



FEED THE FUTURE

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



Feed the Future Bangladesh Aquaculture and Nutrition Activity

Quarterly Progress Report: April – June 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.

The key outputs during the reporting quarter delivered in partnership with 27 number of private sector partners and collaborative public sector include;

- Nearly 75% of the private sector partners' revenue from their ongoing business has been increased as a result of the intervention piloted with of the Feed the Future Aquaculture and Nutrition Activity
- Aquaculture farmers and processors received around USD 0.29 million as loan from the Banks and NGOs who has promoted agency and micro retailer agent banking through tailoring small and delayed repayment schedules to match the seasonality of farmer/processor income
- The Activity has supported the development of recipes for Ready-to-Eat (RTE) and Ready-to-Cook (RTC) cultured fish products and their market promotion. A total of 20 metric tons of white fish in form of RTC and RTE items was processed and sold worth USD 83,333.
- The Activity partner has had significant success in promoting the production and marketing of natural pituitary gland (PG)¹, collected 2.50 kg PG from new fish cutters and PG collectors, sold 2.38 kg dry PG to 26 hatcheries and generated USD 182,000 revenue.

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 the continued challenges related to ongoing war in Ukraine which include 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. The Aquaculture Activity is continuing 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 3 of Year 5

Key activities performed	Remarks
Established and continued partnership with 27 partners and 04 individual youths	A total of USD 1,407,156 has been invested, with Aquaculture Activity contributing 39% of the total in the form of cost-sharing grants
Successfully completed 10 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 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

¹ The hormone secreted by pituitary gland stimulates growth, development, maturity and ovulation of fish eggs.

Key activities performed	Remarks
	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 6.08 million (USD 71,471) loans to 109 dry fish actors during the reporting period. The micro-financing initiative helped dry fish actors who sold metric tons safe dry fish with a value of BDT 78.162 million (USD 854,055). Bank Asia disbursed BDT 8.08 million (USD 95,059) in loans to 147 fish farmers (9 women) during this reporting quarter. Shushilan under its microcredit program disbursed BDT 10.3 million (USD 120,953) to 300 fish farmers including 295 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 work plan	The year five progress review meetings took place in this quarter. It aimed to review progress, capture learning, generate evidence of systemic changes, and set future plans for the Aquaculture Activity. The work plan and budget were revised in consultation with the Activity team and submitted to USAID on June 20, 2022.
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 better management practices (BMP) by the partners. This will form the core of programmatic output in the remaining program period.

Partnerships:

Aquaculture Activity developed partnerships with 10 organizations of which 8 partners' contracts were extended with costs and 2 new partners were on boarded during the reporting period with a total value of USD 436,506 where Aquaculture Activity contributed USD 225,944 (52%) while partners contribution was USD 210,562 (48%) (*Annex 1*). The extended contracts with costs include Afil Aqua Fish Ltd., GRAUS, Aftab Feed Products Limited, Petrochem BD Ltd., Bank Asia Limited, Ms. Shah Amanath Traders, Cox's Bazar Shop and Mukti Cox's Bazar. New contracts with Protyashi and Khulna Mukti Seba Sangstha were signed for ZoR and ZoI respectively. The new contracts were mostly in the areas of either youth economic empowerment or supporting aquaculture in the very thin markets in the ZoR.

Completed partnerships:

10 partnership contracts were successfully ended in the 3rd quarter of year 5;

- Kiu Bangladesh Limited
- Imexpro (BD) Corporation
- MarGEn Ltd.
- Zahanara Green Agro
- Sardar Agro
- Bhol Monosex Telaphia Hechary
- M-world
- Matrix Business Development Ltd
- KAAS Trade

- MarGEn Ltd.

Ongoing Interventions:

- **Prottyashi:** Prottyashi is establishing linkages among aquaculture market actors and improving access of fish farmers through Local Service Providers (LSPs) to finance from formal financial institutions.
- **Ms. Shah Amanath Traders:** Ms. Shah Amanath Traders is developing new product lines such as Ready to eat (RTE) and Ready to cook (RTC), quality and safe dried fish production and marketing the products
- **CoxsBazarShop.com:** CoxsBazarShop.com is improving quality and developing new product lines of RTE (Ready to Eat) and RTC (Ready to Cook) dry fish products and marketing all over Bangladesh through online platform outsourcing from smallholder dry fish processors.
- **Khulna Mukti Seba Sangstha-** KMSS will establish 50 local Aquaculture Business Centers (ABCs) as One-Stop Service Center for aquaculture. To provide necessary information on aquaculture technology, products and services, especially on the sources of finance.
- **Mukti Cox's Bazar:** Mukti Cox's Bazar is improving access to finance and build capacity on financial literacy, business and technical aspects to grow, maintain and sustain fish farmers and processors' business.
- **Sea Natural Food Limited:** Sea Natural Food Limited is 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:** KNB is improving access to quality extension services, fish feed, and seed for smallholder farmers.
- **Petrochem Bangladesh Limited (PCL):** PCL creating a market-driven, women-inclusive distribution model to create access for rural farmers with aqua products.
- **Afil Aqua:** Afil Aqua has introduced In-Pond Raceway System (IPRS) technology, as a first mover in southern Bangladesh.
- **FishTech Hatchery Ltd.:** FishTech Hatchery Ltd. has established two natural PG (Pituitary Gland) processing plants to collect, process, and market quality PG locally.
- **Aftab Feed:** Aftab Feed is promoting LSP-driven feed business, and a call center service built around an app-based advisory services for smallholder farmers.
- **Shushilan:** Shushilan is improving 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:** GRAUS is developing fish market actors and strengthening market linkages engaging 250 new and 330 graduated farmers in Bandarban sadar, Rowangchari & Nikhongchari upazila
- **Maa Mothsha Hatchery and Nursery:** MMHN is 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:** Satata Poultry is 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 deliver high-quality feeds and seed to farmers.
- **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 the 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.
- **Palongki Konna:** Palongki 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.

Monitoring, Evaluation, and Learning (MEL):

Completed the study on ‘measuring changes in the market system’ and three separate reports has been produced for IPs, market actors and final service recipients (*Annex 2*). The MEL team is working with the MEL consultant to accumulate systemic change information using the study findings. In June, 2022, the MEL team started annual performance survey at farm level engaging DEs followed by a three day long training. DEs were also engaged in GIS data collection and as a progress 6,324 beneficiary’s data has been collected. Produced three maps on different thematic areas of the Activity such as access to feed, access to aqua medicinal products (AMP) and access to finance. The web-based management information system (MIS) was upgraded from time to time to collect and gather the Activity information. Implementing partner’s (IP’s) MEL deliverables were regularly checked and tracked using the KPI matrix. Introduced and maintained an MIS based solution to keep IPs’ monthly progress reports and track the progress as well.

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 2,741,819 as investment, of which USG committed amount is USD 1,090,355 and private sector's investment is USD 1,651,464. Bank Asia, Mukti Cox's Bazar, Shushilon and KiU disbursed USD 1,136,777 as customized loans packages to 2,146 stakeholders in year five till this 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 Q3	% 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	1,651,464	72%	144,089
	USG commitment amount	US Dollars	1,921,184	1,090,355	57%	288,178
	Sub-total	US Dollars	4,213,739	2,741,819	65%	432,266
EG.3-2-Number of individuals participating in USG food security programs [IM-level]		Number	354,748	127,084	36%	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	2,146	106%	505
	Size of recipient	US Dollars	816,597	1,136,777	139%	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	1,715	106%	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	451	447%	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 in 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

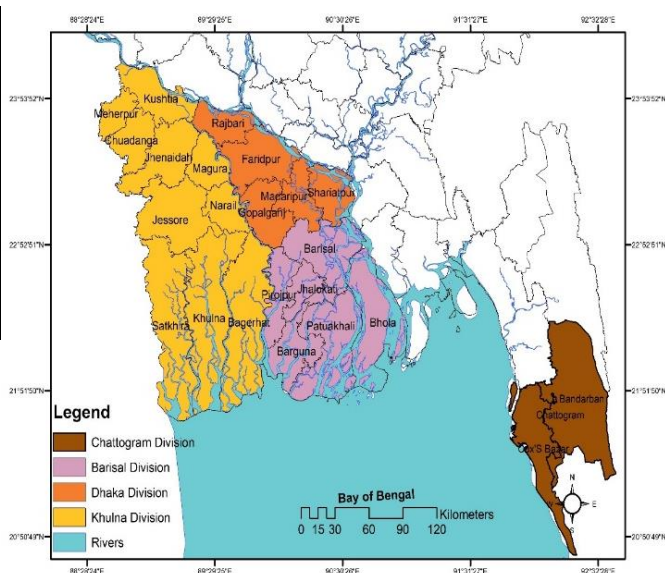


Figure 2: Aquaculture Activity working area

7. Quarter 3 of Year 5 (April-June 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 hatchery operators 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 provided 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 the marketability of quality fish seed 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.

1.1.4 Sustainable production and marketing of mola (*Amblypharyngodon mola*) seed through establishing mola brood bank

In this quarter, BMTH organized two knowledge sharing workshops on “Raising Awareness about Quality Brood among Multiplier Hatcheries” in Bhola and Jashore for dissemination of Mola brood. Participants from 23 hatcheries were present in these workshops. After these workshops, BMTH organized 2 days long “Capacity Development Training for Multiplier Hatcheries on Induce Breeding Techniques of Mola” in their hatchery premises where each and every technical aspect of induce breeding had been done practically with direct assistance from external experts besides theoretical knowledge. A total of 18 participants from 8 hatcheries were trained through this partnership. BMTH produced 0.8 million Mola fries and sold 50,000 fries to 24 farmers in the reporting quarter. They organized a “Project Closing cum Annual Meeting” in Bhola to share experience, challenges and opportunities where 20 different aquaculture actors including hatchery owners, nursery owners, representatives from AMP company, etc. attended.

1.1.5 Improve access to Mola seeds through induced breeding at 4 to 5 hatcheries in ZOI

The Aquaculture Activity team has selected 6 hatcheries to start induced breeding of Mola. The team is in the process of developing the capacity of the hatchery owners and their technicians at Khulna and Barishal divisions. The Activity already developed technical capacity of 3 hatchery owners and 6 technicians on mola induced breeding at Jashore Attending the event. the participants were able to improve their knowledge and skills on induced breeding of mola, implementation of better management practices for safe spawn/fry production, of mola as profitable business.

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. 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 the Aquaculture Activity, conducted six refresher communication meetings with 80 fish cutters including 75 men and 5 women and 11 communication meetings with 57 fish cutters. They have also conducted two training courses with 49 participants

including 44 fish cutters and 5 PG collectors of different fish markets in Narail and Magura district. The fish cutters learned about how to extract PG from fish head from the training they attended. FishTech Hatchery Ltd. has started research on comparative analysis of breeding performance of fish breed with locally collected PG and imported Indian PG. One research paper on efficacy of dry and wet carp PG was published in the Asian Journal of Medical and Biological Research during the reporting quarter.

<https://doi.org/10.3329/ajmbr.v8i2.60010>

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) collected 252 (720 kg) quality carp brood fish from different reliable sources and raised with intensive care for seed production with the support from the Aquaculture Activity. They developed the drainage systems of their brood and nursery ponds as well as developed 2 units of waste water treatment system. MMHN renovated the spawn and fry conditioning tanks, packing and loading area of the hatchery. They developed exit-entry gates, foot bath and washing facilities. As a result, MMHN was able to produce 28 kg rui, catla, common carp spawn and sell 23 kg spawn worth BDT 95,250 equivalent to USD 1,054. They also sold 12 kg fries of carp species worth BDT 18,000 equivalent to USD 199 and 532 kg fingerlings worth BDT 586,400 equivalent to USD 6,487.

MMHN printed 2,000 poly bags for spawn selling with oxygen. MMHN delivered 16 batches of day-long capacity building training to 320 fish farmers of Lama, Alikadam, Pekua and Chakaria upazila. Besides, they completed 6 promotional activities on the services of MMHN through loudspeakers in an auto-van.

Output- 2 Promoted High Yielding Varieties of Carp

1.1.12 Monitor the dissemination of HYV carp brood stock

The Activity is extending support to Carp Genetic Improvement Program (CGIP) through facilitating the process of carrying out an on-farm trial to assess performance of Generation 3 (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 3*. These hatcheries will be linked with other hatcheries/nurseries for wider dissemination of quality G3 rohu seed.

Table 3: Status of G3 rohu spawn production in different hatcheries in ZoI

Name of Hatchery	Spawn Production (kg)	Nurserer received spawn (number)	Probable breeding time
Mukteshwari Fish Hatchery	17	9	n/a
Ma-Fatima Fish Hatchery		n/a	End of July'22
Rupali Fish hatchery	3.5	3	n/a
Matri Fish Hatchery	52	20	n/a
Modhumoti Fish Hatchery	0	n/a	End of July'22
National Fish Hatchery	0	n/a	End of July'22
Bhola hatchery (BMTH)	0	n/a	End of July 22

1.1.15 Conduct field trial to assess growth performance of G3 rohu

As part of the dissemination of G3 rohu among the hatcheries, nurseries and fish farmers, the Activity supported a field trial involving 10 demonstration farmers to compare the growth of G3 rohu. The trial ended in this quarter with a very encouraging finding, which revealed that G3 rohu grew 38% and 54% faster in comparison to the rohu of riverine and hatchery sources, respectively. Besides, 4 hatcheries in Jashore produced 27.7 kg G3 rohu spawn and sold to 70 nurseries and farmers.

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 started preparing eight cohort ponds following the GIFT rotation breeding plan to mitigate hatchery stock deterioration through genetic management of broodstock, and produce genetically improved tilapia broodstock for production of high quality tilapia seeds. 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 production of mixed sex fry as brood stock for multiplier hatcheries and sold 60K mixed sex fry from its breeding nucleus in this reporting period.

The commercial hatchery unit of BRAC already sold around 54 million monosex tilapia fries to 900 fish farmers and around 29 million fries are being raised under methyl testosterone hormone (MTH) treatment in the nursing hapas.

1.1.17 Foster linkages between GIFT nucleus and cohort

The Activity shared a database of tilapia hatchery with the partners, BRAC and Bhola Monosex Tilapia Hatchery. The database includes the names of 200 active hatcheries, locations and contact details. Using this database both the partners have already sold 85,000 mixed sex fries as to the 4 multipliers hatcheries to grow broodstock, and both partners used 57,000 fries for their own hatchery production.

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 organized a Training of Trainers (ToT) course on ‘Tilapia Hatchery and Nursery Management’ for hatchery owners/technicians in Sathkhira under Khulna Division with the participation of 16 hatchery owners and 25 commercial farmers. The project also conducted a stakeholder workshop in Satkhira involving DoF, BFRI, Universities, WorldFish, NGOs, hatcheries, traders and others involved in seed and grow-out production of tilapia in Khulna Division. Aquaculture Activity supported the selected tilapia hatchery owners and technicians to participate in the ToT and the workshop.

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

Quality GIFT fries will be disseminated to the tilapia hatcheries located in ZOR from the Activity partner namely Bhola Mono Sex Tilapia Hatchery. This activity will be started in the next quarter.

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

GRAUS has established hapa based Sex Reversal Tilapia (SRT) community nurseries in this quarter through the 3 fish nursery operators in Bandarban region to ensure supply of quality tilapia mono sex fries among fish farmers. It is noteworthy that tilapia is fast-growing fish species which can grow even in adverse condition 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

In this reporting period, under the initiative of establishing OSSC Aftab, Petrochem and KMSS were on-boarded. Two brand names were selected for the OSSCs, one is “Maach Bondhu Seba Kendro”, which will offer a full range of services (7 services) and the other one is "Maach Bondhu Uddokta", which will offer selected (at least 2 services). Based on the branding, 2 types of branding protocols and respective signboards were finalized. OSSC strategy and OSSC selection criteria were developed in this quarter which would be finalized by July’2022.

1.2.2 Establish a joint business model to increase 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 a marginal farmers' access to quality private extension services and feeds and inputs. KNB has conducted a total of 1,400 business promotion events with 35,721 fish farmers in the rural areas of Jashore, Khulna, Jhenaidah, Chuadanga , Meherpur and Kustia including. During this quarter, KNB conducted 705 business promotion events and reached to 17,932 fish farmers including 10,763 women. Fish farmers learnt about pond management, seed stock management, supplementary feed formulation, fish disease management, dyke cropping, nutrition, and gender-sensitive aquaculture after participating these events. They are now gradually adopting Better Management Practices (BMP) to increase their productivity as well as profitability.

Output- 5 Introduced and promoted app-based 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

During the reporting period, Aftab conducted 60 batches of courtyard meetings with participation of 1,275 farmers including 104 women farmers. They also organized 28 batches of hat (market) activation events for 835 fish traders, retailers, transporters, fish farmers, laborers (engaged in packaging, ice breaking, and loading-unloading) and cleaners. Additionally, Aftab conducted 4 new capacity building workshops, where a total of 102 participants attended these events. Dealers, sub- dealers, different level market actors, and DoF officials also joined in these events. In this quarter, Aftab sold almost 5,000 MT feed worth USD 3.35 million through 50 Aftab digital service centers and approximately 2,500 MT feed worth USD 1.68 million through 98 LSPs in Jashore, Khulna and Barishal region. Aftab also sold 660,000 fish fries through the LSPs.

1.2.7 Introduce digital applications to strengthen linkages among market actors

Fish farmers in Bangladesh lack access to information on improved aquaculture practices, market to buy quality inputs and sell their produce at a reasonable price. These constraints limit aquaculture productivity and profitability, which discourages potential farmers, especially the youth to involve in aquaculture business. Several attempts were made in recent past, to improve access to information on improved aquaculture practices through digital Apps, which unfortunately, failed to bring the expected success. The main reason behind this is that the Apps were 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 supportive from the point of farmers' priorities. To address the problem, with the support of Aquaculture Activity, ARITS Limited, a consulting firm completed their 1st millstone which included the detailed implementation plan and a draft prototype of mobile based App in this quarter.

1.2.8 Develop sampling protocol for fish feed sample collection and analysis

The feed companies are often reluctant to maintain nutrient composition of feed to maximize profit during price hike of feed ingredients. This is an unethical practice which destroys the potential market. The nutrient composition assessment will provide a scenario of feed market and help to design intervention on feed quality and policy.

Therefore, the Activity developed a protocol to collect fish feed samples systematically to develop further understanding of the overall status of quality of feed, feed ingredients and market (*Annex 3*).

The well-designed sampling protocol facilitates interpretation of testing result to an acceptable level. This sampling program includes 13 feed companies for both floating and sinking feed. These feed companies own 60% of the market share. The sample distribution is randomized within areas, feed companies, feed types, and grades. It is planned to collect a total of 80 feed samples from ZOI and ZOR during the next quarter. The proximate analysis (moisture, ash, crude lipid, crude fat, crude protein, carbohydrate) of these samples will be analyzed using standard method in government certified lab.

1.2.9 Facilitate feed sampling and analysis program and generate report from feed sample analysis

The Activity will start collecting samples from 22nd July and will continue upto 30th August. The analysis and report of these samples will be completed within 20th September, 2022.

1.2.10 Developing Business guideline for Community Feed Center (CFC)

The Activity took the initiative to develop Community Feed Center (CFC) to make affordable feed available in remote areas and help small farmers to adopt better feeding practices. However, the CFC owners are facing problems as they lack knowledge of running their business sustainably. A business plan to help guide their business is being drafted which will provide them with clear directions to operate their businesses and generate income and profit.

1.2.11 CFC for IPs

The IP has been selected and discussion will start soon for cost sharing and procurement. Considering the importance, Aquaculture Activity is increasing interventions in Bandarban. Input supply for the expected production of aquaculture is very limited in the area and feed is the most important one. Therefore, for the development of aquaculture, Activity planned to demonstrate CFCs with partnership of potential entrepreneurs. This intervention is expected to help make feed available in the market, develop feed intensive commercial farming and promote market for feed and other input companies.

1.2.12 Awareness raising on quality Tilapia seed and better feed management practices

The Activity has taken initiative in collaboration with SPAITS (Scaling Systems and Partnerships for Accelerating the Adoption of Improved Tilapia Strains Bb Small-scale Fish Farmers) project and BSERT (Bureau of Socioeconomic Research and Training, Bangladesh Agricultural University) partner to raise awareness on quality tilapia seed and better feeding regimes.

A capacity building training course on better management practices was already conducted for 31 farmers and 4 seed traders in Satkhira. A stakeholder workshop was also facilitated in Satkhira where a total of 37 participants including farmers, traders, hatchery owners, feed supplier, and officials of the Department Fisheries and Khulna University attended.

1.2.13 Link feed company with disease diagnostic laboratory to reduce fish disease incidence

In the aquaculture sector, the feed companies have a well-structured supply chain and through this network they reach large numbers of farmers. The dealers of the feed companies are used to provide technical service to the farmers with the assistance of feed companies. This Activity is facilitating the process of lining the companies and dealers with mobile lab service. It is expected that as a result of this initiative farmers and others concerned will be able to increase fish production and income, and also sustainable lab business.

1.2.14 Support IPs Capacity building of CFC (Community Feed Center) and feed agents

The IPs are not familiar with the CFCs. As part of this intervention, the IP, Matrix developed 5 different festoons, 5000 leaflets to conduct 8 courtyard technical training on CFCs, for 100 farmers. The activity will be scaled up in Bandarban area in the next quarter.

1.2.15 Support to formulate feed and develop extension materials: poster, festoon and leaflet for IPs

In general, a respective feed is being formulated balancing nutrition considering fish species and age. The cost of ingredients depends on availability and supply in the market. Therefore, this activity makes feed formulation for CFCs considering these factors and facilitates training on that.

1.2.16 Develop questionnaires for assessing feeding practices adoption

The overfeeding is a common practice among farmers in Bangladesh. The farmers could adopt proper feeding practices and reduce feeding costs up to 30-40%, and also lessen diseases incidence and improve water quality.

A questionnaire was developed to assess the current feeding practices as well as to know the impact of feed interventions of the Activity.

1.2.17 Provide technical support on better feed management practices and facilitate capacity building of LSP and farmer of Partners

The IPs, Aftab and KNB are providing training to farmers in their respective regions. The support of the technical staff of the Activity in the field assisted IPs to conduct training and share useful information on better feed management practices.

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 harvested 88 MT of carp and walking cat fish worth BDT 24.2 million equivalent to 275,500 USD from its IPRS in this reporting period. Afil Aqua Fish, as part of collaboration with Jashore University of Science and Technology (JUST) and Khulna Agriculture University (KAU) organized exposure visits with the participation of 158 students of fisheries discipline. The students of Khulna University (KU), JUST and KAU, conducted six research experiments for Afil Aqua Fish on the topics: potential species to be stocked in different agro-ecological context, sludge management, microbial community structure, diversity and assembly across the purification area and physico-chemical parameter of soil and water of IPRS. On May 28, 2022, five students of Fisheries and Marine Bioscience of JUST presented a paper prepared on their research, "Growth performance of four different fish species (*Channa striata*, *Labeo rohita*, *Ctenopharyngodon idella* and *Clarias batrachus*) at Bangladesh Fisheries Research Forum, Dhaka.

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

The intervention was extended from June 2022 to September 30, 2022 to conduct research on environmental impact and wider scale promotion of IPRS. The Fisheries and Marine Resources Technology (FMRT) discipline of Khulna University collaborates with Afil Aqua Fish Ltd. to conduct research on the environmental impact of IPRS.

1.3.3 Promotion and adaptation of Bottom-clean (IPRS) in the south-western part of Bangladesh

Sardar Agro continued bottom sludge removal farming technology in its 50 decimal ponds. Regular removal of bottom sludge was done through pumping, which helped to maintain water quality suitable to grow fish in the pond at a higher density, and grow napier grass in the nearby area of the pond with the use of the sludge. In the reporting period, Sardar Agro harvested 5.6 MT pabda fish (high value fish), and exported to India at the sale price BDT 1,366,400 equivalent to USD 15,115. The Activity funding support for the intervention ended in May 2022.

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

During the reporting period, KAAS Trade organized 59 farmers training at AMP School points where 1,201 farmers including 28 women farmers gained knowledge of advance aquaculture technology and appropriate usage of aquaculture medicinal products. They also organize 159 farmers' events in the field to provide advisory services on best aquaculture management to the farmers, where 3,838 farmers including 1,394 women farmers attended in those events. During this period, KAAS also organized 03 Nursery training to provide advisory services on best nursery management and good aquaculture business practices, where 71 nursery owners attended.

KAAS Trade established 30 AMP Schools in the form of One Stop Service Centers (OSSC) to create improved access to quality inputs, water and soil quality parameter testing facilities and advisory

services for the fish farmers. From these service centers, farmers started receiving quality products and advisory services which have an increased impact on companies' sales and proliferation of customer outreach.

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

Farmers in remote areas struggle to access quality inputs 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). During this reporting period, the Activity extended the contract of PetrochemBD to establish an additional 30 One-Stop Service Centers (OSSC). Through this business model, PCL has a plan to reach 10,200 farmers with particular attention to women and youth in the aquaculture sector.

PetrochemBD organized 78 “Technical Knowledge Sharing Events” at farmers’ courtyards to disseminate improved aquaculture technologies and appropriate usage of aquaculture products. In these events, 1,870 farmers including 1,201 women attended. PCL primarily selected 30 potential dealers and WMF points for establishing one-stop service centers, where they will ensure major services through meeting and training, t printing documents, water and soil testing facilities, aquaculture machinery and equipment ,access to information about finance, market to sell products and buy inputs.

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

During the reporting period, GRAUS, one of the partners organized 2 Farmers Field Days (FFDs) at Rowangchari and Bandarban sadar upazila where more than 200 individuals including 102 women consisting of the direct beneficiaries and their neighbors, local elites and other community people participated. The FFDs helped disseminate aquaculture technology from peer to peer. With an objective to disseminate nutrition messages among mass community, GRAUS celebrated National Nutrition week 2022 with the District Health and Family welfare Department, community people, and other nutrition projects of Bandarban sadar, Rowangchari and Naikhongchari. A total of 130 participants including 110 women participated in the event. In consultation with local department of agriculture, GRAUS provided 3 varieties of summer vegetable seeds to 250 aquaculture farmers to cultivate in the pond dike as part of the initiative to increase availability of diversified nutritious food round the year.

GRAUS also completed 8 community meetings at Bandarban sadar, Rowangchari & Naikhongchari upazila for identifying potential aquaculture farmers with the participation of total 210 individuals including 44 women participants. Then, GRAUS conducted training on integrated nutrition-sensitive aquaculture, business planning and gender for 100 new aquaculture participants (including 40 women), and refresher training for 250 graduated farmers and 15 graduated nursery operators, which helped reduce the existing fish grow-out and nursery knowledge gap in Bandarban region. Besides, GRAUS selected 3 Sex Reversal Tilapia (SRT) nursery operators to produce monosex tilapia seed and provided hands on training on SRT nursery management. After the training all SRT nurseries already set up facilities in their ponds to produce pure SRT seed to meet up the demand of the farmers in the hill districts at reasonable prices.

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

Satata Poultry, one of the partners of the Activity, created farmers' access to quality inputs, especially fish feed, provided technical services , measured pond water and soil quality, and delivery of feed to farmers doorsteps.They sold 2 MT quality fish feed, 800 kg lime, and different kinds of aqua-medicines to 40 fish farmers from its service center in the reporting period. In addition, Satata Poultry handed over 2 seine nets and 1 cast net to a local fish harvesting group and the group provided fish harvesting support to 17 fish farmers. Satata Poultry delivered training on improved aquaculture technology and business development to103 aquaculture farmers including 76 women and completed 2 market linkage events with the participation of 48 different aquaculture market actors to create farmers’ access to quality inputs, services and forward markets. More than 100 farmers (including 15 women farmers) received pond water quality testing services from Satata Poultry. A total of 30 aquaculture farmers learned about

improved aquaculture technologies through joining in the 3 exposure visits organized by Satata Poultry. Satata Poultry also established 10 demo ponds in Lama and Alikadam upazila to educate farmers regarding improved feed management in aquaculture.

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

The Activity made partnership with Prottiyashi from April 1, 2022 to strengthen nutrition-sensitive aquaculture developing market actors. Major activities accomplished by Prottiyashi during this reporting period were onboarding 4 staff (Business development Coordinator, Finance and Admin Officer and 2 Field Officers), selection of 20 LSPs (Local Service Providers), staff orientation on the intervention, and ToT (training of trainers) for the Field staff and the LSPs on improved aquaculture and business development. Relevant leaflets, festoons, and training modules on improved aquaculture, nutrition, gender and vegetable cultivation were prepared. A total of 596 farmers from Ukhiya and Ramu upazilas under Cox's Bazar district were selected to build their capacity on nutrition-sensitive aquaculture technologies. Besides, Prottiyashi celebrated National Nutrition week 2022 with the community people at Pannashiya village of Ukhiya upazila with a view to disseminate nutrition messages among mass community where 26 person including 13 women joined. .

1.3.15 Aquaculture market channel development in Alikadam

Due to poor market channel in Bandarban , the aquaculture production potential is underutilized. To improve the situation, Aquaculture Activity made partnership with Tahzingdong to in Alikadam Upazila of Bandarban District. During this reporting period, Tahzingdong completed staff orientation, built conducted 4 community meetings to identify potential beneficiaries, built capacity of 187 farmers and 8 nursery operators including 120 women on improved aquaculture practices and human nutrition . Tahzingdong also completed market linkage event where a 19 fish farmers, feed sellers, nursery owners, hatchery owners, aqua-medicine sellers, fish seller, fish harvesting group, and Upazila Fishery Officer participated This event help strengthen linkages among the fish farmers, nursery owners and other aquaculture market actors.

1.3.16 Promoting Nutrition Sensitive Aquaculture in Thanchi

With the aim to promote nutrition sensitive aquaculture in Thanchi, the Aquaculture Activity in partnership with BNKS and addressing existing challenges including lack of access to extension service on improved aquaculture practices, access to quality fish seed, feed, other inputs, high price of inputs and access to markets in the remote hilly area. BNKS already completed staff orientation, community awareness meetings, delivered training on nutrition sensitive aquaculture and nursery operation involving more than 200 participants of which more than 70% were women. Besides, BNKS conducted the market linkage events with the participation of 26 different aquaculture market actors, namely fish farmers, nursery and hatchery owners, feed, aqua-medicine and other inputs sellers, fish traders, and members of fish harvesting group of Thanchi Upazila.

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

FishTech Hatchery has faced challenges due to the informal market actors who are working as PG collectors. KNB Agro Industries have faced difficulties in achieving the targeted number of farmers. Afil Aqua Fish Ltd. had a hard time collecting information in the market regarding machinery, species and the environment. KAAS Trade found that training frequency and time were not adequate for developing service providers' (mainly dealers and LSPs) capacity, affecting the activity implementation, event organizing capacity and event quality. Petrochem Bangladesh Limited has faced challenges around women participation in technical events and lack technical staff at regional level to conduct farmers meeting.

Major activity plans for the next quarter:

- **GRAUS** will continue a) producing SRT (Sex Reversed Tilapia) seed, b) providing training on integrated nutrition sensitive aquaculture, business planning and development to new 100 fish farmers, c) organizing market linkage development events with aquaculture market actors, d) celebrate Farmers Field Day (FFD), e) providing extension input support (fingerlings, fish feeds, vegetable seed, orange fleshed sweet potato vine) for fish farmers and f) providing feed crashing

machine to community feed producers.

- **Satata Poultry** will a) ensure a full range of aquaculture inputs support at the service center, b) provide vehicle support to the fish farmers for carrying fish feed, c) extend advisory services and support for testing water quality parameters to farmers, d) harvesting facilities (seine net and cast net rent facilities) from the service center at low-cost, e) arrange market linkage events among aquaculture market actors, f) observe farmers field day and g) participate in the National Fisheries week events.
- **Maa Mathsha Hatchery & Nursery** will a) commence carp hatchery in operation b) rearing of brood stock c) provide day long capacity building of 200 fish farmers and technical personnel d) celebrate stakeholder coordination festival' e) printed poly bag for spawn selling with oxygen and f) perform promotional activities through loud speakers.
- **BNKS** will a) provide capacity building training for the fish farmers on Nutrition-Sensitive Aquaculture -21 batches b) celebrate National Fisheries week c) perform Farmers' Field Day to demonstrate results- in 2 unions d) set up 2 demo ponds e) extension inputs support for aquaculture participants f) develop aggregation center development g) organize learning sharing meeting and project close-out.
- **Tahzingdong** will a) provide capacity building training for the fish farmers on Nutrition-Sensitive Aquaculture 30 batches, b) arrange day long capacity building training for fish harvesting group on pre- post harvesting technology and fish marketing, c) celebrate National Fisheries week, d) perform Farmers' Field Day to demonstrate results- in 2 unions, e) set up 2 demo ponds, f) extension inputs support for aquaculture participants, g) develop aggregation center development and g) organize learning sharing meeting .
- **FishBooth** will a) provide input incentives to the farmers, b) perform stakeholder linkage program and c) submit performance evaluation and final report.
- **Protyashi** will capacitate 600 fish farmers (120 farmers by staff and 480 by LSPs) on nutrition sensitive aquaculture and business development, will disburse loans to 120 fish farmers and LSPs and provide inputs supports of fish and vegetable seeds to the LSP and farmers.

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

During the reporting quarter the app, 'Maach Gari' was downloaded 126 times by interested market actors. A total of 270 vehicles were registered to provide transportation services through this app. MWorld conducted 60 promotional events with 1381 participants (farmers1343 and vehicle owners 348). MWorld also conducted 5 market activation events with 120 fish traders in Jashore. Already 1723 fish farmers and 25 nursery owners transported their fish using the App and call center. MWorld sent 10,000 SMS to different stakeholders to promote "Maach Gari" app.

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 100 courtyard meetings at different geographical locations of ZOI with 3,005 farmers where 808 were women. Out of 100 meeting, 40 meetings were conducted during this reporting period. 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). These events were conducted to develop technical and business relationships with different layers of aquaculture stakeholders and improve feed business in the community. Currently, 50 CFCs are under operation in ZOI and 2 in ZOR. Matrix business development Ltd conducted also the following events (*Table 4*) in this reporting period-

Table 4: Events conducted by Matrix business development

Activity Name	Events conducted	Number of Participants		
		Men	Women	Total Number
Workshop technicians and machine operators' capacity building event	08	128	01	129
Business linkage building event among LSP, retailer, nurserer and patilwala to promote and service	08	132	01	133
Refresher training for Community Feed Centers on feed formulation, business management, updated macheneries and client services	04	62	0	62
Meeting with machine operators, Bank officials, Agent Banking among feed millers to get access finance.	04	51	02	53

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 proper fish handling and processing at different stages of the supply chain from the harvest to retail distribution. Improper handling deteriorate the quality of the fish and fish products. Low quality fish is of great concern to food security and public health.

MarGEN Limited is developing a cool chain-based supply line for fish and fish products. In the reporting quarter, MarGEN procured 45 metric tons of fish from Satkhira, and Jashore which was then sold to buyers maintaining proper cool chain. MarGEN also conducted 9 product promotion events to introduce farmers with the newly developed plastic crates, particularly designed by MarGEN partner, NM Plastic Limited for fish transportation. More than 1,100 farmers attended these events. This was also promoted through Facebook posts. NM Plastic is promoting their plastic crates in other parts of the country as well.

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

Partnership with MarGEN Limited to promote ready-to-eat and ready-to-cook processed fish ended on 30th May 2022. During the report period, MarGEN sold 800 Kg of RTC and 1200 Kg of RTE fish.

MarGEN organized fish fair in two super shop outlets in Dhaka city to promote their fish based RTE and RTC products. MarGEN sold RTE products worth greater than BDT 700,000. MarGEN processed RTE fish with the help of their vertical partner, Euro Asia Food. But now they are preparing to process it at their own plant to reduce dependency of Euro Asia. To grab a larger market share, MarGEN also placed shop signs in 80 grocery stores in Dhanmondi, Mirpur, Banasree, and Khilgaon area as a tool of marketing. Besides the retail stores, MarGEN promotes their products on Facebook and YouTube which reached more than 100,000 Facebook users. In addition to the marketing of their products, MarGEN also organized 20 cooking events where three reputed chefs demonstrated different recipes made with

fish. More than 230 office-going urban women participated in these events. It is expected that the participants will be able to prepare different delicious items for their children to take as school tiffin.

All RTE products have been tested in the food technology lab of Bangladesh Agriculture University and Sylhet Agricultural University to improve food safety and quality.

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 in 316 retail stores in Dhaka, Chittagong, Sylhet, and Narayanganj city. Roja has developed five new recipes of RTE fish products from cultured fish. More than 600 consumers have tested free samples of the new recipes and provided their feedback. From consumers feedback, Roja has finally selected two recipes which they are now going to process in large scale at their processing plant.

Roja has placed their branded refrigerators in 80 super shop outlets and experienced an amazing 269% sales growth. They will place another 20 refrigerators in new stores in the coming quarter. To increase the capacity of production, they have started moving their processing plant from Narayanganj to Chattogram in a bigger space. Roja has also organized a ToT for the master trainers of Nabolok (a Khulna based NGO) to conduct farmers training on better management practice and post-harvest management.

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 30 batches of financial literacy trainings where 1,641 farmers including 135 women were trained on basic financial literacy and received booklets on aquaculture technology. Bank Asia also conducted 10 loan feedback sessions where 368 farmers including 25 women participated.

So far, Bank Asia disbursed BDT 17.2 million equivalent to USD 205,476 loans to 337 aquaculture farmers including 10 women. Bank Asia disbursed BDT 8.7 million equivalent to USD 103K loans to 150 fish farmers including 6women during this reporting quarter.

2.2.8 Improving Access to Finance and aquaculture business development through local business centers

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 and financial services for all types of aquaculture market actors. KMSS started implementing the agreed interventions in mid-April 2022.

KMSS selected 50 Aquaculture business points ("Maach Bondhu Entrepreneur/Uddokota") and completed two ToT events at Khulna including 50 women business centers owners.

2.2.9 Introduce 'digital lending' platform to promote easy, cash flow finance for the smallholder farmers*Error! Reference source not found.*

This intervention was successfully completed and KiU is continuing their business by increasing the subscription numbers. They are renovating business models into hubs based. Overall, Kiu disbursed BDT 12.6 million (USD 150,000) loans to 379 aquaculture stakeholders including 320 women till date. During this quarter, Kiu disbursed BDT 11.9 million (USD 142,000) as loans 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

In 2021, the Aquaculture Activity engaged Shushilan to introduce microfinance services facilities for aquaculture market actors, especially for women fish farmers, to reduce their dependency on the loans from local moneylenders (Mahajan) or other sources with high interest rates. In the reporting quarter,

Shushilan disbursed BDT 10.3 million (equivalent to USD 120,953) as loans to 300 fish farmers including 295 women with an annual interest rate of 12.5%, 14 to 15 times lower than the local money lenders. Overall, Shushilan disbursed, BDT 29.67 million (equivalent to USD 349,000) loans to 1021 aquaculture farmers including 985 women farmers 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 1,040 aquaculture farming households for disseminating basic nutrition information and providing aquaculture services at doorsteps in the reporting quarter.

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

Mukti Cox's Bazar disbursed BDT 38.69 million (equivalent to USD 422,753) as loan to 730 dry fish actors including 711 women dry fish actors during the project period. As a result of Mukti's initiatives in the dry fish sector, 730 dry fish actors sold 166.717 metric tons of better quality dry fish worth BDT 78.162 million (equivalent to USD 854,055) during the reporting period.

2.2.12 Ensure access to microfinance and technical services for dry fish and aquaculture actors in Cox's Bazar

Dry fish processors and marketers, including aquaculture farmers in Cox's Bazar lack access to affordable formal finance to operate their businesses. The limited access to loans from local money lenders is prohibitively high interest rates. The Aquaculture Activity, in partnership with Mukti Cox's Bazar continued working to improve the situation.

Mukti Cox's Bazar provided BDT 1.69 million equivalent to USD 18,685 to 37 women dry fish actors and BDT 4.385 million equivalent to USD 48,507 to fish farmers as loans during the reporting period. They also conducted training for 26 participants including 25 women dry fish processors on dry fish business development and safe dry fish production and for 106 participants including 80 women fish farmers on improve aquaculture and business development. Mukti also provided ToT on improved aquaculture and dry fish business development to 26 project staff. With the loan support and improved aquaculture and dry fish business development training knowledge, aquaculture farmers and 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 extension phase of Bank Asia intervention mainly aims to introduce a formal "access to finance" model through agent banking in Cox's Bazar under the Zone of Resilience (ZOR). Formal banking and lending services are absent in ZOR, making fish farmers solely rely on informal sources of financing with high interest rates. Bank Asia's service extended to ZOR will help reduce the gap of financing. Bank Asia started work to provide financial literacy training to over 300 farmers and disburse over BDT 5 million as loan to the aquaculture farmers in the next 5.5 months in Cox's Bazar area. During this quarter, Bank Asia provided financial literacy training to 50 aquaculture farmers and conducted 3 local miking campaigns.

Output- 12 Promoted Mechanization and technology in aquaculture

2.2.14 Promote small-scale machinery 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, dissolved oxygen meters and Secchi disc that can help improve pond performance and productivity.

In this reporting period, IMEXpro made available a testing kit set consisting of water and soil pH meter, Ammonia Testing Kit and Secchi Disk in all 40 one-stop service centers established by them in their working area. A total of 563 farmers received water/soil parameter testing facility and advisory services from IMEXpro's one-stop service centers. They have tied up with "The Right Kind" for their product promotion on the digital platform "The right haat". IMEXpro has commercially introduced Secchi disk

for the aquaculture farmers, in this reporting period they have sold 3,176 Secchi disks worth BDT 2.38million on a cost-sharing basis.

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 in Cox's Bazar organized by Cox's Bazar Chamber of Commerce and Cox's Bazar District Administration to promote 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. SAT has improved their product quality through following better management practices and increased their sales volume by 77% adopting different strategies, such as advertisements through Facebook boosting, webpage hosting and billboards, and introducing smart packaging.

2.2.17 Promote and branding safe Dry fish business

The Activity works with CoxsBazarShop.com, a private company, to produce and promote safe dry fish by improving their marketing techniques. Earlier, CoxsBazarShop.com organized 9 awareness campaigns among tourists on safe and healthy RTE and RTC dry fish products, completed 2 sales promotion events, 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 was able to sell 4,074 kg of various dry fish products worth BDT 252 million (USD 29,815).

In this reporting period the Activity extended the contract with CoxsBazarShop.com to implement Total Quality Management (TQM) of dry fish products at every step of the production systems to produce premium quality dry fish based RTE and RTC products and to reach premium customers through online and chain departmental shops in the city markets.

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. The experiments on safe dry fish production using different dryers conducted by SAT had been delayed due to scarcity of raw fish. Moreover, the profitability of the safe dry fish business varies with the seasons, species, fish price, market conditions, etc. Therefore, the analysis of benefit-cost ratio is delayed to get a wider perspective on profitability of safe dry fish business.

2.2.19 New product and market development of dry fish business

Due to the lack of proper marketing, product diversification and branding strategies, dry fish entrepreneurs are struggling to maintain and grow their businesses. Currently, a significant number of dry fish entrepreneurs are producing good quality organic and safe dry fish products with the support of the Aquaculture Activity. Despite their quality products, they seem to be dormant as they lack proper and coherent marketing strategies. Therefore, the Activity made a partnership with Shah Amanath Traders (SAT) for producing different types of safe dried fish, RTC and RTE products and marketing the products all over the country.

Major activities are carried out during this quarter include, 1) progress review meetings, 2) rent a sales center in Dhaka, 3) conduct two experiments on effects of improved fish drier on the quality and economics of Bombay duck and Pomfret at SAT plant premises, 4) workshop on market linkage for dry fish business development and 6) web page, web application, bill boards and social media campaign to make customers aware about safe dry fish products.

Sub IR 2.3 Improved enabling environment for inclusive growth in aquaculture

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

In quarter one (Jan-Mar'22) 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. Successfully completed this project during this quarter.

2.3.2 Standardizing and Developing Dry Fish Products and Consumers' Preference Test

This activity has planned to start in September of the next quarter as the pick season of dry fish production starts in September and it continues to March. Moreover, dry fish production remains almost closed during the reporting period due to scarcity of raw fish as government ban on sea fishing from 20 May to 23 July for 65 days.

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

Bangladesh Shrimp and Fish Foundation (BSFF) facilitated intra-governmental and public-private sector consultation to create awareness on prohibited aqua inputs. They organized consultation meetings engaging 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 clarified 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 4*).

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 dealer points, 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 research to measure effectiveness of improved fish dryers on the quality and economics of dried fish products of Ribbonfish (*Trichiurus lepturus*) in Southeast Bangladesh. Besides, Shah Amanath Traders will provide training on dry fish business development, marketing and BMP for dry fish processors, and will be organizing a sales promotion event.

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 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 will conduct training sessions for 110 dry fish actors on business development and safe dry fish production technology and 100 fish farmers on improved aquaculture. To support the increased production of dry fish, Mukti will provide BDT 6 million and BDT 4.5 million in loans to 110 dry fish actors and 80 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. Roja will orient 2,000 fish farmers to an improved farming and post-harvest management technique that can comply with 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 for 5,000 fish farmers by establishing Aquaculture Business Centers (ABCs) 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 been 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 in Cox's Bazar

To promote the consumption of fish, the 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.

In the reporting quarter, 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 individuals 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. The activities of these Nutri-champ teams were ended in February 2022.

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 of life 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, who were able to update their knowledge for wider dissemination of the useful nutrition messages, especially related to fish consumption.

3.1.7 Observe national nutrition week April 23-29, 2022

The Aquaculture Activity collaborated with Bangladesh National Nutrition Council (BNNC) to celebrate national nutrition week 2022 at the central level. The BNNC organized an event at Hotel Lakeshore, Dhaka, where more than a hundred participants from different organizations participated in the event.

The Activity also observed the event with the collaboration and support of its IPs and the government. Prottayshi, Shah Amanat Traders (SAT), and GRAUS observed the events at ZOR, whereas, Shushilan implemented the activities at ZOI. The IPs altogether facilitated 5 rallies, 7 discussion sessions, and 10 courtyard sessions where more than 500 people attended and received important fish nutrition messages.

The Nutrition team also facilitated 6 nutrition messaging events through pot songs at Khulna and Satkhira districts where 1,038 (women 538, Men 478) people attended.

3.1.8 Promote fish consumption by printing of nutrition IEC materials

The process of installing 23 signage in ZOI and ZOR on nutrition and aquaculture aspects is ongoing. The requisition is already approved and vendor hiring process is ongoing.

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 cuisines. 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 based products, conducted three staff sanitation events to maintain a hygienic environment at their production facilities, 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 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 progress made so far in Year 5 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 5*. 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 from 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 has already collected data from Activity partners (tier 1), their clients (tier 2) and farmers (tier 3) through a semi-structured questionnaire. 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 is available in *Annex 2*.

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 MEL 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 USD5,087,427 (Table 5). By the end of Year 5, Activity will have an estimated remaining budget of USD 4,377,657. 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.

The CoP sent an email to AOR requesting a clarification and budget realignment of the said budget line. The CoP is yet to receive an approval.

Table 5: Aquaculture Activity year 5 budget

Budget Line	Total Budget	Year-1 (Feb'18- Sept'18)	Year-2 (Oct'18- Sept'19)	Year-3 (Oct'19- Sept'20)	Year-4 (Oct'20- Sept'21)	Revised Year-5 (Oct'21- Sept'22)	Budget Balance
Direct Labor	5,474,565	414,022	926,710	1,082,060	1,162,779	1,178,173	710,822
Fringe Benefits	1,765,430	131,311	294,843	375,758	360,918	370,113	232,488
Consultant	288,593	-	70,998	73,348	57,419	223,973	(137,144)
Supplies, Equipment and Operating	1,741,916	153,671	478,943	325,368	173,893	164,455	445,585
Travel and Per Diem	967,676	51,841	206,295	141,701	103,476	180,077	284,287
Other Direct Cost	4,282,319	112,324	695,954	333,383	599,437	700,467	1,840,754
Sub-Grants	5,800,365	-	1,274,492	1,607,383	1,248,560	1,410,517	259,412
Total Direct Cost	20,320,864	863,168	3,948,235	3,939,001	3,706,481	4,227,775	3,636,204
Indirect Cost	3,657,756	155,370	710,682	709,020	667,167	761,000	654,516
CGIAR Cost Sharing Fee	479,572	20,371	93,178	92,961	87,474	98,652	86,937
Total Activity Cost	24,458,192	1,038,909	4,752,095	4,740,982	4,461,122	5,087,427	4,377,657

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

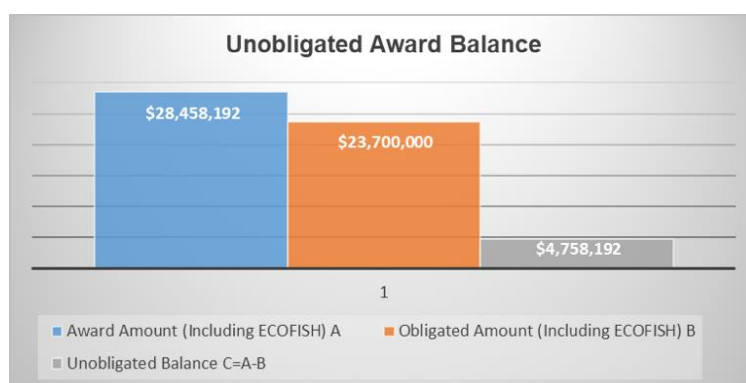


Figure 3: Amount committed to spend

The graph below shows the amount USAID has committed to spend on the Aquaculture Activity to date (Figure 4). A mortgage of USD 4.7 million remain to be used within the last four months of the Activity (October 1, 2022 – February 5, 2023).

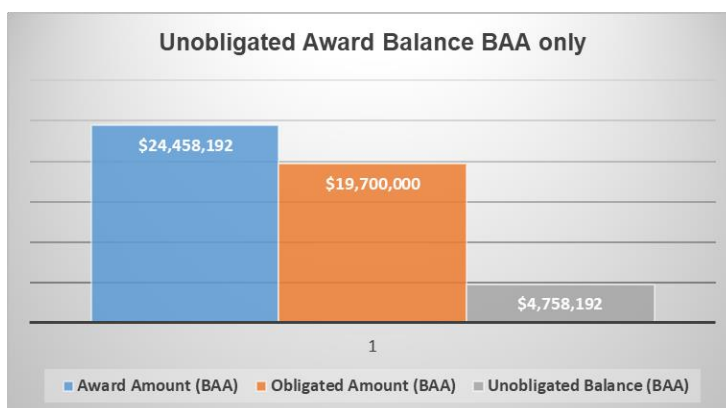


Figure 4: Amount committed to spend on the Aquaculture Activity

The current pipeline² of USD1.164 million will cover 3 months through September 2022 at the projected rate of USD 388K (Figure 5).

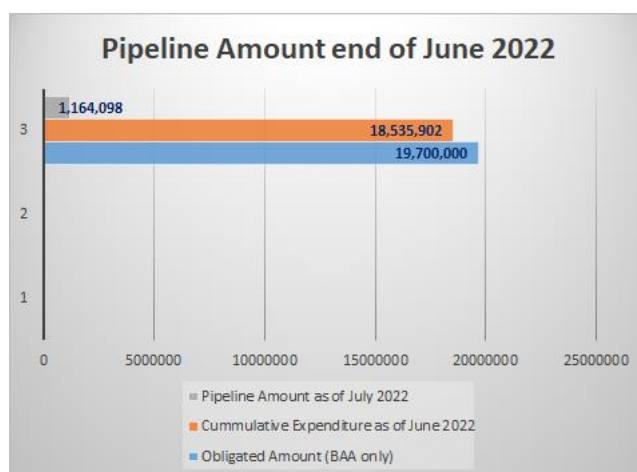


Figure 5: Pipeline amount end of June 2022

8.2.2 Quarterly Forecast

Activity spent a total amount of USD 1,230,120 for the quarter of April- June 2022, which is 2% more than the forecasted amount for the said quarter (Figure 6).

² Pipeline means the amount of funds obligated but not yet spent

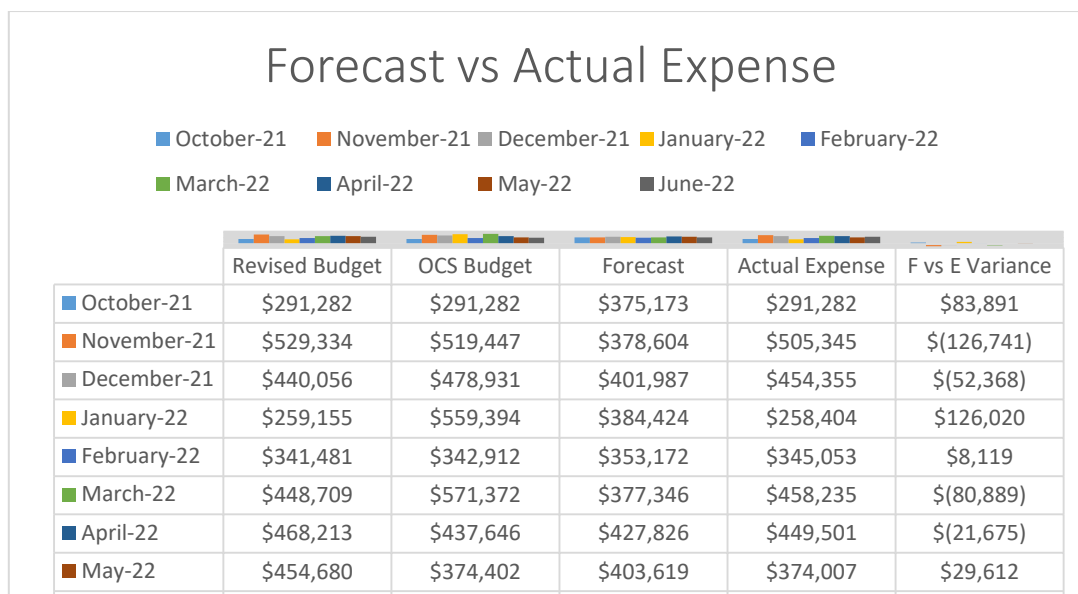


Figure 6: Forecast vs Actual expense

8.2.3 Midyear budget review

The midyear budget review was completed on (June 20, 2022) and few updates and changes on activities were presented in the revised Yr. 5 budget which was submitted to AOR in 20 June 2022. The budget review was done to remind the whole team of the achievements it has done so far. It provides the senior Management Team information on what strategies they have to develop to catch up on the completion of year 5 work-plan. It also provided a midyear information on the financial performance of the Activity. This mid-year budget review allows the Activity to make adjustments to achieve a more accurate budget for the current fiscal year, resulting in greater budget transparency and guidance to the management in shaping the next year's budget including the NCE proposal.

Quarterly budget review

The Activity budgeted an amount of USD5,087,427 for year 5 (October 2021-September 2022) and have already burnt a total amount of USD3,542,795 or 70% of the total budget at the end of the third quarter June 30, 2022, leaving an available budget of USD1,544,632 or 30% until September 31, 2022 (Figure 7). Bangladesh Aquaculture and Nutrition Activity is aiming to complete all set activities as stated in the work-plan and is forecasting to achieved 92% of the total budget. These figures correspond to USAID calendar year Oct'21-Sept'22.

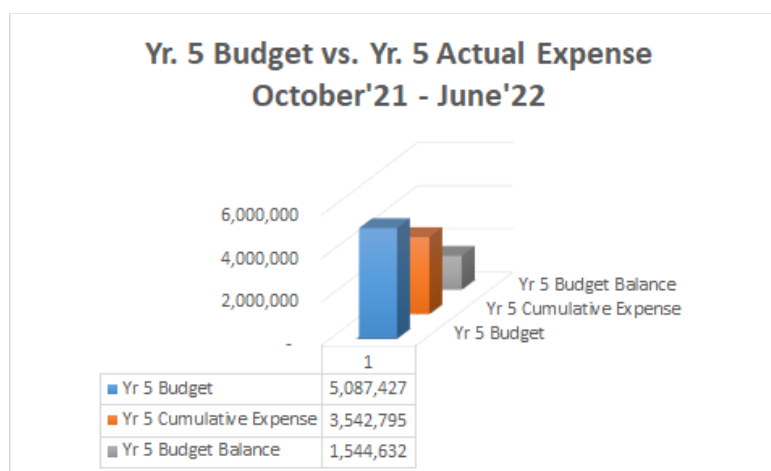


Figure 7: Budget vs Actual expense

Total Award Balance

The accumulated expenses from 2018 to date are recorded at USD 18,535,902 leaving an available budget balance of USD 5,922,290 as of June 30, 2022 (Figure 8). As mentioned above, the Activity will submit a No Cost Extension request to complete the rest of set activities and interventions set on its strategic plan

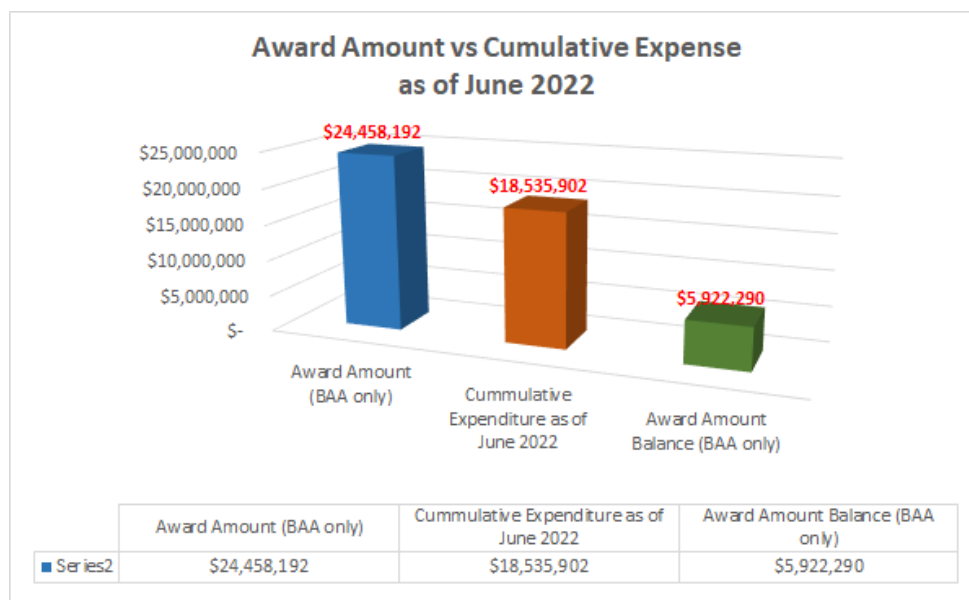


Figure 8: Award balance as of June 2022

Sub-grants:

The Activity signed 10 sub-grants (8 Cost extensions and 2 new IP's. List of Partnership signed during the quarter (April-June 2022) (Figure 9).

SL No.	Sub-Grantee Name	Start Date	End Date	Negotiated Value	
				FtF BAA Contributio	Grantee Contributio
Cost Extension					
01	M.S. SHAH AMANATH TRADERS	April 1, 2022	September 30, 2022	\$ 13,471	\$ 16,684
02	COX'S BAZAR SHOP	April 15, 2022	September 30, 2022	\$ 8,594	\$ 5,627
03	GRAUS	April 25, 2022	September 30, 2022	\$ 30,036	\$ 2,583
04	AFIL AQUA FISH LTD.	April 28, 2022	September 30, 2022	\$ 5,974	\$ 1,765
05	BANK ASIA LIMITED	April 30, 2022	September 30, 2022	\$ 14,760	\$ 18,852
06	MUKTI COX'S BAZAR	May 1, 2022	September 30, 2022	\$ 20,313	\$ 21,087
07	PETROCHEM BD LTD.	May 25, 2022	September 30, 2022	\$ 23,963	\$ 19,276
08	AFTAB FEED PRODUCTS LIMITED	May 31, 2022	September 30, 2022	\$ 46,998	\$ 102,433
New IP's					
09	PROTTYASHI	April 1, 2022	September 30, 2022	\$ 34,899	\$ 5,715
10	KHULNA MUKTI SEBA SANGSTHA	April 15, 2022	September 30, 2022	\$ 26,936	\$ 17,701
Total				\$ 225,944	\$ 211,723

Figure 9: Partnership signed in Q3, Y5

To date, the Activity has signed a total Ninety-one (91) sub-grants and eight (8) service contracts with a total value of USD 10,346,199, where Activity investment of USD 5,988,206 and sub-grantees investment of USD 4,357,992. Among these ninety-nine, four were terminated and seventy three were completed by the end of June 2022.

A total of USD 5,108,418 was expended under the Sub-grant budget, giving a remaining budget balance of USD 691,947 by the end of this reporting period.

8.2.4 Year 6 Planning

The Year 6 planning commenced in June 2022 including the anticipated NCE. Budget figures were developed based on program activities which are largely additional cost to best performing and existing partners and few additional new interventions. Also included in the year 6 plan are project closeout related activities. These are presented in detail in the NCE proposal work-plan and budget.

Agreement Development

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)

As part of the overall Grants Manual, associated templates were also updated in the first quarter of 2022.

Risk Management Plan

8.2.9 Update Risk Management Plan and coordinate with Global Risk and Compliance Team

This is an ongoing task and discussion. A section on Risk and Compliance will also be added in the Grants Manual to describe and give clarity on the roles of grants accountants and the Global Risk and Compliance Team at Head office.

Finance and Grants Team developed a simple template to monitor the Activity's related risk including partner/sub-grantees. This is now being used by the Grants Accountants. This is a regular task where Finance and Grants Team discusses in a monthly basis to monitor the risk and come up on resolutions. If there is a high risk, individual risk is escalated to CoP as well as to the Global Risk and Compliance Lead.

Project External Audit till Year 3

The terms of reference and RFP and selection of the auditors for the year 2020-2021 has already been completed and hoping to commence audit work in mid of August 2022.

Workshops and Training

8.2.14 Sub-grant orientation to new sub-grantees

Project orientation training was held online on May 22, 2022.-The project focal and project finance from the ongoing partnerships were invited to the training. The invitee partner organization were Fish Booth, Palongki Konna, Green BioFloc, Planary Aqua, GRAUS, Tahzingdong, BNKS, Protyyashi, Satata Poultry, Mukti Cox's Bazar, Maa Mothsha Hatchery & Nursery, Ma Motsho Hatchery, KMSS, Shah Amanath, Margen. The Activity employees were also invited to attend this training. Total number of attendees is 32.

The training was facilitated and conducted by Ms. Tahamina Yesmin, Head of Finance and Ms. Faria Islam, Grants Accountant of the Activity. The training covered key discussion areas such as; Sub-grant management process, documentation, financial management and compliance, payment etc.

8.2.15 Compliance and Fraud Prevention workshop

Project orientation training was held online on May 30, 2022.-The project focal and project finance from ongoing partnership were invited to the training. The invitee partner organization were Fish Booth, Palongki Konna, Green BioFloc, Planary Aqua, GRAUS, Tahzingdong, BNKS, Protyyashi, Satata Poultry, Mukti Cox's Bazar, Maa Mothsha Hatchery & Nursery, Ma Motsho Hatchery, KMSS, Shah

Amanath, Margen. The Activity employees were also invited to attend this training. Total number of attendees is 29.

The training was facilitated and conducted by Ms. Glenda Munyukwi; Global risk and Compliance Lead, Ms. Azira Azmi; Risk and Compliance Analyst and Ms. Faria Islam, Grants Accountant of the Activity. The training covered key discussion areas such as; Definition of Fraud, its impact, policies to prevent fraudulent activities, consequences of fraud, identifying risk and risk management etc. (*Annex 6*).

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 which has been completed in this quarter. Besides, in year 5, the majority of the Activity partnerships are already mature 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 in the next quarter.

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

The Activity conducted its year 5 progress review workshop in last quarter (April 29-30, 2022) where the exercise on theory of change (ToC) was included. 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 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 conducted qualitative study on market system changes. A detailed plan has been developed for further information collection and documentation for learning capturing. A learning capturing team is working on it. The MEL team also facilitated the revision of ToC, which will be further updated based on the evidence from the 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 competitive process to strengthen the data collection pool aiming to ensure data quality across the program interventions.

During this reporting period, DEs were engaged to collect quarterly and annual performance data along with field verification of submitted data/information by IPs. The DEs also collected GIS data, such as sales point's location, G3 rohu farmers' location and village landmark location including relevant programmatic data in this quarter.

8.3.5 Updating Aquaculture Activity MEL MIS platform

The web-based MIS was upgraded from time to time to collect and gather the Activity information (*Figure 10*). This platform can be visited using the following link: www.melinsight.com

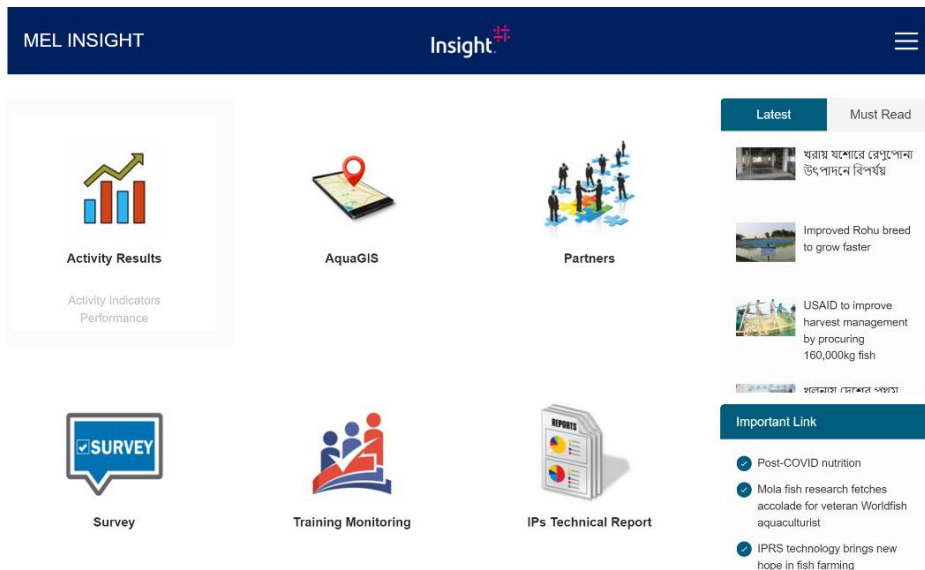


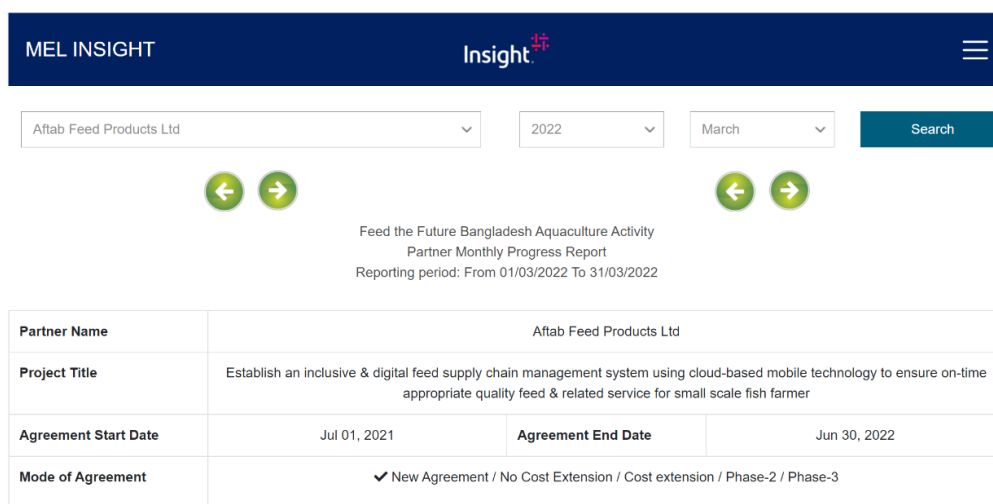
Figure 10: Activity MEL MIS

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. The MEL team also monitored different training events organized by different IPs in ZOR (e.g., Maa Mothsha Hatchery and Nursery, BNKS, Tazingdong and M/S Shah Amanat Traders) and ZOI (e.g., Shushilan).

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 has worked extensively to customize sales and leverage investment data collection tools for FY2022, considering the nature and type of IPs and relevant market actors. Accordingly, six separate tools have been developed/updated to collect sales data from Aquaculture Medicinal products (AMP) sales point, fish feed sales point, carp hatchery, tilapia hatchery, processed/value added fish-based products and aqua machineries and equipment.

It was noticed that some IPs are investing in addition to the committed amount within the project period. They are also continuing this business (initiated by the project) beyond the project period and thus making additional investment to run the business. Such investments are identified as ‘additional investment’. Previously, MEL team had a system to track the additional investment which is made within the project period. In this quarter, however, the MEL team initiated to capture the additional investment which is made after end of the project. So, two different tools are developed and will be used to capture the additional investment-one for active IPs and the other for closed IPs.

8.3.10 Annual performance survey (farms productivity)

The fish farming/production season has already been completed in Mar/Apr 2022. Accordingly, the MEL team has initiated the annual performance survey at producer’s level starting from June 8, 2022 engaging the DEs. Before that the DEs were trained on survey instruments, survey approach and data quality requirements. The training was conducted on June 4-7, 2022 in Jashore where 20 DEs participated.

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 (e.g., quarterly or annually). 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, local service provider (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 has planned to capture learnings across different projects and business models implemented by its 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 and replication/secondary adoption of aquaculture knowledge and practices.

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 better 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 checklists/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 prepared a detailed protocol to conduct the survey. The survey has been rescheduled to conduct by next quarter.

8.3.15 Qualitative Assessment and other M & E study

The Activity has collected qualitative information from its IPs (called ‘tier-1’), relevant market actors (called ‘tier-2’) and final service recipients (called ‘tier-3’) in last quarter. Primarily, the IPs whose intervention have already been completed or to be completed by December 2021, were included in this survey. The IPs data were collected by the 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. As a progress, the report on tier-1, tier-2 and tier-3 has already been completed and attached in the section of this report (*Annex 2*).

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 was 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). To be noted that the tier-3 survey was accompanied by quantitative data collection. 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.

8.3.23 Orient Aquaculture Activity team on data collection tools

The hired third-party consultant, Nexel Research Limited organized a two-day long training event in last quarter (February 16-17, 2022) for the survey team of tier-2 data collection. The MEL team and MEL consultant guided them to 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.

The Activity team delivered 3-day long training to DEs on tier-3 data collection. The tier-3 data was then collected in quarter one by them. 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 day-long training session for the Activity staff to collect information from the IPs which was held in quarter two.

8.3.24 Capture qualitative information from IPs and relevant stakeholders

The Activity has collected qualitative data 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 quarter 1. In this last quarter, the information from market actors (tier-2) was collected by Nexel Research Limited. The firm has closely worked with the MEL consultant for data transcription, analysis, and synthesis and reporting. Detailed report on IPs (tier-1), market actors (tie-2) and service recipients (tier-3) has already been shared by the consultant (*Annex 2*).

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 MEL consultant in support of Nexel Research has completed data analysis and reporting.

8.3.26 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, tier-2 and tier-3 results and will work to gather systemic change information using the evidences captured by the study.

Geo-graphic Information System (GIS):

The MEL team 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 27,759 participants' database is developed so far including 6,324 participants who were surveyed during the reporting quarter (*Annex 7*). The participants' data collected during the reporting quarter includes village level GIS information of fish farmer's which covers around 1,255 villages and 6,193 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. Development of interactive maps showing the concentration of Bangladesh Aquaculture Activity beneficiaries in geographic area across the Feed the Future areas is ongoing to add into the MIS platform and planned to be completed by next 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 once the village level GIS data collection is completed.

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 6*). The training courses included annual performance survey and GIS data

collection. Contents regarding safety measures, precautions and directives were in-built in every session.

Table 6: Major MEL training for DEs in Q3, Y5

Sl.	Date	Title	Mode of Training	Participants		
				Total	Men	Women
1	April 6, 2022	Training for DEs on GIS data collection (G3 farmers verification and iMaxPro)	Virtual	14	14	0
2	May 8, 2022	Training on GIS data collection for DEs	In person	22	20	2
3	May 24, 2022	Training for DEs on 'sales data collection from hatcheries'	Virtual	7	7	0
4	June 4-7, 2022	Training for DEs on annual performance survey	In person	20	18	2
5	June 13, 2022	Training for DEs on nursery to patilwala sales point data collection	In-person	8	8	0

8.3.34 Capacitate IPs on MEL

As no new IPs on boarded in this quarter, the MEL team worked with existing IPs and extended support as and when needed. 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., Shushilan-2, M/S Shah Amanat Traders, Tazingdong, BNKS, Maa Matsya Hatchery) and shared observations with the IPs and the program team to address challenges.

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

MEL team engaged IPs only for tab-based data collection process based on their staffing, capacity and data requirement.

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

On May 8-12, 2022, the MEL team conducted 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.

8.3.40 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) to share the results using the systemic change model. The workshop will be organized in the next quarter.

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

The MEL team along with MSD team facilitated group exercise on ToC matrix during last 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

A Training of Trainers (ToT) on facilitation skills for IP staff of ZoR was organized at Cox's Bazar on 11-12 May 2022. A total of 21 individuals (Men 18; women 3) of 9 IPs participated in the ToT. There are many participatory methods, group presentation and aqua culture and dry fish contents intended in the capacity building event. The aims of the course were enhanced quality of facilitation skills, participatory teaching learning methods, team building and designing course calendar/chart as well as participant joined mock test. Aquaculture Activity staff was organized on 11-12 May 2022. The resource persons and skilled BANA team members and technical experts conducted the sessions as scheduled.

Arrange special ToT training for Aquaculture Activity Team of ZoI

On June 12, 2022 a ToT training was held at Barsa Resort Hall Room in Shyamnagar Upazila under Satkhira district. Fish farmers, nursery and hatcheries, cost and submission of accounts, session time planning and other details of the training are discussed here. The focus is to reach 1500 aqua farmers, fry traders and grassroot level aqua users. in quick manner.

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

During the reporting quarter, dike cropping farmers guide book, introduction of patilwala (fry selling), nursery booklet and nursery booklet on aquaculture. 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. The checklist was finalized after the field test. Analyzed the monthly filled checklist/tools by auto generating with the software and prepare a report. Besides this, an events calendar uploaded on MS Teams for visiting the Activity team members. By using the tools each team member might put their comments and feedback instantly.

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

A compendium was prepared based on two-day ToT and shared among participants. All the presentations and other Information, Education, and Communication (IEC) materials were systematically arranged in the compendium. The resource document consisting of Andragogy, Facilitation Skills and methods, Team Building and Leadership, Dry fish processing, Reporting and Documentation of training events, 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

8.5.2 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 long 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.

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

This activity was conducted in quarter 2 with our partner Shushilan in Khulna.

8.5.6 Support ZoI and ZoR in marking International Men’s Day (IMD) to create enabling environment for women in the aquaculture sector

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 FishBooth. As a one-stop service point, FishBooth provide advisory services to the remote areas where these kinds of services do not exist.

During the reporting quarter, FishBooth developed detailed Implement plan, developed 2 Booths – one in Boalkhali Upazila, Chattogram and the another one in Alikadam upazila. They also recruited 2 representatives for the service centers. Besides, Fishbooth purchased inputs for the booths like- Fish feed, AMPs (Aqua medicinal products), water quality testing equipment for the two booths. Consultancy services were provided from booths, via phone calls and through online platforms. The services included disease treatment, pond management, aquaculture planning and suggestions for improving production. FishBooth printed leaflets and banner-the promotional materials were disseminated in public areas and among farmers. Products and services were advertised through our social media page, group and website. FishBooth completed 2 Inception workshops with target area’s farmers of Alikadam and Boalkhali upazila.

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 ready-to-cook (RTC) fish. This partnership will focus on marketing to increase the sales of RTC products. This will also be a replicable intervention for the other youth entrepreneurs. The sub grant agreement was signed between Plenary Aqua and WorldFish during the last reporting quarter on 29 March 2022.

Throughout the reporting quarter, Plenary Aqua has established a processing center for fish cutting where 3 women can cut fish easily by ensuring all obligations and hygiene during fish cutting. Moreover, few documents have been developed during the quarter like market survey questionnaire for RTC fish assessment, leaflet on Plenary Aqua business promotion in both Bangla and English. They have a plan to organize a campaign and market survey during the next quarter which will help them to develop a forthcoming strategy of business expansion. They also developed their website where people can order straightforwardly. They sold around 700 kg RTC fish in this quarter worth approximately USD 4,750.

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 sub grant agreement was signed between Palongki Konna and WorldFish on 29 March 2022.

Palongki Konna has delivered training to 10 fisher women on safe dry fish production technology and also trained 10 women on safe and hygiene dry fish powder. They collected 600 Kg of mola and small

shrimp for producing safe dry fish and this dried fish converted into dry fish powder. They sold 130 Kg dry fish powder worth BDT 130,900 (equivalent to USD 1,448) during the reporting period, which is higher than 42% last year at that time.

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

Aquaculture Activity will be supporting an already established bio-floc business through improving the overall management practices. The sub grant agreement was signed between Green Biofloc and WorldFish during the last reporting quarter on March 29, 2022.

During this reporting quarter, Green Bio-floc was mostly busy with renovation works to improve the overall production system. Throughout the quarter, Green Bio-floc developed 3 tanks and now they can cultivate around 1,000 fish fingerlings together. They purchased some bio-floc equipment like PH meter, TDS meter and others to uphold hygiene system, taste and measure density, temperature and saltiness etc. Additionally, installation of CC camera for monitoring was done this quarter. Lastly, for unlamented electricity during load shading, they upgraded their electricity system etc. which will help to increase production properly during this quarter.

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 the Aquaculture Activity. Under this reporting period, all new partners have been sensitized in their orientation and ToT about youth intervention of the 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 are under progress and will be conducted during the next reporting quarter.

8.7. Environment and climate change

Being the implementing partner, WorldFish is responsible and accountable for ensuring 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 be expired 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 it 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 Y5Q3, Aquaculture Activity proceeds with 6 sub-grant applications to complete SGA therefore, 6 EDDs were done accordingly (cumulative 110 LOP).

8.7.4 Train project personnel on environmental compliance and CRM

A batch of training has been conducted in the 3rd Quarter for 24 staffs including 19 partner staffs from 11 organizations. One of the key objectives of the training was to develop a common understanding on the importance of environmental compliance and climate risk management (CRM) for the sustainability of development interventions, and the USAID obligations. With this knowledge, participants would be able to articulate the scope of environmental compliance and CRM, and hence would perform better in executing the Activity's EMMP. The training covered 6 modules, as below –

Part I: Why Environmental Compliance and Climate Risk Management?

Part II: Identification of Environmental and Climate Risks.

Part III: Mitigation of Environmental & Climate Risks.

Part IV: Understanding Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP)

Part V: Environmental Compliance Procedure in the Activity

Part VI: Understanding Climate Service for Aquaculture

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

Have been cooperating with 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 already been completed. It was revealed that the 'new' aquaculture regimes that is high density fish farming by adopting bottom clean or IPRS techniques have the potentiality to maximize production by 5 to 10 folds while addressing the issues of fish- and human-health, environmental compliance, and climate change adaptation and mitigation. The 'new' aquaculture regime offers a 'double win' situation, and thus it can be fairly said that the future of aquaculture stays with bottom clean and IPRS techniques.

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

In collaboration with the Program POCs, the Environment and Climate Change unit has been assisting partners in incorporating the mitigation actions, as they are specified in the SGAs against the agreed interventions, into the training and communication materials that are being developed by the partners. The trainings and other interventions that are being conducted by the partners are observed if the required mitigations actions are in place. 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 the partners through the Program POCs as and when required. Post-training assistance on maintaining personnel hygiene and avoiding contamination were provided in person to the partner organizations involved in fish drying at Cox's Bazar.

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

In order to establish better linkage with climate change related networks, close relationship with ICCCAD is being maintained. A presentation on the CRM procedures that are being followed in Feed the Future in Bangladesh Aquaculture Activity was delivered on May 19, 2022 in their annual dialogue event. This kind of representation will assist in cross-fertilizing knowledge and expertise.

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

As part of conducting an appraisal of BACS, an online interview was conducted to assess their current interventions, and develop their future strategies. Close relationships and networking with BACS are being maintained.

8.8. Knowledge Management and Communications

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

During this reporting period, a total of 11 success stories were drafted covering the Activity interventions and results which will be published in a journal. These stories have been organized by themes to disseminate most significant changes Aquaculture Activity made at different market actors'

level throughout the value chain (*Annex 8*). Focusing on the different interventions and results, these stories portray the most significant changes in the aquaculture market system development in the Activity working areas.

8.8.7 E-Quarterly Newsletter development and dissemination

The Aquaculture Activity prepares and publishes the quarterly newsletter to share the major events, interventions, progress against target, key achievements, notable visits, major success stories, lessons learned, etc.. Two issues were already published in the last two quarters, which portrayed how the Activity improves the sustainable livelihoods of fish farmers and other aquaculture market actors by applying a market systems approach.

The newsletter for April to June has been drafted and ready for publication. This third issue included the key achievements, success stories, celebration of the National Nutrition Week, USAID visit to the Zone of Resilience, introduction of Maach Bandhu- the one stop service centers, capacity building and training for the partners and beneficiaries etc.

8.8.8 Photo documentation on Aquaculture Activity interventions, photo story book publication and printing

In this period, a detail ToR has been developed to recruit a competent expert on photograph for the successful photo documentation to disseminate useful information. This photo documentation will depict the success stories of fish farmers and other market actors, namely producers and suppliers of fish seed and feed, input dealers, retailers, etc. of aquaculture value chain. Action oriented self-explanatory photos will highlight the impact of different interventions on the aquaculture sector growth.

8.8.11 Develop videos on Aquaculture Activity intervention results and capacity building training

Videos covering a story about a successful fish farmer, dry fish production process of Shah Amanat Traders and capacity building events were prepared. The videos on capacity building/training on pre-stocking, stocking and post-stocking management will be uploaded on YouTube wider dissemination of useful messages on improved aquaculture. Apart from these, a few short videos were prepared by the Activity partners with the support of WorldFish for the dissemination of relevant messages and promotion of businesses.

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

During this reporting quarter significant number of media coverage on different interventions and events was 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 9*.

Round table meeting with the renowned national Daily newspaper, “Prothom Alo”

In the last month of this quarter, Aquaculture Activity hosted one round table meeting in collaboration with the country's top national newspaper, the Daily Prothom Alo. The discussion, titled “Challenges and potentials to increase investment in fisheries sector”, shed light on different setbacks that have long been prevailing in the country's fisheries sector, including marine and inland fish farming and recommended ways to mitigate these challenges. Dignitaries from the concerned government and non-government entities took part in the discussion. Dr. Sainar Alam, Director of Fisheries Training Academy under the Department of Fisheries; Manjurul Karim, Chief of Party, Aquaculture Activity; Maksuda Akter Rosy, General Manager of Sonali Bank; Ali Hossain Prodhania, former Managing Director of Bangladesh Krishi Bank (BKB); Rumana Akhter Tuli, First Assistant Senior Vice President of Bank Asia's agent banking division; Mosharref Hossain, Professor of Bangladesh Institute of Bank Management (BIBM); MA Hakim, Professor at Economics Department of Southeast University; and Reaz Ahmed, Executive Editor of Dhaka Tribune; among others were the discussants. To read the news visit:

Easy access to credit key to boost aquaculture

<https://www.prothomalo.com/roundtable/মৎস্য-খাতে-বাততে-হবে-বিনিয়োগ>

The full supplementary: [মৎস্য খাতে আর্থিক বিনিয়োগ বৃদ্ধির চ্যালেঞ্জ ও সম্ভাবনা \(prothomalo.com\)](https://www.prothomalo.com/roundtable/মৎস্য-খাতে-আর্থিক-বিনিয়োগ-বৃদ্ধির-চ্যালেঞ্জ-ও-সম্ভাবনা)

WorldFish-invented ‘G-3’ Rohu grows about 30 percent more than conventional one

WorldFish’s Rohu Genetic Improvement Program supported by USAID, began in 2012 with the spawn collected from the rivers, Halda, Padma, and Jamuna. WorldFish produced and released generation 3 (G3) rohu to several hatcheries and nurseries in 2020 and 2021. In parallel to the release, WorldFish conducted on-farm performance trials of G3 rohu at 19 semi-commercial farms in Khulna and Rajshahi divisions. The key objective of this trial was to assess the growth performance of G3 rohu compared to the existing rohu strains. At harvest, between March and June 2022, G3 Rohu was ranked first in all 19 farms and, on average, G3 fish weighed 37% more than fish from the other rohu strains.

This news was published in the Daily Star, the Dhaka Tribune and other prominent news portals.

<https://www.dhakatribune.com/bangladesh/2022/06/21/better-bred-rohu-ready-for-farming>

[WorldFish-invented ‘G-3’ Rohu grows about 30 per cent more than conventional one | The Daily Star](#)

8.8.14 Social media campaign and maintenance of social media platforms and contents generation (posts, stories, blogs, articles, news, events, reports, IEC materials, etc.) for social media and website

USAID Bangladesh and WorldFish Bangladesh official social media platforms published a mentionable number of social media posts throughout the reporting period. Around 6 social media posts on the Aquaculture published by USAID Bangladesh both in Facebook and Twitter. WorldFish Bangladesh posted news and stories on different interventions of the Activity from time to time (*Annex 10*).

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

During this reporting quarter, Aquaculture Activity continued its effort to document and share the key progress and success with target audiences including USAID and Government of Bangladesh. Around 6 brochures, booklets and leaflets have been produced and shared during this quarter. Results 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.

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 maximized 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

In this reporting quarter, one prominent celebration on National Nutrition Week was observed widely. Field offices took part in different discussions and events to celebrate this event. Aquaculture Activity jointly with other projects of WorldFish organized a competition for all staff to raise awareness around nutrition and fish. Moreover, utilizing the social media platforms, WorldFish aligning with the government declared theme, shared key messages on nutrition. A huge response was received in the competition and on social media. Promotional materials like banners, factsheets and mugs were produced and distributed targeting this event.

8.8.18 Impact assessment of interventions, publication, printing success stories, reports and other products to showcase successes and learning sharing

In this reporting quarter, necessary editing was made to make the journal ready for publication. Few other publications like the brochures, leaflets on digital interventions, *Maach Bandhu*- the one stop service center and booklets on the thematic areas were progressed for printing and publications.

9. ANNEX

Annex 1: List of Aquaculture Activity IPs (attached)

Annex 2: Measuring change in the market system: Qualitative assessment Report (attached)

Annex 3: Sampling protocol for feed sample collection.pdf

Annex 4: Report on validation and dissemination workshop by BSFF (attached)

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

Annex 6: Prevention, Risk Management and Procurement Plan (attached)

Annex 7: Aquaculture activity participants GIS information (attached)

Annex 8: Success stories (attached)

Annex 9: Media coverage (attached)

Annex 10: Social Media Coverage Aquaculture Activity (attached)

Annex 11: Photo (attached)

Annex 12: Bangladesh aquaculture activity indicators (attached)



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