research to measure effectiveness of improved fish dryers on the quality and economics of dried fish products of Bombay duck, Harpadon nehereus; Ribbonfish, Trichiurus lepturus and Pomfret, Pampus chinensis in Southeast Bangladesh. Besides, Shah Amanath will establish a sales center in Dhaka to reach premium customers and improve the sales dry fish.

CoxsBazarShop.com develop capacity of women producers on quality RTE Balachao production and business development. They will test the quality of RTE and RTC dry fish products on nutrition and safety aspects. They will also promote the safe dry fish products in social media through posts and audio-visuals. Furthermore, they will develop video clips on quality RTE and RTC products and disseminate the same.

Mukti Cox's Bazar will organize a 2-day long ToT course for staff on improve aquaculture and dry fish business development. Mukti will conduct training sessions for 40 dry fish actors and 100 fish farmers on safe dry fish production technology for 40 dry fish actors. To support the increased production of dry fish, Mukti will provide BDT 2 million and BDT 10 million in loans to 40 dry fish actors and 100 fish farmers respectively.

MWorld is implementing a digital transportation solution for fresh fish and aqua inputs, will continue organizing business promotion events and distribute communication material such as leaflets. MarGEN is working to promote RTC/RTE fish products and will provide cooking training for 40 women in 10 batches. MarGEN will continue promotion of RTC/RTE fish products in their website and Facebook page. Another partners for process fish, Roja will orient 2,000 fish farmers an improved farming and post-harvest management technique that can comply the need of export market. They will launch new recipes on processed fish which are ready-to-cook.

KMSS, a microfinance partner in ZOI will improve access to finance to 5,000 fish farmers by establishing Aquaculture Business Center and by improving the capacity of these Centers to offer various services, especially aquaculture loans. Bank Asia will replicate its' agent banking model for aquaculture in Zone of Resilience.

IR 3. Improved Nutrition-related Behavior of Rural Households

Context:

Food security has significantly improved in Bangladesh; however, under-nutrition rates remain unacceptably high, and dietary quality for the majority remains low. Inadequate intake of vitamins and minerals such as iron, zinc, calcium, vitamin B12, and vitamin A in infant child development contributes to stunting, which leads to a lifetime of cognitive impairment, reduced productivity, and lowered earning potential. Stunting, combined with other nutritional deficiencies associated with poverty, undermines the trend of improvement in national development. Fish is the culturally preferred animal-source food in Bangladesh and is uniquely placed to contribute to reducing undernutrition. Focus is being given to significantly increasing the production of micronutrient-rich small fish. The following Sub-IRs will contribute to improving nutrition-related behaviors of rural households in a gender-equitable manner.

Sub-IR 3.1 Improved nutrition awareness and practices

Output- 16 Improved access to information on nutrition

3.1.1 Support Nutri-champs winning chefs as ambassadors to promote consumption of fish

To promote the consumption of fish, Aquaculture Activity supported six Nutri-champs from the champion chefs, of the cooking competition organized jointly by the five USAID-supported projects and Save the Children, in 2019 – 2020. .

One of the key objectives of this collaboration is to increase the level of production, sales and consumption of fish along with disseminating the key essential nutrition messages. The Aquaculture Activity demonstrated cooking methods and disseminated messages through the six champion chefs, in three teams in Cox's Bazar, Jashore and Patuakhali from March 2021.

In the reporting quarter, the three Nutri-champs teams organized 4 University and College level awareness events in Cox's Bazar, Jashore and Patuakhali districts where 787 students (477 women and 310 men) attended. Besides, they also organized one cooking demonstration and nutrition message dissemination event at Patuakhali where 308 community-level participants including, 145 women and 163 men participated. 1,095 participants including 622 women participated in those 5 events. The Nutri-champs disseminated essential nutrition, WASH, and COVID-19 messages, and distributed different Information, Education and Communications (IEC) materials on nutrition, aquaculture and nutritious fish recipes to the participants of these events. Several local and national news media covered the events in detail.

3.1.5 Facilitate coordination meetings with the government stakeholders to increase the message dissemination on the benefits of fish consumption

The Aquaculture Activity facilitated a coordination meeting with the government health professionals in the reporting quarter at the Civil Surgeon Office in Satkhira District to increase the inclusion of small fish in the diet for first 1000 days through boosting the dissemination of nutrition messages regarding the benefits of fish consumption. The Civil Surgeon of Satkhira attended the meeting as the chief guest. A total of 30 individuals including 1 Upazila Family Planning Officer, 7 Community Health Care Providers and 7 Family Welfare Assistants from the health and family planning department attended the event.

3.1.7 Observe national nutrition week April 23-29, 2022

Will be observed on April 23-29, 2022

Sub-IR 3.2 Improved access to diverse and nutritious foods

Output- 17 Increased nutritious food intake

3.2.1 Establish partnership with fish processor for wholesale fish supply

Bangladesh has progressed outstandingly in fish production and achieved self-sufficiency in recent times. However, the new generation, particularly the school and college-going children, are less interested in eating fish due to the fear of fish-bones and monotonous conventional fish curries. The Aquaculture Activity partnered with CHHIP Food BD to increase fish consumption through initiatives of creating alternative options to eat fish, and meet nutritional demand with the healthiest animal protein.

CHHIP Food BD has developed 17 fish-based Ready to Eat (RTE) and Ready to Cook (RTC) products, namely fish balls, fish fingers, fish nuggets, fish sausage, fish burger patty, fish samosa, fish spring roll, etc. The Aquaculture Activity linked CHHIP Food BD with 28 potential retail shops (last mile sales agents) of Feed the Future Bangladesh Nutrition Activity for selling fish-based RTE and RTC products. CHHIP FOOD BD also selected 20 supermarkets in Dhaka to sell RTE and RTC products.

During this reporting quarter, CHHIP Food BD organized 40 promotional activities at 20 super shops' food corners and disseminated promotional materials, e.g., leaflets, posters, poster cum stickers, x-banners, festoons, etc., on the benefits of eating fish and fish-products, conducted three staff sanitation events to maintain a hygienic environment at their production factory, and strengthened one subsidized distribution channel covering 28 outlets in Patuakhali. CHHIP FOOD BD conducted 7 RTE product sampling events at Kalapara Upazila in Patuakhali District where 371 individuals including 40 women and 45 children participated. CHHIP FOOD BD also continued its online marketing through Facebook and YouTube.

3.2.2 Underpin the supply chain to distribute fish-based RTE/RTC products in the Aquaculture Activity working districts to increase fish and fish product consumption

The Activity has been working with three RTE/RTC fish-based product manufacturing companies (MarGEN, CHHIP Food BD and Roja) to encourage the nutritious products onto the consumer's plates. Due to the budgetary constraints and other program priorities, the senior management of the Activity dropped this intervention.

Challenges encountered while implementing activities in IR 3 during this quarter:

CHHIP FOOD BD and three teams of Nutri-Champs have insufficient human resources to document their progress and produce relevant deliverables. Shushilan faced challenges in disbursing microfinance loans to the aquaculture farmers since the reporting quarter was not the aquaculture season.

Major activity plans for the next quarter:

Some of the major activities for the upcoming quarter under this IR 3 include distribution of loan by Shushilan to more than 520 aquaculture farmers and educate them on improved aquaculture practices, basic nutrition, and effective utilization of microfinance through 90 courtyard sessions. Activity IPs will implement their targeted nutrition activities in the ZOI and ZOR. National Nutrition Week (NNW) 2022 will be observed during the next quarter.

8. Project management and cross-cutting

8.1. Activity Management

Common Programs

8.1.1 Year 5 progress Review and Year 6 planning Workshops

The Activity conducted a workshop in Kuakata, Patuakhali, to review Year 5 progress with the participation of all staff. The workshop allowed the Activity staff to perform in-depth exercises in groups and come up with a systemic change matrix on six thematic areas, namely access to inputs, access to finance, access to forward market, innovation of improved technology, access to information and support services and crosscutting- nutrition, gender, youth, and environment. Workshop meeting minutes is available in *Annex 6*. A Year 6 planning workshop will be held in quarter 3.

8.1.2 SMT/Coordination & other meetings/Workshops/learning sharing workshops with IPs/stakeholders/etc.

Senior Management Team (SMT) members attended meetings to review intervention proposals of interested entities to select competent Implementing Partners. The team continued SMT meetings including some additional members to discuss relevant agendas to strengthen the implementation and timely accomplishment of all the deliverables as listed in the Year 5 Workplan. All staff meetings were held time-to-time to discuss the progress against targets, constraints faced, measures taken, and the way forward. Besides, weekly regional level staff meetings at Jashore, Khulna, Barishal, and Cox's Bazar were held to strengthen teamwork to increase output. Weekly/fortnightly meetings with USAID were also held regularly.

8.1.4 Assessing performance of Market System Approach

Aquaculture Activity has conducted a thorough in-depth study involving a wide range of market actors operating in ZOI and ZOR districts and beyond to unfold and dig-out the effectiveness, impacts and performances on the programmatic interventions and innovations that occurred over the project period at various forms and shapes. The aim of the study is to explore scope for scalability of the interventions, market resilience and increase more meaningful participation of women and youth. Also, it is intended to categorize and rank the existing and phased out partners' interventions based on the solid facts, evidences and findings and help guide implementation over the rest of the project period. Aquaculture Activity team have already collected data from Activity partners (tier 1), their clients (tier 2) and farmers (tier 3) through a semi-structured questionnaires. The summary on key findings including evidence of change/impact revealed from this study is presented below.

Level of satisfaction

IPs were asked about the level of satisfaction of their business performance. 63% of the respondents said they were satisfied, 30% were highly satisfied and only 9% were moderately satisfied. None of the partners said they were dissatisfied with the performance of the intervention which is a good indicator of Activities overall performance with respect to its partners.

And, when asked about customer experience and their level of satisfaction, 54% said they were satisfied and 41% were highly satisfied and 2% said they were moderately satisfied; only one of the partners (2%) said their customers were not satisfied.

Business performance and efficiency

Many of the partners have seen an improvement in business performance and efficiency since the interventions started. The City Bank said that their loan disbursement has increased from BDT 3 crore per annum to BDT 30 crore per annum, a ten-fold increase. Partners such as the Chittagong Meridian Agro Industries Ltd., BRAC and Bhola Monosex Tilapia Hatchery have increased their area coverage and thus increased their customer base.

Many of the IPs have seen an increase in sales revenue. This includes the likes of Parmeeda, iSocial, Rupali Fish Hatchery and United Agro Fisheries. FISHTECH BD has seen an increase in sales of nearly 14% from 27.6 crore in 2020 to 31.4 crore in 2021. KNB Agro Industries has seen their feed sales increase from 275 MT/month to 454 MT/month in the project area – a 65% improvement. Harun Mathsya Hatchery said that their sales went down in 2021 because of Covid-19.

Sustainability

Increased revenue/profit for the business

Nearly 75% of the partners noted that their profit/revenue has increased as a result of the intervention piloted with Activity. Nine percent (9%) were unsure if the intervention made a difference while another 9% said that their profit/revenue did not increase.

One of the partners, Community Development Centre (CODEC), noted that their brand value has increased as a result of the pilot intervention:

Continuation of intervention without further support

When asked if they planned to continue with the intervention without further support from Aquaculture Activity, 23% said that they had no plans. The remaining 77% said that they planned to continue in one form or another. The areas they planned to continue with are as follows: 23% said they would continue to apply the experiences they have gathered from the project, 16% said they would maintain smooth supply of inputs and provide services, 12% said they would implement activities in other places and 9% said they would strengthen market linkages. The draft report with all details are available in *Annex 1*.

8.1.6 Enhancing MSD Monitoring, Evaluation and Learning system

Existing good practices of M&E during implementation of the Aquaculture Activity were consulted with the Activity team in several occasions. The team agreed upon how to further map the indicators across the results and outcomes, and target values have been well-defined. The team discussed also the result framework and further developed their understanding about the three interconnected processes, namely good planning, monitoring and evaluation (M&E), which can greatly enhance the effectiveness of Aquaculture Activity.

For each selected indicator, M&E tools (means of verification) have been well defined. The MEL team has come up with a checklist of types of tools which would be used to assess performance of the Activity, e.g. semi-structured interviews, focus group discussions, surveys and questionnaires, regular workshops and roundtables with stakeholders, and field monitoring visits. Frequency and responsibilities for applying the tools, for analyzing relevant information and for reviewing this information have been verified with the USAID approved M&E plan.

8.2. Finance and Grants

Budget

8.2.1 Year 5 Budget development

Activity Year 5 budget was rigorously developed with the program and senior management team having the detailed list of interventions and activities set in the work plan as main reference. The information used in budget development came from historical data, previous activity costing, and assumptions. The Activity's Year 5 budget is \$5,087,427 (*Table 4*).

By the end of Year 5, Activity will have an estimated remaining budget of \$4,377,656. This projection assumed the need for a No Cost Extension (NCE).

The Activity requested a budget realignment from USAID as there are additional consultants required in Year 5. The Activity, needed to sign a contract with Dr. Charles Kirby as Market Systems Consultant and Mohammed Nurul Azam as Market Systems Development Project Monitoring, Evaluation and Learning Consultant.

On March 9, 2022, the AOR, Mr. Mohammad Shibly issued an approval letter of the Revised Year 5 Workplan and budget which has covered the total need for the cost of the consultants. The approval letter mentioned that the concurrence is given provided that there is no increase in the total USAID amount and no additional funding will be required. It is interpreted that budget realignment is no longer needed.

Table 4: Aquaculture Activity year 5 budget

Bangladesh Aquaculture Activity		Actual Expense					Plan Budget	
Budget Line	AEC	Approved Budget	Year 1 (8 months) (Feb'18- Sept'18)	Year 2 (12 months) (Oct'19- Sept'19)	Year 3 (12 months) (Oct'19- Sept'20)	Year 4 (12 months) (Oct'20- Sept'21)	Year 5 (12 months) (Oct'21- Sept'22)	Budget Balance end of Sept 2022
Direct Labor	G001	5,474,565	414,022	926,710	1,082,060	1,162,779	1,296,564	592,430
Fringe Benefits	G002	1,765,430	131,311	294,843	375,758	360,918	364,212	238,388
Consultant	G003	288,593		70,998	73,348	57,419	242,000	(155,172)
Supplies, Equipment and Operating	G004	1,741,916	153,671	478,943	325,368	173,893	216,720	393,321
Travel and Per Diem	G006	967,676	51,841	206,295	141,701	103,476	134,244	330,119
Other Direct Cost	G007	4,282,319	112,324	695,954	333,383	599,437	574,293	1,966,928
Sub-Grants	G008	5,800,365		1,274,492	1,607,383	1,248,560	1,398,809	271,121
Total Direct Cost		20,320,864	863,169	3,948,235	3,939,001	3,706,481	4,226,842	3,637,136
Indirect Cost	OH	3,657,756	155,370	710,682	709,020	667,167	760,832	654,685
CGIAR Cost Sharing Fee [@ 2% of total direct + indirect cost]	CSP	479,572	20,371	93,178	92,961	87,474	99,753	85,835
Total Activity Cost		24,458,192	1,038,910	4,752,095	4,740,982	4,461,122	5,087,427	4,377,656

The graph below shows the amount USAID has committed to spend on the project to date (Figure 3). This amount includes the \$4mln for ECOFISH. Unobligated balance means the mortgage or amount to be obligated for the last 4 months of Activity project life (Oct. 1, 2022- Feb. 5, 2023)

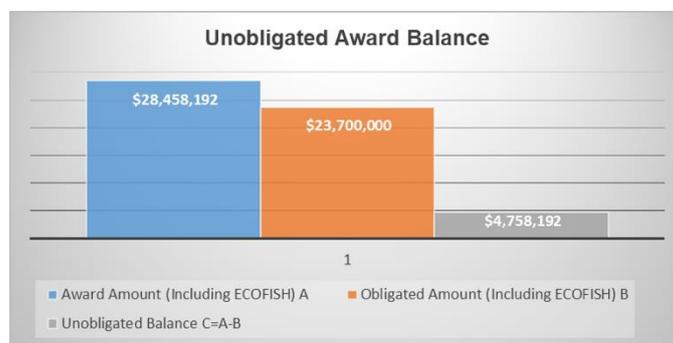


Figure 3: Amount committed to spend

The graph below shows the amount USAID has committed to spend on the Aquaculture Activity to date (Figure 4). A mortgage of \$4.7mln remain to be used within the last four months of the Activity (Oct 1, 2022 – February 5, 2023). WorldFish however, submitted a No Cost Extension request letter to USAID and still waiting for approval.

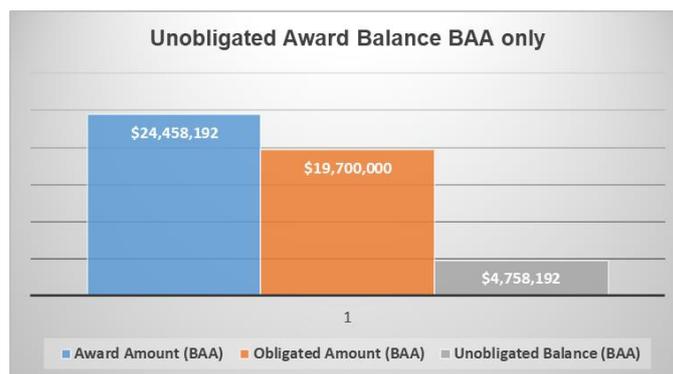


Figure 4: Amount committed to spend on the Aquaculture Activity

The current pipeline¹ of \$2.3 million will cover 6 months through September 2022 at the projected rate of \$399K (Figure 5).

¹ Pipeline means the amount of funds obligated but not yet spent

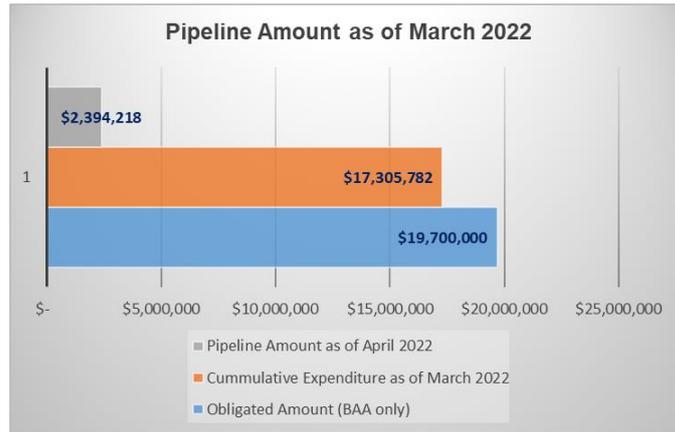


Figure 5: Pipeline amount as of March 2022

8.2.2 Quarterly Forecast

Activity spent a total amount of \$1,114,492 for the quarter of January- March 2022 which is 5% less than the forecasted amount for the said quarter.

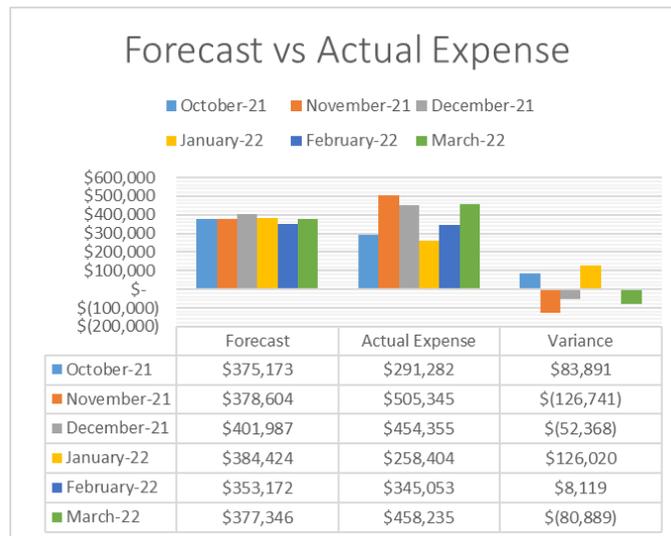


Figure 6: Forecast vs Actual expense

8.2.3 Midyear budget review

Quarterly budget review

Activity budgeted an amount of \$5,087,427 for year 5 (October 2021-September 2022) and have already burnt a total amount of \$2,312,674 by the end of the second quarter March 31, 2022, leaving an available budget of \$2,774,753 until September 31, 2022 (Figure 7).



Figure 7: Budget vs Actual expense

Total Award Balance

The accumulated expenses from 2018 to date are recorded at \$17,305,782 leaving an available budget balance of \$7,152,410 as of March 31, 2022 (Figure 8).

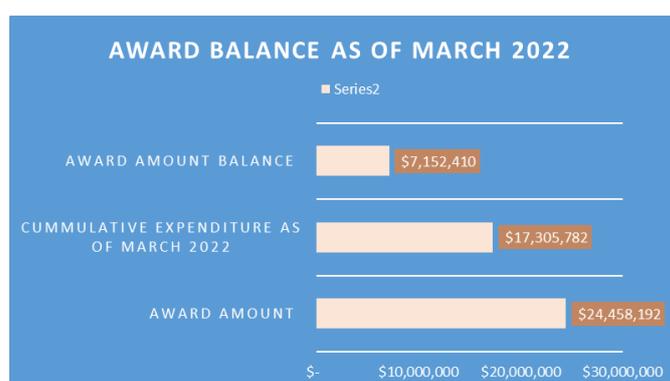


Figure 8: Award balance as of March 2022

Sub-grants:

The Activity signed seven sub-grants (4 youth, 2 NGO, and 1 Enterprise in this quarter with a total value of \$113,778 where Aquaculture Activity's investment is amounting to \$73,489 and sub-grantees investment is a total of \$ 40,289. List of Partnership signed during the quarter (January-March 2022) (Figure 9).

Feed The Future Bangladesh Aquaculture Activity Project				Negotiated SGA Value (USD)		
SL No	Sub-Grantee Name	Start Date	End Date	Total	FtF BAA	Sub-Grantee
01	Fish Booth	March 15, 2022	September 30, 2022	\$ 12,253	\$ 10,064	\$ 2,189
02	Green BioFloc	March 15, 2022	September 30, 2022	\$ 8,403	\$ 5,413	\$ 2,990
03	Palongki Konna	March 15, 2022	September 30, 2022	\$ 18,382	\$ 8,387	\$ 9,995
04	Plenary Aqua	March 15, 2022	September 30, 2022	\$ 14,866	\$ 7,493	\$ 7,373
05	TAHZINGDON NG	March 16, 2022	September 30, 2022	\$ 22,797	\$ 17,888	\$ 4,909
06	Bolipara Nari Kalyan Somity	March 16, 2022	September 30, 2022	\$ 20,507	\$ 16,682	\$ 3,825
07	FishTech Hatchery Limited	March 17, 2022	September 30, 2022	\$ 16,570	\$ 7,562	\$ 9,008
				\$ 113,778	\$ 73,489	\$ 40,289

Figure 9: Partnership signed in Q2, Y5

To date, the Activity has signed a total eighty-six (86) sub-grants and seven (7) service contracts with a total value of \$11,407,922, where Activity investment of \$6,471,325 and sub-grantees investment of \$4,936,597. Among these ninety three, four were terminated and sixty two were completed by the end of March 2022.

A total of \$ 4,738,444 was expended under the Sub-grant budget, giving a remaining budget balance of \$ 1,061,772 by the end of this reporting period.

8.2.4 Year 6 Planning

The Year 6 planning is expected to commence in June 2022 with the workplan being led by the technical staff. Budget figures will be largely for project closeout related activities. However, if the application for No Cost Extension is approved, budget figures will depend on programmatic activities. Activity can still implement within the NCE period including project closeout related activities.

8.2.5 Revisit Grants Manual, (update as needed)

The Activity's Finance and Grants Manager has initiated the review of the Grants Manual by creating a review committee that will review and update some processes and flowcharts and other sections of the manual. The review committee comprises the Finance, Grants, and Contracts, and Risk Management Lead at headquarters. This is an ongoing task.

8.2.6 Revisit SGA Template, Application form and Budget preparation Template, project description (update as needed)

Workshops and Training

8.2.19 Project Closeout

Project close-out training was held online on March 21, 2022. The project focal and project finance from ongoing partnership were invited to the training. The invitee partner organization were Nutri-champs (Cox's Bazar, Patuakhali and Jashore), KAAS, Cox's Bazarshop, GRAUS, Margen, Petrochem, M-World, ChhipFood BD, AIT, Satata Poultry, BSFF, FishTech etc. WorldFish-Aquaculture Activity employees were also invited to attend this training. Total number of attendees is 63.

The training was facilitated and conducted by Mr. Md Hanif, Grants Accountant of Aquaculture Activity. The training covered key discussion areas such as; Steps to be followed for close out, documents and preservation, Inventory and property management, disposition plan, final technical and financial reports if any, and final payment (Annex 7).

Online capacity development workshop

In addition to close out training, grants team took a 45 minutes session on "Online capacity development workshop for the Implementing Partners (IPs)" organized by Mr. Nazrul Islam, Capacity Building and Training Coordinator on March 13 & 14, 2022. The invitee partner organization were CoxsBazarShop.com, Aftab Feed Products Ltd. Bhola Monosex, Bangladesh Shrimp and Fish Foundation (BSFF), FishTech Hatchery, Afil Aqua Fish Ltd. M-World, KNB Crash, Shushlan, ImexPro (BD) Corporation, Aftab Feed Products Ltd, Margen Ltd. Sea Natural Ltd, KAAS, Petrochem Bangladesh Ltd. Sardar Agro, Bank Asia Ltd, KiU Bangladesh, Matrix Business Development Ltd. Aquaculture Activity employees were also invited to attend this training. Total number of attendees is 82. Grants Accountant, Ms. Faria Islam took the session from grants team where she discussed on the grants process, financial management, procurement and project close-out. The training materials were later shared by Mr. Nazrul Islam among the participants for their reference and guidance (*Annex 8*).

Online learning through Youtube video

For Activity employee's capacity building, Ms. Sally Mallari, Accounts Manager (Finance & Grants) shared a YouTube video on "How to Work with USAID: Understanding USAID Awards." The topic covers- the types of awards the Agency uses and how they work. Which type of award is the best fit for the organization? A total of 30 Activity employee's watched the video.

<https://www.youtube.com/watch?v=p87uBQixPTE&t=1750s>

Summary of trainings held

Training/ workshops	Number of Attendees
Project close-out training	63
How to work with USAID: Understanding USAID Awards	30
Online capacity development workshop	82

The finance and Grants Team has scheduled more online orientations and trainings for subgrantees in the month of May, Subgrant orientation, financial management, procurement and planning, fraud prevention and compliance, and project closeout.

8.3. Monitoring Evaluation and Learning (MEL)

8.3.1 Review and update the MEL plan

The Activity's MEL plan is annually updated to reflect new targets against the indicators as new partnerships are formed or contracts are extended. To capture effectiveness and sustainability of partners' business models, the Activity initiated a qualitative assessment to measure the changes in the aquaculture market system, in this quarter. In year 5, the majority of the Activity partnerships are already matured or near to mature. At this point, the Activity team initiated the process for learning capturing and harvesting systemic change information. Details of the mechanism will be incorporated in the updated MEL plan.

8.3.2 Review and update Aquaculture Activity Theory of Change (ToC)

The Activity conducted its year 5 progress review workshop this quarter during April 29-30, 2022. The workshop included theory of change (ToC) exercise. To perform the exercise, the relevant Activity staff members were divided into several groups to work on different thematic areas of intervention. Group presentations were done and the feedback of the participants was incorporated. The work under the initiative is still in progress. The final output of the study on 'measuring changes in the market system' will help to generate more evidence to updating of the ToC further.

8.3.3 Address Mid-Term Evaluation's recommendations made on MEL

The Mid-Term Evaluation (MTE) made a number of recommendations on the MEL system and TOC/RF. Aligning with the recommendations, the Activity initiated the qualitative study on market system changes. A detailed learning capturing mechanism was already outlined. The MEL team also facilitated the revision of ToC this quarter which will be further updated after getting more evidence from the aforesaid qualitative survey results.

8.3.4 Data collection pool development for surveys

The MEL team deployed 25 Data Enumerators (DEs) last year, from which the contract of 21 DEs renewed this year based on their last year's performance. Besides, four new DEs were hired through a competitive process to strengthen the data collection pool aiming to ensure data quality across the program interventions. During the period, DEs were engaged to collect quarterly and annual performance data along with field verification of shared data/information by IPs. The DEs also collected GIS data this quarter. The DEs were also involved in qualitative survey to capture necessary information in particular from the service recipients (tier-3).

8.3.5 Updating Aquaculture Activity MEL MIS platform

The web-based MIS was upgraded time to time to collect and gather the Activity information (*Figure 10*).

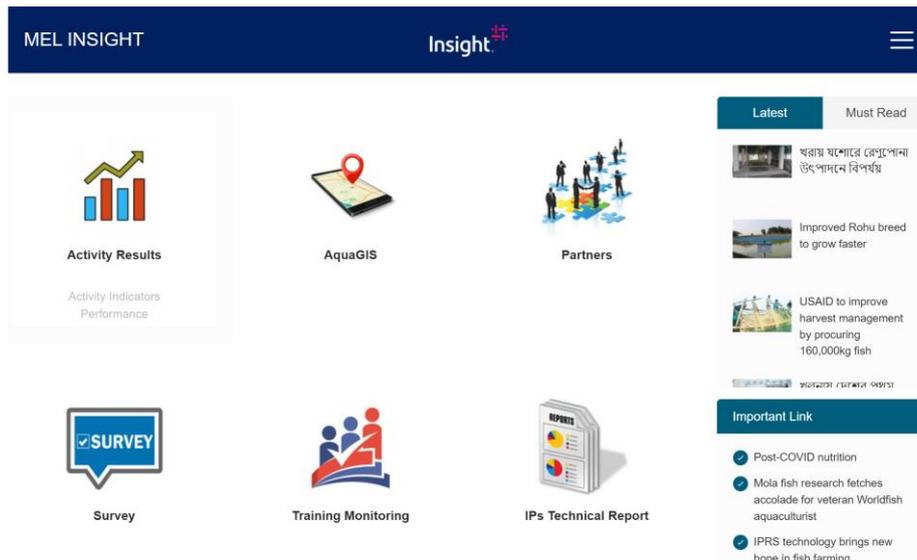


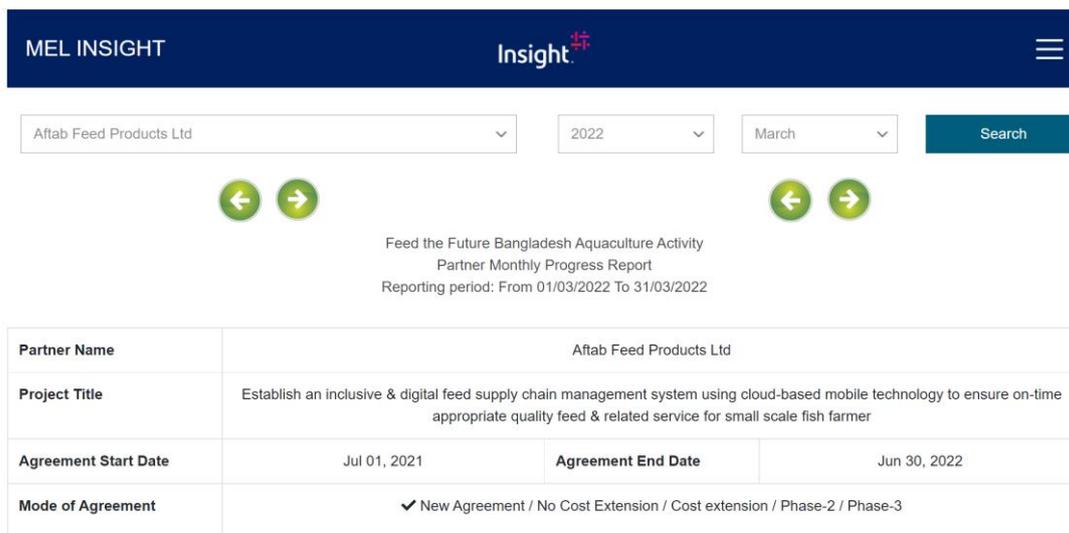
Figure 10: Activity MEL MIS

8.3.6 IPs’ activity performance monitoring and internal data quality assessment (iDQA)

The IPs' progress was monitored using specific key performance indicators (KPI) that were set into their agreement documents. MEL deliverables were tracked using the KPIs and associated timeframe through regular updating the KPI matrix. A single matrix database containing program, grants and MEL aspects were also kept up to date to track progress. The quality of MEL deliverables was checked based on MEL standard formats and using verification tools. MEL feedback was shared with the IPs to help them understand the process and improve data quality of the MEL deliverables.

8.3.7 Assist Aquaculture Activity teams to upgrade/ maintain the IPs progress monitoring dashboard

Aquaculture Activity developed a MIS based solution to keep IPs' monthly progress reports and track the progress as well (Figure 11). The MEL team has made the MIS platform accessible to the Activity staff to get the latest updates on IPs’ intervention progress.



1. Short introduction about the project (maximum: 100 words)

“Establish an inclusive & digital feed supply chain management system using cloud-based mobile technology to ensure on-time appropriate quality feed & related service for small scale fish farmer” is a one year project between WorldFish and Aftab Feed Products Ltd. to establish apps base feed supply chain to ensure effective & proper feed supply at dealer & farmer level, ensure appropriate feed to the farmer while purchasing feed at dealer point using their profile, establish a

Figure 11: IPs Activity monitoring dashboard

8.3.8 USAID DQA activity

The Activity submitted FY 2021 results into USAID DIS system in October 2021. The Activity also shared brief methodologies for the data collection and reporting results in the Y4 annual report. Following the last USAID DQA recommendations, The Activity is preparing ahead for the USAID DQA on FY 2021 DIS/FTFMS/PPR reporting.

Surveys

8.3.9 Quarterly performance survey

The MEL team collected leverage investment, loan information, partners sales and their preferences from the respective IPs. Information regarding gender and youth inclusion is also collected from IPs.

8.3.10 Annual performance survey (farms productivity)

Fish farming/production season is to be completed in Mar/Apr 2022. Accordingly, the MEL team is planning to collect data for the annual performance survey at producer's level in May/June 2022.

8.3.11 Annual performance survey (Enterprise/Company/Firm)

Basically, the firm level survey covers sales and leveraged investment data. MEL team collects IPs sales data periodically based on their business dynamics/pattern and reporting preferences. The sales data collected from IPs will be compiled covering the period October 2021-September 2022 for FY 2022 results reporting.

8.3.12 Programmatic data collection from IPs

In addition to the set MEL deliverables, the MEL team collects need based programmatic data from the IPs. Such programmatic data includes capacity development activities information, LSP and dealer point/one stop service point's related information, loan recipient's detail information, etc.

8.3.13 Need-based surveys per programmatic priority requirements

The Activity team has planned to capture Activity learning across different projects and business models implemented by IPs. By next quarter, as part of learning, the Activity will conduct several surveys based on programmatic priorities such as assessing impact of access to finance (A2F), profit loss calculation of aquaculture entrepreneurs, assessing impact of training etc.

8.3.14 Assess effectiveness of capacity development initiatives for Aquaculture Activity participants

Irrespective of thematic areas, the IPs have implemented numerous training events covering similar or different topics. Primarily, the topics are broadly categorized as 'fish farming technology and best management practices (BMPs) for fish farming', 'post-harvest management and marketing', 'nutrition and hygiene', 'gender and youth engagement', 'financial management and literacy', 'business development', 'dry fish processing', 'product promotion/business linkage/business to business (B2B) session' and 'digital marketing/mobile applications'. Considering the diversity of training topics/modules, separate checklist/tools has been drafted to capture the effectiveness of the training events specially to realize the behavior changes and its impact on the training recipient's (farmers and market actors) business performance. The MEL team has also drafted a protocol to conduct the survey. A further review is going on to finalize the study design and tools. Therefore, the survey has been rescheduled to conduct by next quarter.

8.3.15 Qualitative Assessment and other M & E study

The Activity has completed qualitative information collection from its IPs (called tier-1), relevant market actors (called tier-2) and final service recipients (called tier-3) in this quarter. Primarily, the IPs whose intervention have already been completed or to be completed by December 2021, were considered under this survey. The IPs data were collected by Activity staff members while the final service recipient's data was collected engaging the DEs pool. To capture market actors' information, a third-party consultancy firm (Nexel Research Limited) was hired through a competitive hiring process. In addition to market actor's data collection, the firm has also engaged in data transcription, analysis,

synthesis and preparing reports of the study. The MEL consultant is working with the firm and as per plan, and will share the full study report next quarter. As a progress, the report on tier-1 has already been completed and attached in the section of this report (Annex 1).

MEL Reports

8.3.16 Quarterly MEL report

MEL team provided inputs into the quarterly report incorporating MEL updates.

8.3.17 Annual MEL report

MEL team provided inputs into the Y4 Annual report incorporating MEL updates and FY 2021 results.

8.3.18 FTFMS PIRS report

Data analysis and reporting for Y4 Annual Performance Survey (FY 2021) was completed in November 2021 followed by data verification and data cleaning. Standard indicator results including appropriate disaggregates, respective deviation narratives, and out-years target (FY 2022-FY 2023) were entered into the FTF module on the newly introduced Development Information Solution (DIS) platform.

8.3.19 USAID Development Information Solution (DIS) report

Results for FY 2021 were uploaded into the DIS system of USAID. Disaggregated data for nine standard indicators and associated deviation narratives against FY 2021 results along with the out-year targets were reported into the system.

Measuring Change in the Market System: Qualitative Assessment

8.3.20 Assessment methodology and protocol development

A protocol has been developed containing the assessment objective, target groups, sampling frame, and data collection methods, timeframe and data collection checklist.

8.3.21 Data collection tools development

Three separate tools were developed to assess impact in the different tiers of each of the interventions- one to interview the implementing partners (tier-1), second to interview the market actors (tier-2) and third from the final service recipients (tier-3). In addition to the main tools, some brief tools were also developed to capture information from the intervened markets regarding the secondary adaptation and spill-over effect of the Activity.

8.3.22 Recruit facilitators/ moderators to support qualitative survey

This activity has been slightly modified. To support the qualitative survey the Activity hired a third-party consultancy firm through a competitive hiring process. The firm was basically hired to collect tier-2 (market actors) information and execute information transcription, analysis, synthesis and reporting for the study. The Activity is closely working with the MEL consultant and the third-party firm to design, update and execute the survey. To be noted that the information from IPs was collected and primary transcription was done by the staff members while the DEs collected information from the final service recipients.

8.3.23 Orient Aquaculture Activity team on data collection tools

The hired third-party consultant, Nexel Research Limited organized a two-day long training event on February 16-17, 2022 for the survey team of tier-2 data collection. The MEL team and MEL consultant guided them with revise/update the data collection tools, guidelines and also facilitated the training

sessions. Field trial and feedback sharing session was also a part of the training on the second day of the training.

In the previous quarter, the tier-3 data was collected by the DEs and before that DEs received a three-day long training on tier-3 data collection. For this particular survey, 12 DEs were selected based on their previous performance regarding qualitative information collection for the Activity. Field test, demo data collection was integrated with the training package as well. The MEL team also organized another day-long training session for the Activity staff to collect information from the IPs in the last quarter.

8.3.24 Capture qualitative information from IPs and relevant stakeholders

The Activity has rolled out qualitative information collection from its IPs, relevant market actors and final service recipients. Primarily, the IPs whose intervention have already been completed or to be completed by December 2021, were considered under this survey. Relevant market actors and final service recipients supported by the mentioned IPs interventions were sampled under the survey. The IPs and final service recipient's data were collected in the last quarter. In this quarter, the information from market actors (tier-2) was collected by engaging a third-party firm. The firm is closely working with the MEL consultant for data transcription, analysis, and synthesis and reporting. The partial report on IPs (tier-1) has already been shared by the consultant this quarter.

8.3.25 Data transcription, analysis, synthesis and reports preparation

The MEL team engaged selected data enumerators from its pool to transcript translated data particularly for tier-1 and tier-3. A data storing template was developed using MS Access to accumulate and preserve all data. After completion of data upload, the file was handed over to the MEL consultant for further analysis and report preparation. Besides, the market actors/tier-2 data were collected and transcription was done by the third-party firm. The firm is now working with MEL consultant to support data analysis and reporting.

8.3.25 Working towards a framework to assess systemic change: AAER

This MEL team will use AAER model to gather the systemic change data using the qualitative data collected from each intervention systemic change progress using the framework. The results from tier-1, tier-2 and tier-3 will be used to perform the systemic change measurement. The Activity has already received tier-1 results while tier-2 and tier-3 report is expected to be completed by early next quarter.

Geo-geographic Information System (GIS):

8.3.27 Aquaculture Activity beneficiaries GIS data collection and submission to USAID

The MEL team has worked to update the activity participants GIS data and collected beneficiary data from field survey. The GIS data collection tools were updated based on the type of beneficiary to collect programmatic data. A total of 2,261 beneficiary's data (21,435 beneficiary's data so far) has been collected during the reporting quarter (*Annex 9*). The beneficiary's data collected during the reporting quarter includes GIS information of IPs, dry fish processor, input dealer, micro-franchisee, carp nursery, fish seed agents, local service providers (LSP), sales points and fish farmers.

8.3.28 GIS-integration with the current Aquaculture Activity MEL MIS for aquaculture market actors mapping

Google map will be used to get a holistic picture of aquaculture market actors supported and covered by the Activity. Interactive maps showing the concentration of Bangladesh Aquaculture Activity beneficiaries in geographic area across the Feed the Future areas will be added to the MIS platform in the coming quarter.

8.3.29 Develop GIS based interactive maps of Hatchery to farmers linkage

As planned, the hatcheries to farmers' linkage data collection will be started in the next reporting quarter.

8.3.31 Aquaculture Activity attributed area coverage maps (At different administrative level)

A GIS map showing the Activity footprint (using Upazila administration boundary) is planned to be prepared. Thematic area will also be integrated to prepare and present the map.

8.3.32 Introduce an Android app for GIS data collection

In last quarter, an introductory level training on data collection using Android app has been provided to the WorldFish Aquaculture Activity staffs using SW Maps android app. Staffs were provided a virtual training and a training module on the training topic was also provided.

Capacity development

8.3.33 Training to the survey pool on data collection and quality assurance

The MEL team facilitated capacity strengthening training for all data enumerators (DE) during the reporting quarter (*Table 5*). The training courses included qualitative data collection, GIS data collection and IPs data verification. Contents regarding safety measures, precautions and directives was in-built in every session.

Table 5: Major MEL training for DEs in Q2, Y5

Sl.	Date	Title	Mode of training	Participants		
				Total	Male	Female
1	Jan 11, 2022	Training on qualitative assessment data collection for Activity staff and DEs	In-person	39	36	3
2	Feb 05, 2022	Training on City Bank loan recipients' data collection	Virtual	11	11	0
3	Feb 19, 2022	Training on GIS data collection (nursery and villages covered by Petrochem, KAAS and Mukti)	Virtual	13	13	0
4	Feb 28, 2022	Training on loan recipients' data verification of Shushilan	In-person	3	3	0
5	Mar 03, 2022	Training on GIS data collection (G3 Rui and IMEXpro)	Virtual	14	14	0

8.3.34 Capacitate IPs on MEL

As no new IPs onboarded in this quarter, the MEL team worked with existing IPs and extended support. The MEL team conducted desk check and field check of the IPs data and shared feedback with them to make necessary adjustment. The Activity MEL team also conducted field visits and observed farmers training sessions organized by different IPs (e.g., Petrochem, The Right Kind) and shared field observations with the IPs and the program team.

8.3.35 Hands-on training on tab based data collection for IPs

MEL team considers NGO IPs only for tab-based data collection based on their staffing, capacity and data requirement. This is a need-based activity and as in this quarter no new IP got onboard, so there was no requirement to organize Tab based training.

MEL Meeting/Workshop

8.3.37 MEL team meetings

The MEL team has continued weekly team meetings on a regular basis. In addition, the team persisted in its teamwork approach by executing need-based team meetings using official MS Teams as and when required.

8.3.38 Quarterly MEL workshop

The MEL team will sit together in a workshop to discuss on a) results measurement plan for FY 2022 (e.g., farmers tracking, farm productivity survey, IPs sales data), b) Activity MIS, c) Activity learning

capturing plan, d) planning for need-based survey/s (e.g., communications effectiveness, training effectiveness, impact of access to finance partnerships), d) planning for village level GIS survey, e) MEL strategy for ZOR considering new partnerships as needed and finalize MEL operational guideline, and update MEL plan.

8.3.39 Activity progress sharing workshop with Aquaculture Activity staffs

A session titled 'Activity progress up to March 2022' was facilitated by MEL team in the year 5 progress review workshop organized from March 29-30, 2022. The MEL team shared the progress made so far by standard and custom indicators.

8.3.40 Changes in Market System': Learning sharing workshop

The MEL team is working with the MEL consultant to accumulate systemic change information. After completion of the survey data analysis and reporting, the MEL team along with the MEL consultant will organize a workshop (virtual) in the next quarter to share the results using the systemic change model.

8.3.42 Workshop with the Activity staff to go through the TOC and revise/ update it

The MEL team along with MSD team facilitated group exercise on ToC matrix during this reporting quarter. To conduct the group exercise, staff members were divided into several groups considering thematic focus/intervention areas. The Activity has compiled outputs by all groups and is working on it to give a final shape of the updated ToC. Besides, the ToC will be further updated using the results of qualitative study.

8.4. Capacity Building

8.4.1 Arrange capacity building events for IPs and Aquaculture Activity staff

An online capacity-building event for IPs and Aquaculture Activity staff was organized on 13-14 March 2022. The focus of the training was to refresh the Aquaculture Activity's goal and objectives, market systems development approach, grants process, documentation and photography, branding, nutrition, environmental compliance, gender and youth inclusion, glimpse of MEL and field training arrangement. 68 participants including 61 men and 7 women from 27 implementing partners and Aquaculture Activity attended the event. Respective of Activity team members conducted the virtual sessions as per schedule.

8.4.2 Identify and develop suitable event materials, e.g. flipchart, posters, picture, models, leaflets, real objects based on target groups' needs

Throughout the reporting quarter, progress was made in developing and printing information, education and communication (IEC) materials. Based on the demand from the field, a booklet on modern aquaculture in ponds was printed in Bangla and distributed among targeted participants. In addition, Farmers' Guide Book on Commercial Fish Polyculture and Vegetable Gardening and a leaflet for *Patilwala* (fish fry/fingerling trader) were developed to get printed in the following quarter. A significant number of other IEC materials like festoons, banners, posters, leaflets, etc. got produced on different contents by implementing partners. These were reviewed and edited by respective experts before printing and distributing them among the small-holder fish farmers and other market actors.

8.4.3 Evaluation of impacts/performance of capacity building events organized by Aquaculture Activity partners

An evaluation checklist was developed for real-time field training/event monitoring (*Annex 10*). The checklist was finalized after the field test. The events data/information was collected through Kobo toolbox with the assistance of MEL team. Activity staff continued to use this training monitoring tool whenever they visit any event.

8.4.4 Develop/ regenerate capacity building guidebook, slides, etc. for the project participants

A compendium was prepared based on two-day virtual training for building capacity of Activity partners. All the presentations and other Information, Education, and Communication (IEC) materials were systematically arranged in the compendium. The resource document consisting of Introducing Feed the Future Bangladesh Aquaculture Activity, Environmental compliance, Role of 'Inclusive Business Model' for Aquaculture Market Development, Communication & Knowledge Management for Aquaculture Activity (Branding-Marking and Photography), Ensuring financial compliance, procurement and policies, Implementing partners (IPs) MEL issues, Nutrition-Sensitive Aquaculture – market systems and the Aquaculture Activity perspective, Mainstreaming gender inclusion and safeguard and Youth and Organizing Capacity Building Events. The resource persons are team members of Feed the Future Bangladesh Aquaculture Activity. Most of the participants are from IPs i.e. Project Coordinator, Monitoring people, Field Facilitator as well. The resource materials were distributed among the participants immediately after completion of the training.

8.5. Gender

Output- 18 Increased access to productive economic resources for women

8.5.1 Promote women's employment and self-employment through mola fish supply to the consumers from Women Business Center (WBC) outlet

This year the Activity has onboard 'Plenary Aqua' and they are working for ready to cook fish service. The activity has a plan to link Plenary Aqua with Women Business Center (WBC) outlet so that they can collect mola fish and deliver it to potential consumers. Therefore, this activity has been dropped.

8.5.2 Strengthen capacity of 100 women Entrepreneurs on Business Development Services (BDS) to adopt their business in COVID-19 situation

Activity partner, Enliven developed capacity of 100 women entrepreneurs on Business Development Services (BDS) through a 3-day BDS training and mentorship program. Enliven also supported these women entrepreneurs over telephonic calls.. A training handbook was designed and finalized after the BDS training and distributed among 100 women entrepreneurs.

This intervention increased business awareness among the women entrepreneurs and increase their capacity in regards to management of cost-benefit register, emergency savings, create market demand and customer database.

8.5.4 Study on identifying women role in aquaculture supply chain (Small scale and commercial farming) to determine current and future strategy

This activity has been re-scheduled to the next quarter (Q3).

8.5.5 Support ZoI and ZoR in marking International Women's Day to create enabling environment for women in the aquaculture sector

Highlighting the campaign theme, "Break the Bias", Aquaculture Activity observed the International Women's Day (IWD) 2022 in Khulna with the partner, Shushilan at their conference room on March 8, 2022. The Deputy Director of Khulna Division of the Department of Fisheries attended the event as the chief guest along with the special guests, a Professor from Khulna University, DCOP and Senior Program Manager of Aquaculture Activity, the Chief Executive of Shushilan. The objectives of the event were to share background and overview of International Women's Day 2022, and listening stories from the successful women aquaculture actors associated with different partner organizations, namely ENLIVEN, Shushilan, and United Purpose for the encouragement of empowering women through breaking the biases in aquaculture sector. Total 53 participants attended the event including 20 women group leaders, local journalists, elite persons, and WorldFish and Shushilan staff. Women group leaders promised to discuss the learning of the event at their upcoming meetings to make their members aware and encourage to remove their personal and social barriers working together to sustain their businesses in the aquaculture sector. Around 1000 copies of a leaflet on this year's IWD theme were distributed among different partners from Khulna, Jashore and Barishal to use in the discussion of their

court-yard sessions to encourage women to break gender stereotypes in aquaculture sector for women empowerment.

8.6. Youth

Output- 19 Increased access to productive economic resources for Youth

8.6.1 Ensure access to quality aquaculture inputs and expert Guideline Services

The main objective of the intervention is to provide quality aquaculture inputs and technical support through the service center called FishBooth. As a one-stop service point, FishBooths was established in September 2020 with the start-up grant money from the Aquaculture Activity to provide advisory services to the remote areas where these kinds of services do not exist. During the first year, they created linkage with the feed, seed, and aqua-medicinal products (AMP) market and provided technical services to the farmers. The subgrant agreement was signed between FishBooth and WorldFish during this reporting quarter on 29 March 2022.

8.6.3 Process and marketing of ready to cook (RTC) fish through youth entrepreneurs

The main objective of this intervention is to support the processing and supply business in the ready-to-cook (RTC) fish. This partnership will focus on the marketing to increase the sale of RTC products. This will also be a replicable intervention for the other youth entrepreneurs. The subgrant agreement was signed between Plenary Aqua and WorldFish during this reporting quarter on 29 March 2022.

8.6.4 Partnering with youth entrepreneurs to scaling up the dry fish powder business

This intervention will support a youth entrepreneur in expanding the business of dry fish powder which has a countrywide demand. Aquaculture Activity will help with the marketing and branding of the product, and strengthening of the supply process. The subgrant agreement was signed between Palongki Konna and WorldFish during this reporting quarter on 29 March 2022.

8.6.5 Youth engagement in the modern fish farming; bio-floc initiative

Aquaculture Activity will be supporting to expand an already established bio-floc business through improving the overall management in a year. The subgrant agreement was signed between Green Biofloc and WorldFish during this reporting quarter on March 29, 2022.

8.6.7 Business skill development training for the future generation of the hatchery and nursery owners

This will be a business skill development training for the children (age 15-29) of the Hatchery and Nursery owners. This training will help the potential future generation who are interested to work or carry on the hatchery or nursery business in the future.

8.6.9 Training/ workshop to all new partners on issues related to youth in aqua-business

The purpose of this task is to sensitize the matter of youth inclusion throughout the overall activities of Aquaculture Activity.

8.6.10 Observe International youth day

This day will be observed on 12 August 2022.

8.6.11 Grant agreement signing event with the youth partners

This activity will focus on creating linkage between the youth partners with the existing private partner. There will be three events in total, in three different locations focusing on the location of the youth partners. These events will be organized during the next reporting quarter.

8.7. Environment and climate change

Being the implementing partner, WorldFish is responsible and accountable to ensure that none of the interventions of the Activity leaves negative impacts on the environment or on human health.

8.7.1 Update the IEE (Asia 17-078), which will be expired in September 2022

The current IEE (Asia 17-078) will expire in September 2022, which made it essential to be updated. WorldFish is ready to work closely with the AOR to facilitate the process as and when required.

8.7.2 Update the EMMP to (re)align with the new IEE, and submit to USAID for the approval of AOR and MEO

Updating the EMMP for Aquaculture Activity will be done soon after the IEE updating is completed.

8.7.3 Conduct EDD and setting mitigation actions against the agreed interventions as specified in the SGAs

As yet in Y5Q2, Aquaculture Activity proceeds with 11 sub-grant applications to complete SGA therefore, 11 EDDs were done accordingly (cumulative 104 LOP).

8.7.4 Train project personnel on environmental compliance and CRM

A batch of training will be conducted in the 3rd Quarter for the new partner staffs.

8.7.5 Provide backstop support to HYV CARP and GIFT team to promote BMP and safe fish seed production

Have been cooperating DCOP and Tilapia Breeding Specialist as and when required.

8.7.6 Conduct a qualitative environmental assessment on IPRS/high density fish farming

The qualitative environmental assessment on IPRS has been completed.

8.7.7 Oversee the compliance of mitigation actions and CRM against the interventions as specified in the SGAs

Environment and climate change unit have been overseeing the process in collaboration with the Program POCs. More joint field visits will be done in the months to come.

8.7.8 Provide backstop support to sub-grantees to integrate environmental compliance and CRM in their training and communication materials

Backstop supports are being provided to partners through the Program POCs as and when required.

8.7.9 Collaborate with International Centre for Climate Change and Development (ICCCAD) to organize International Conference on Climate Knowledge and Service

Close relationship and networking with ICCCAD are being maintained.

8.7.10 Collaborate with Bangladesh Academy for Climate Services (BACS) to organize training courses on Climate Services

Close relationship and networking with ICCCAD are being maintained .

8.8. Knowledge Management and Communications

8.8.1 Communications, knowledge management and team building training and workshops

Capacity building and training on communications, knowledge management and team building

During this reporting quarter, two separate online sessions on communications and knowledge management were conducted for the Zone of Influence and Zone of Resilience. In presence of respective staffs of the regions, these online discussions enlightened all to ensure proper branding and marking of the donors, WorldFish Bangladesh and partners. Apart from the discussion on the key priority activities

for capturing, packaging and disseminating knowledge and learning, these sessions also updated regarding recent changes and guidelines on promotional materials, disclaimers and branding.

For the partners' capacity building and training, two sessions were conducted on communications and knowledge management. One was on overall communications activities of the partners and another one was on mobile photography. The first session covers discussion on communications strategy and tools, priority activities like installing partner wise signboards and common message signboards, etc. This training also emphasized discussion on avoiding common errors to ensure proper co-branding with Feed the Future, USAID, WorldFish and partners following the approved guidelines. The session on mobile photography was intended to capture different interventions and impact of the Aquaculture Activity by partners throughout different regions.

8.8.4 Document and publish and print stories (success & impact) on Aquaculture Activity interventions as journal

During this reporting period, a total of 58 success stories which were drafted so far on the Aquaculture Activity interventions and results, have been revised and edited for publishing as a journal (*Annex 11*). These stories have been organized by themes to share most significant changes Aquaculture Activity made in different market actors' level throughout the value chain. Moreover, around 14 stories have been newly documented and shared with USAID on a fortnightly basis from January to March 2022.

8.8.7 E-Quarterly Newsletter development and dissemination

Aquaculture activity produced and shared the first issue of the quarterly newsletter for October to December 2022. The newsletter focuses on the key achievements, major events, remarkable visits etc. of the reporting quarter. In addition to that, one best story and key progress of different interventions were highlighted in the newsletter. This newsletter portrays how the Aquaculture Activity improves the sustainable livelihoods of fish farmers and other aquaculture market actors by applying a market systems approach. The newsletter was widely shared with the target audiences and received huge attention and appreciations for the outstanding activities to enhance market system development in the aquaculture sector.

The newsletter for the reporting quarter has been drafted and published in the following month for wider circulation. Highlight of the major activities like Capacity building and training, DG-DoF inaugurates Fish Fair, Nutria-champs event, collaboration with Government, IWD celebration, Exposure Visit to IPRS and key achievements are the sneak peak of the second issue of the Aquaculture Activity Newsletter.

8.8.13 Organize media round table meeting, TV talkshows and journalist visits to Activity interventions sites for media coverage

During this reporting quarter significant number of media coverage on different interventions and events were made from local to national level. A few have been briefly described below and a comprehensive list of all media coverage of the quarter is available in the *Annex 12*.

IPRS intervention covered by Ekattor TV

Ekattor TV, a popular news channel in Bangladesh, broadcasted a special report on In-Pond Raceway System (IPRS) intervention taken by Feed the Future Bangladesh Aquaculture and Nutrition Activity in partnership with Afil Aqua Fish Limited in Jashore. This intervention is the first-ever introduction of such intensive aquaculture technology in southwestern Bangladesh. The report was also promoted through Ekattor TV's social media handles (Facebook, YouTube) and grabbed more than 600K views so far. Here is the YouTube link <https://youtu.be/IJyjjj7Mgi0>

Aquaculture Activity's pilot initiative to create learning opportunities for MBA students & Women covered by the Daily Star

Aquaculture Activity, partnering with ENLIVEN and ULAB, designed a pilot initiative to create a partnership between female MBA students and rural women entrepreneurs/ participants. Ten students went through a two-week-long 'training of trainers' to conduct a three-day-long training program for the rural women entrepreneurs and provide business development services in the long run. This initiative

also generates opportunities for female MBA students to understand the field reality, business models, and challenges. The details about this initiative were published by the Daily Star. Visit this link to read about the intervention in detail:

[Experiential learning in the ULAB MBA program helping women realise their leadership potential](#)

Moreover, the Fish Fair inaugurated by the Director General-Department of Fisheries, IWD celebration, introducing of the Right Haat, farmers' training etc. got covered by multiple newspapers and electronic media. See the *Annex 12* to read all the news of the quarter.

8.8.16 Design, produce and disseminate IEC materials, signboards and promotional materials for events, awareness building, website and social media platforms

Throughout January to March 2022, different information, education and communication materials like brochures, leaflets, posters, festoons, etc. have been produced and disseminated by WorldFish and partners. A list of publications of different IEC materials are available in the *Annex 13*.

Aquaculture Activity continued its effort to document and share the key progress and success with target audiences including USAID and Government of Bangladesh. Result of regular and timely sharing of events and news, the Activity received expected number of media reach through USAID Bangladesh Official social media platforms particularly by Facebook and twitter accounts.

In the reporting months, USAID Bangladesh Facebook and Twitter pages published posts featuring Feed the Future Bangladesh Aquaculture & Nutrition Activity. To see the list of social media coverage of the Aquaculture Activity by USAID check on the *Annex 14*. List of Social Media Coverage by USAID Bangladesh.

Last but not least, implementing partners of the Aquaculture Activity promoted their activities and results using their own strategy and platforms. Through their social media and multiple forms of disseminations they maximize the overall reach of the Aquaculture Activity which also boosted the impact of different interventions across the working areas.

8.8.17 Celebration of National Fish Week including other relevant national days to raise awareness and promote aquaculture and nutrition practices

During this reporting period, International Women's Day was celebrated to raise awareness on gender equality and equity among participants and targeted stakeholders. To make the event successful and create needful impacts, 09 stand banners were developed and printed with action photos and key messages on women engagement and empowerment in the aquaculture market system value chain. In collaboration with the cross-cutting team, the event was organized in Khulna where market actors including women entrepreneurs and small holder fish farmers joined and shared their inspirational journey of overcoming challenges and marking significant contribution in the sector. Later, the event was covered by some local media as well as documented and shared by WorldFish.

USAID funded Feed the Future Bangladesh Aquaculture Activity, partnering with MarGEn Ltd., has organized a fish fair to promote safe and healthy Ready to Eat (RTE) and Ready to Cook (RTC) fish products and serve the processed fish demands in the country. Kh. Mahbubul Haque, Director General, Department of Fisheries, Bangladesh has inaugurated the three-day long Halda Fish Fair at Agora Japan Garden City Outlet today evening. Starting from 03 March the Fish Fair which continued till 05 March at all 15 outlets of Agora Shopping Mall in Dhaka.

The other prominent events implemented in this quarter are Nutri-Champs events in university and college in three districts; cooking demonstration and nutrition messages dissemination event at Patuakhali; awareness campaigns among tourists on safe and healthy RTE and RTC dry fish products, etc. Throughout these events different IEC and promotional materials were distributed and showcased which increased the promotion of the Aquaculture Activity and raised awareness significantly.

9. ANNEX

Annex 1: Measuring change in the market system: Qualitative assessment Report-Tier 1 (attached)

Annex 2: List of Aquaculture Activity IPs (attached)

Annex 3: Aquaculture Activity digital initiatives (attached)

Annex 4: Interface of developed apps (attached)

Annex 5: Report on validation and dissemination workshop by BSFF (attached)

Annex 6: Year 5 progress review workshop report (attached)

Annex 7: Project closeout- required reports and actions (attached)

Annex 8: Financial compliance and good practices (attached)

Annex 9: Aquaculture activity participants GIS information (attached)

Annex 10: Training, event monitoring checklist (attached)

Annex 11: Success stories (attached)

Annex 12: Media coverage (attached)

Annex 13: List of IEC materials developed by aquaculture activity (attached)

Annex 14: List of social media coverage

Annex 15: Activity Fortnightly update, January-March-2022 (attached)

Annex 16: Photo (attached)

Annex 17: Bangladesh aquaculture activity indicators (attached)



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