



# FEED THE FUTURE

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



## Feed the Future Bangladesh Aquaculture and Nutrition Activity

*Annual Progress Report: October 01, 2020 to September 30, 2021*



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## Acronyms

AIN	Aquaculture for Income and Nutrition
AOR	Agreement Officer's Representative
BAA	Bangladesh Aquaculture Activity
CLA	Collaborating, Learning, and Adapting
CoP	Chief of Party
DCoP	Deputy Chief of Party
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 (BAA) is a five-year assistance awarded to WorldFish on February 6, 2018, and is expected to continue until February 5, 2023 with funding of USD 24.5 million. BAA aims to sustainably improve the livelihoods of a large number of smallholder fish farmers and other aquaculture value chain actors, providing them with the skills and knowledge to thrive in a growing market. The Activity is being implemented through private and public sector partners across the 21 south-western districts and 2 south-east districts in Feed the Future Zone of Influence (ZOI) and Zone of Resilience (ZOR) of Bangladesh, respectively.

### Summary of highlights for year 4

Key activities performed	Remarks
Developed 40 new partnerships in year 4	These contracts represent an investment of USD 4,733,612 with BAA's contribution being 42% of the total in Year 4.
Completed 30 interventions successfully	Demonstrated improved access to finance for smallholder fish farmers including women and youth; linked rural fish producers to consumers by strengthening distribution channels; and supported the promotion of clean fish markets to improve hygiene standards in the aquaculture value chain.
Key value chain activities in year 4	These are addressing value chain constraints and exploring the potential of access to quality inputs, equipment, and fish seeds; increased adoption of improved management practices and technologies; access to finance and financial literacy training; access to information through digital platforms; production, promotion, marketing and branding of safe dry fish; promotion of improved nutrition, gender and youth inclusion; and the promotion of aquaculture products to formal markets.
Changes in Senior Management	A new COP, Dr. Manjurul Karim, was appointed in the third quarter of the year. An expatriate consultant, Dr. Rip Kirby, has been contracted to drive the scaling and market transformation agenda of BAA.
COVID-19	The intermittent lockdowns slowed program activities and commercial activities leading to mitigation responses in some interventions.
Strategy Review	A strategic review started at the latter part of the year to identify and collate the lessons learnt over the reporting period and the previous years. This will guide future facilitation initiatives to deliver systemic change in the aquaculture sector by driving scale through both copying and crowding in, where the program has seen the beginnings of behavioral change catalyzed by previous and ongoing activities.
Opportunities identified	There is clear evidence of partners adapting and expanding on contractual outputs supported by BAA, particularly in the areas of access to finance, e-commerce, and uptake of best management practices by partners. This will form the core of programmatic output moving to year 5 and beyond.

## New Partnerships:

BAA developed partnerships with 40 actors involved in the aquaculture sub-sector and/or food-fish trade in year four with a total value of USD 4,733,612. BAA and partners contributed USD 1,988,809 (42%) and USD 2,744,803 (58%), respectively (*Annex 1*).

The partnerships are as follows-

- **Sea Natural Food Limited and MarGEN-** promoting ready-to-eat (RTE) processed fish through a variety of retail channels, making it affordable, and accessible to consumers from all walks of life.
- **KNB and Fishtech partnership-** improving access for small smallholder farmers' to quality extension services, feeds, and seeds.
- **Petrochem Bangladesh Limited (PCL)** aims to create a market-driven, women inclusive distribution model to access rural farmers with aqua products.
- **Matrix Business Development Ltd** – strengthening business connections between small feed millers with relevant market actors to access quality ingredients for production of quality feeds at a competitive price, increase production, and facilitate effective maintenance services for their machines.
- **Gorai Films** – promoting quality, branded fish seed from selected hatcheries through a dedicated online platform.
- **Bangladesh Shrimp & Fish Foundation (BSFF)** aims to promote 'judicial' use of quality and approved aqua inputs with an emphasis on compliance issues.
- **Sardar Agro and Afil Aqua**—introducing In-Pond Raceway System (IPRS) technology, as a first mover in southern Bangladesh.
- **BMTH** –supporting the growth of *mola-based* (a small indigenous fish species) aquaculture systems through increasing access to seed for aquaculture farmers and nurseries, and brood for hatcheries, delivering improved nutrition to rural families.
- **KAAS Trade** – aims to promote Best Management Practices (BMPs) through improving access to quality and approved Aqua Medicinal Products (AMPs) for aquaculture farmers, nurseries, and hatcheries.
- **KIU Global** –developing a digital lending platform that to drive better access to formal and mainstream financial institutions for aquafarmers.
- **Macher Gari - MWorld** to promote an app-based innovative transportation system for the hatcheries, nurseries, and grow out farms, to enable the efficient and cost-effective carriage of fish whilst complying with all the required quality and compliance standards.
- **IMEXPRO** - to promote science-based aquaculture practices and the use of small-scale aqua machinery (e.g., Secchi disk, pH meter, DO meter) at the farm level
- **The Right Kind (TRK)-** The Right Kind with its tech partner SourceTrace International aims to promote access to online advisory support and digital trading for aquaculture subsector.
- **Parmeeda & MarGEN** –developing farm-to-fork distribution channel by direct procurement from farmers in ZOI zones and sales in the urban market.
- **MarGEN Ltd** are developing affordable cool chain solutions in fish marketing to reduce post-harvest loss.
- **AIT and Aftab feed** - promoting LSP driven feed business, combined with app-based advisory services for smallholder farmers.
- **FishTech hatchery** establishing two natural PG (Pituitary Gland) processing plants to

collect, process, and market quality PG locally

- **Zahanara Agro Limited** - to promote seaweed-based consumer products in the ZOR region
- **Shushilan** - promoting access to finance, combined with nutrition-sensitive messaging for rural families.
- **Nutri-Champs** to increase the level of production, sales, and consumption of fish along with disseminating the important nutrition messages and demonstrating best cooking practices among university students and communities.
- **Matrix Business Development Ltd-** Matrix Business Development Ltd. (MBDL) to train 500 Local Service providers (LSPs) on human nutrition, Aquaculture, and concurrent Covid-19 issues. to the households with Women of Reproductive Age (WRA) and children as an embedded service during their regular service delivery.
- **CHHIP FOOD BD-** promoting fish consumption to meet the nutrient need of children, adolescents, pregnant and lactating women, meeting the need for protein, essential fats, and micronutrients through RTE/RTC fish-based products.
- **Classic Melamine Industries Ltd. (CMIL)-** In Bangladesh, people use bowls and plates every day, at least thrice a day during meals. A particular set of essential nutrition messages can be inscribed into the bowl and plate lucratively. CMIL perceived this as a big market opportunity to work with since no market agent is producing such plates and bowls with nutrition messages. They have produced attractive melamine 5,000 plates and 5,000 bowls with necessary nutrition messages for everyday use.

**Closed Partnerships** - A total of 30 projects were successfully ended in the fourth year. These include;

- **MWORLD** - the Carp G3 branding partnership concluded, reaching over 10,000 farmers through various events, with over 1700 adopting this species in their fish farming.
- **ByteAlly** - The HYV Carp's block chain-based traceability system was completed this year. The initiative includes 50 participants from the rohu (*Labeo rohita*) G-3 supply chain (brood farm, nurseries, hatcheries, and farmers), and 50 grow-out farmers who were trained on blockchain applications.
- **KNB** - KNB Agro finished the partnership to promote quality feed to t smallholder farmers, engaging 50 dealers and 150 local service providers (LSP) to build their information and advisory capacity reaching more than 16,000 farmers in the FtF zones with access to quality feed.
- **Alim** - conducted 21 demonstration sessions with over 2,000 participants in Jashore, Khulna, and Satkhira to show the effectiveness and benefits of their aquafarming equipment.
- **Bank Asia** - disbursed USD 194,000 in loans for aquaculture farmers and brought 1000 farmers into the formal financial ecosystem
- **Parmeeda & MarGEn** - built farm-to-fork distribution channel and directly procured 210 metric tons of fish worth USD 375,000 from farmers, supporting their livelihoods in the pandemic
- **Organization for Development of Society & Economy (ODSE)** - launched 2 clean fish markets, reaching 2000 farmers, consumers and market actors with better hygiene messaging.
- **Partnership closed with 6 hatcheries:** This year, Rupali Matshya Hatchery, South Bay Hatchery, Harun Matshya Hatchery, Matshya Bangla Hatchery, Asa Hatchery, and Rabeya Matshya Uthpadan Kendra (RMUK) closed partnerships that had facilitated the

adoption of qu best management practices at the hatchery level thereby strengthening the seed distribution network.

- **GORAI Films:** To fight against negative perception about the 'Tilapia' Fish, BAA worked with GORAI films to promote consumption of Tilapia fish in peri-urban and urban markets, through the development of audience-specific communication and promotional materials conveying positive messaging about this species.
- **United Agro Fisheries** - developed a formal supply chain for domestically produced PG to drive increase domestic production and supply of high-quality PG by capacitating Commission Agents and CPG Collectors.
- **Fishtech lab:** With the support of BAA, FishTech BD launched private sector-led real time Polymerase Chain Reaction (RT-PCR) based commercial aquatic disease diagnostic laboratory in Khulna.
- **BSFF:** To ensure optimal and sustainable use of aqua inputs in Bangladesh, BSFF completed a compliance-related project with Bangladesh Aquaculture Project named 'Work on Policy Consolidation, Improvement in Licensing, Management Process, and Effective Use of Aqua Inputs'.
- **Somoy Prokashon** published 2,000 copies of fish-based cookbook titled, 'Machbhog' (meaning 'relishing fish') and 4,000 copies of promotional pamphlets containing eight important fish-based recipes to encourage nutritional behavioral change and increase fish consumption.
- **Classic Melamine Industries Ltd. (CMIL)** produced 5,000 plates and 5,000 bowls for commercial sale, containing important nutrition, WASH and aquaculture information to instigate fish and diversified food consumption.
- **Rohita Advertisements:** Established a sustainable channel for publishing quality articles on aquaculture, fish marketing, and nutritional aspects by attracting advertisements from relevant companies.
- **Backbenchers Communications** – Produced an entertaining and informative show, in 5 episodes, for the community radio and online platform on aquaculture and nutrition, reaching 250k audience for each.
- **United Purpose (UP):** Trained 100 women entrepreneurs and 9,500 women producers on business skills, and distributed 170,000 leaflets, sent SMS to 16,750 women entrepreneurs, producers, consumers and other market actors.
- **Bolipara Nari Kallyan Sangstha (BNKS):** Improved hygienic and sanitary condition of fish market of Bandarban, alongside driving the message of covid-19 prevention through better hygiene practices.
- **BRAC and Bhola hatchery:** Increased the supply of Genetically Improved Farmed Tilapia (GIFT), selling sold 97m, and 2.7m monosex tilapia fries.
- **Shah Amanath Traders and Cox's Bazaar Shop:** In ZOR advertised their dry fish products and advocated better dry fish Management Practices through social media, leaflet, sticker, display board.
- **Mukti Cox's Bazar:** Disbursed USD 215,588 loan to 301 individuals (292 women) working in the dry fish sector.
- **Maa Mothsha Khamar:** Located at Bandarban, the hatchery delivered training to 10 seed traders and 38 fish farmers on the importance of quality fish seed and better management practice and organized market linkage events and farmers field days.

**Monitoring, Evaluation and Learning (MEL):** The performance monitoring surveys were rolled-out as an on-going process and systematically tracked and monitored IPs activity



progress against the targets. These enabled the decision makers and implementers to determine whether an activity was making progress towards its intended goal within stipulated time frame or required any programmatic decisions. The MEL applied system for updating data values for the Performance Data Table (PDT). GIS data was collected and prepared maps. The web-based info hub was upgraded for improved data access, GIS navigation and visualization. Internal Data Quality Assessment (iDQA) and initiating measures for improvement were carried as a routine activity.

The mid-term evaluation of BAA was concluded in third quarter by Consiglieri Private Ltd, a third party (*Annex 2*). As stated in the Mid-Term Evaluation (MTE) report, the Activity is taking effective measures to ensure that all recommendations are followed. The key recommendations include:

- a) strengthening fish feed delivery systems through one-stop service centers;
- b) motivating dealers and sub-dealers so that they could extend support services;
- c) emphasizing nutrition sensitive interventions;
- d) encouraging financial institutes to ensure availability of loan packages with flexible repayment terms and conditions;
- e) strengthening partnerships with DoF;
- f) adopting flexible timeline and duration for all contracts;
- g) emphasizing more on post-harvest management and forward market interventions;
- h) facilitating the process of partnership collaboration with all IPs and make a single platform for them to work together; and
- i) monitoring and follow-up sessions with sub-grantees and their distribution network actors.

**Key results:** The Activity leveraged USD 5,230,007 as investment, of which USG committed amount is USD 1,211,678 and private sector's investment is USD 4,018,330. A total of 301,726 participants were reached through building market linkages, services and capacity building activities. Bank Asia, City Bank, Mukti Cox's Bazar and Shushilon disbursed USD 3,816,365 in customized loans to 883 farmers. A total of 846 women entrepreneurs are involved in various types of businesses, accessed financial services and are acting as Local Service Providers (LSP). Similarly, business opportunities for 570 youth were created and supported by the Activity. A summary table is provided below (*Table 1*).

**Strategy Review:** This commenced at the end of the third quarter. The Activity has embarked on a process of assessment of impact and sustainability for its past and current interventions. This will help the program to scale up its activities in selected areas that have shown promise for sustainable change in the value chain. This will result in a renewed focus on fewer interventions in the coming year along with mainstreaming the gender and youth components of the program. The team is re-engaging with partners to understand how the aquaculture space has evolved with Activity's support for private sector and NGO actors.

**COVID-19:** The imposed COVID-19 restrictions prevented farmers from selling fish and buying inputs which hampered production of spawn, fry, fingerlings, food fish including dry fish with a significant negative financial impact on overall aquaculture industry. BAA acted to reduce the impact of this critical situation by following alternative possible options and leveraging on its many longstanding relationships with private sector partners.

BAA distributed more than 50,000 Information, Education and Communications materials with nutrition, aquaculture and COVID-19 messages to approximately 10,000 fish-farmers and community people. Training courses and messages on aquaculture, nutrition and COVID-19 were delivered to 1,916 aquaculture LSPs and farmers.

Backbenchers Communications, one of the partners, reached more than 140,000 people through audio programs on aquaculture and nutrition broadcasted from Radio Jhenuk, Jhenaidah as a means to virtually reach Activity participants during Covid-19

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

Indicator	Level	Unit	2021 Target	2021 Results	% ACHV	2022 Target	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	1,471,231	4,018,330	273%	2,292,555	144,089
	USG commitment amount	US Dollars	3,678,077	1,211,678	33%	1,921,184	288,178
	<b>Sub-total</b>	<b>US Dollars</b>	<b>5,149,308</b>	<b>5,230,007</b>	<b>102%</b>	<b>4,213,739</b>	<b>432,266</b>
EG.3-2-Number of individuals participating in USG food security programs [IM-level]		Number	300,986	301,726	100%	354,748	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	270,962	261,210	96%	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	80,500	79,595	99%	91,543	6,577
	Commodity: Tilapia	Hectare	4,069	773	19%	1,108	80
	<b>Sub-total</b>		<b>84,569</b>	<b>80,368</b>	<b>95%</b>	<b>92,651</b>	<b>6,657</b>
EG.3-10-11-12-Yield of targeted agricultural commodities among program participants with USG assistance [IM-level]	Yield: Carp	Kg/Ha	2,564	3,326	130%	3,493	3,667
	Yield: Tilapia	Kg/Ha	7,537	7,589	101%	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	378,776,936	348,046,631	92%	433,257,135	31,113,803
	Firm - Enterprises	US Dollars	17,917,087	15,426,281	86%	19,815,448	1,201,667
	<b>Sub-total</b>	<b>US Dollars</b>	<b>396,694,023</b>	<b>363,472,911</b>	<b>92%</b>	<b>453,072,584</b>	<b>32,315,470</b>
EG.3.2-27 Value of agriculture-related financing accessed as a result of USG assistance	Number of recipients	Number	2,520	883	35%	674	168
	Size of recipient	US Dollars	3,294,118	3,816,365	116%	816,597	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	252	846	336%	539	135
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	504	570	113%	34	8

## **2. Introduction**

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. BAA 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 initiative that disappears at the end of the project support. The Activity focuses on improved nutrition through more productive aquaculture and has strong cross cutting elements of environment, youth, and gender which are inculcated into sub-grantees.

The Activity at the end of the year 4, and is at a mature stage with significant learning from its interaction with all actors in the aquaculture value chain. The program now proceeds towards a process of critical assessment of impact and sustainability of its past and current interventions to scale up its activities in the areas that have shown promise for sustainable change in the value chain. The Activity will focus on market resilience, promotion of women and youth focused initiatives, LSPs to foster greater impact and long-term sustainability. The Activity will address MTE's recommendations and apply lessons, gained from past years. The MEL and KM systems will incorporate mechanisms for qualitative assessment, measure systematic changes and crowding-in, and capture lessons and its wider dissemination and replication.

## **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 an inclusive market systems approach in the interventions through engaging the private sector to reach smallholder farmers and relevant market actors. BAA is facilitating the process rather than delivering the interventions directly, stimulating co-investment by and transferring ownership to the private sector. The approach includes analysis of the ground context, identification of the problems and the underlying root causes of poorly functioning markets, and catalyzing private sectors to bring market-based solutions. These problems and solutions were explored through a series of co-creation meetings. The

Activity Team regularly follows investment rationale steps that justify the Activity investments and leveraging co-investment by the private sector.

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 (crowd-in), Respond (coping) (AAER) framework to explain 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 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-east districts under 1 division in the Bangladesh Feed the Future Zone of Influence (ZOI) and Zone of Resilience (ZOR) respectively (Table 2 and Figure 1). These areas present more challenges in relation to the development of aquaculture sector and livelihoods opportunities. The growth in aquaculture in these areas can play an important role to change this scenario by increasing production and income opportunities, through catalyzing systemic change in the market.

Table 2: Feed the Future working districts

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

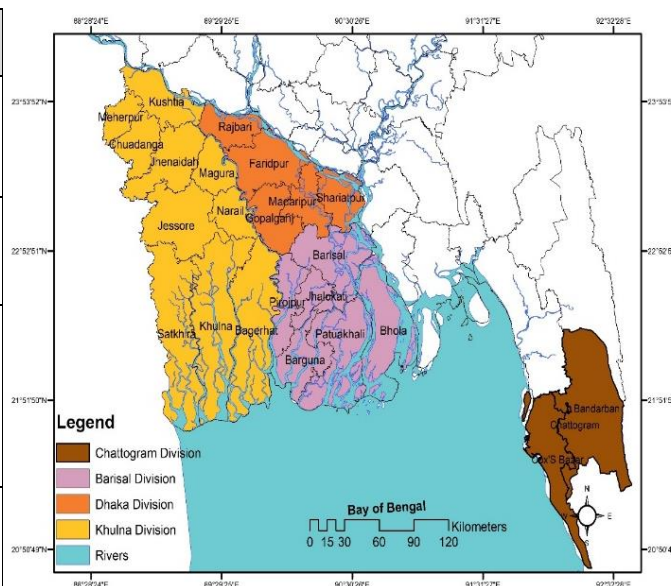


Figure 1: Feed the Future working area

## 7. YEAR 4 (OCTOBER 01, 2020 TO SEPTEMBER 30, 2021): PROGRESS BASED ON THE WORK PLAN

### IR 1. Increased Aquaculture Productivity

**Context:** Aquaculture development in Bangladesh has been constrained by the poor quality of fish seed from its hatcheries, with problems of improper brood management and limited access to improved strains. Fish feed suppliers face issues such as dependence on imported ingredients, lack of consistency or ability to produce high quality feeds and subsequent lack

of confidence or willingness to pay from fish farmers. Fish health management is critical but the industry is under-prepared to react to new challenges such as Tilapia Lake Virus. Considering the above context, the Activity is supporting the sector to; i) increase availability of improved aquaculture seed ii) increase availability of affordable quality fish feed, and iii) increase adoption of improved pond management practices.

## **Sub-IR 1.1 Increased availability of improved fish seed**

### **1.1.1. Close three sub-grant hatchery partnerships**

BAA signed contracts with Harun Matshya Hatchery (HMH) of Patuakhali, Matshya Bangla Hatchery (MBH) of Jhalakathi, and Rabeya Matshya Uthpadan Kendra (RMUK) of Barishal in year 4, in order to ensure quality carp seed supply by implementing best management practices at the hatchery level and strengthening the seed distribution network.

These hatcheries have implemented a variety of best hatchery management practices, such as increasing the number of high-quality broods, ensuring hatchery biosecurity and improving hatchery infrastructure. All of these hatcheries prepared festoons, banners, leaflets, and posters as part of their communication and market development efforts, and have directly communicated with food fish and nursery farmers through various types of knowledge sharing events, such as farmer training, nursery owners training and stakeholders' festival.

Apart from that, hatchery experts from the Department of Fisheries (DoF) have delivered two-day training to six hatchery operators in order to improve their hatchery management capacity. All together, these three hatcheries have trained 135 seed traders and nursery operators, as well as 2,683 grow-out farmers, 715 of whom were female smallholder farmers.

### **1.1.2. Close one sub-grant hatchery partnership**

The partnership agreement between Rupali Fish hatchery and BAA has been ended during this reporting year. Throughout the partnership period, Rupali Fish Hatchery, besides establishment of BMP, have installed water recycle plant in hatchery complex to ensure the proper use of groundwater for their daily hatchery operation and they also completed the installation of solar plant in hatchery complex to ensure smooth hatchery operation. A total of 30 seed traders and 923 farmers were trained on technical aspects and small trades to provide embedded service under this agreement, resulting in growth in their seed business. The introduction of BMP practices through this intervention boosted fish productivity, resulting in 45 Kg fish seed sales through 30 lead seed traders, representing a 9 % growth in sales over the project duration.

### **1.1.3. Close two sub-grant hatchery partnerships**

During the 1st quarter of year 4, Asa Matshya Hatchery (AMH), Bagerhat, and South Bay Private Ltd. (SBPL), Khulna closed out the planned activities. In addition to building a biosecurity system at the hatchery level, both hatcheries delivered training to 1,750 farmers and 70 nursery owners on Good Aquaculture Practices (GAP) at the field level, allowing them to implement Best Management Practices (BMP) throughout the fish value chain. To improve sales and marketing, communication activities were carried out to brand the high-quality seed and link the fish agents to the hatcheries. The hatchery intervention influenced nearby hatcheries to replicate the method they learned from the neighboring hatcheries and adopted best management practices.

### **1.1.4. Foster market linkages with the partners**

Harun Matshya Hatchery, Matshya Bangla Hatchery, Rabeya Matshya Uthpadan Kendra, Asha Matshya hatchery and South Bay hatchery adopted best management practices with the support of the Activity. In addition, seed distribution network was strengthened to disseminate quality carp seeds and broods in 3 aqua clusters.

## ***High Yielding Varieties of Carp***

### **1.1.5. Marketing partnership for high yielding carp varieties**

WorldFish has released Generation 3 (G3), a High Yield Variety (HYV) Rohu, to the market in 2020. To promote this variety among the farmers and the relevant market actors, BAA formed 'Egiye Choli' project and has on boarded **MWORLD** as a brand promotion partner of G3 Rohu.

MWORLD organized 450 courtyard sessions to promote the Generation 3 High Yield Variety Rohu. A total of 8,605 farmers joined in these events. MWORLD also released five digital contents on Facebook, stressing the competitive benefits of G3 rohu and the sourcing points. This resulted in 93,216 views and 11,887 likes, as well as 100 Facebook short message exchanges, and 67 phone calls from those who were interested. As a result of these efforts, a total of 1605 farmers stocked G3 Rohu in their ponds. A total of 20 networking meetings with the participation of the Department of Fisheries (DoF) were also held in order to reach a larger number of farmers. More than 100 meetings with hatcheries, nurseries, and fish traders were also organized by the Activity to raise awareness on G3 rohu. In addition, 767 farmers, 39 DoF officials, 21 NGO officials, and 4 members of local administrative bodies attended 15 Farmers' Field Days in Jashore, Khulna, and Satkhira districts to exhibit and promote the results of G3 rohu culture. Because of different marketing efforts of MWorld, familiarities and interests about G3 HYV rohu have been increased among the fish hatchery and nursery owners as well farmers in ZOI. Though harvesting has not started yet by the farmers but they are observing faster growth, 20%-30% of G3 rohu comparing to existing rohu in the markets

#### **1.1.6. Find potential hatcheries and nurseries to spread the G3 HYV carp**

BAA was able to produce 228 families of Generation 3 (G3) rohu and disseminated about 31 kg of G3 rohu spawn to 32 nurseries and 24 hatcheries so far. The nursery operators sold 682,804 pieces of G3 fingerlings worth of BDT 2,677,739 (USD 31,897) to 1,605 aquaculture farmers in 21 districts. In addition, Carp Genetic Improvement Program (CGIP) has already produced 122 families of G1 catla and 222 families of G1 silver carp. The hatcheries are rearing the G3 rohu to produce brood, and will be able to breed the G3 rohu in 2022 and supply improved quality (20-30% faster growth) seeds to thousands of nurseries, patilwalas and farmers.

#### **1.1.7. Business plan for sustainable operation of the CGIP**

A business plan on the Carp Genetic Improvement Program (CGIP) was prepared by Abacus Bio, the assigned consultancy company (*Annex 2*). The assessment reveals that a commercialization initiative targeting the fingerling sector will achieve optimal financial sustainability, but the highly fragmented nature of the nursery sector remains a challenge. The key recommendations of the business plan for WorldFish includes: a) establishing a commercial entity to create an investment opportunity for the non-donor investors and b) securing donor-support for 36 months to resolve some legal issues (e.g., IP ownership) and establish a pilot of the proposed business model to validate the assumptions and attract commercial investments. This is critical to make the CGIP investor-ready in order to transition to a financially sustainable model.

#### **1.1.8. National forum on selective breeding and fish productivity**

A meeting is scheduled for October 2021 involving the policy makers from the Ministry of Fisheries and Livestock (MoFL), the Department of Fisheries (DoF), the Bangladesh Fisheries Research Institute (BFRI), universities, researchers and practitioners, and donors involved in improving quality seed production of carp in Bangladesh. The meeting agenda was developed with a list of participants during the reporting quarter. Since, 2012, WorldFish with support from USAID, FISH CRP, BMGF and other donors has been implementing the Carp Generic Improvement Program (CGIP) based at Jashore. In the planned meeting, researchers from WorldFish will present important outcomes of CGIP along with the business models. This will be followed by panel discussions and a Q and A session.

#### **1.1.9. Commercial assessment of Better Management Practices (BMPs) and case study for crowding in**

A case study highlighting impacts of adopting better management practices (BMPs) on Carp hatcheries has been produced for wider dissemination which reflected following key Impacts-

- a) Increased 20-40% quality eggs production following proper water, feed and brood management,
- b) Stress and disease contamination reduced for pond bottom soil removed in time, relatively reduced aqua imputes and chemicals application cost, which ultimately reduced 5-8% production cost.
- c) Pond dike fencing and bird protecting net over the nursery pond increased 15-20% survivability of fries at the time of nursing.
- d) Proper record keeping decreased the chance of Inbreeding and increased fry quality.

#### **1.1.10. Foster linkages with BRAC nucleus and Bhola cohort**

BMTH owner already has had fruitful meeting with Aquaculture Development Team members to sell GIFT mixed sex and Monosex Tilapia seed within Aquacluster areas with assistance of POs. In addition, the POs supported the hatchery, its client and other tilapia farmers to establish linkage with the feed millers in Barishal Aquacluster to access better conventional feed at a competitive price.

#### **1.1.11. Technical assistance to the *Genetically Improved Farmed Tilapia (GIFT)* hatchery partners re multiplication and brood stock development**

**BRAC Magura** (CBHs) tilapia hatchery has sold 2,85,445 GIFT mixed sex fries as future brood stock to 6 multiplier hatcheries located in Srimongol, Khulna, Noakhali, Magura, Sunamganj, Pabna and one DoF station other than six hatcheries. These hatcheries will produce quality monosex fries for grow-out production system using this broodstock in coming years. Besides this, BRAC has sold 97,000,680 monosex fries from his own 7 tilapia multiplier hatcheries which worth of BDT 106,938,201 to around 3,200 grow-out farmers of different geographical locations of Bangladesh. BRAC Magura Tilapia hatchery has also conducted two awareness raising workshops on quality tilapia brood use from CBHs where 45 hatchery professionals had attended.

As a part of brood development program of BRAC CBHs genetic quality assessment, the hatchery has conducted GIFT tilapia performance trial at NOVA hatchery to Identify the best genetic material of BRAC Magura CBHs for their brood improvement program. Comparing two genetic materials' where growth, FCR, survivability, fecundity, productivity and profitability were considered. Data processing is ongoing to conclude a result.

**Bhola hatchery** has sold 128,000 mixed sex fries as future brood stock to eight multiplier hatcheries from his GIFT cohort breeding system (CBHs) at different geographical location of Bangladesh. In addition, Bhola hatchery has sold 2,699,300 monosex fries valued at BDT 1,297,445 to 128 grow-out farmers and 36 agents (each agent sold to 4 to 5 farmers)

#### **1.1.12. IPRS to promote intensive aquaculture system**

There is a critical need to promote intensive aquaculture technologies to maximize production to meet the growing demand for fish. The Pond Raceway System (IPRS) is a proven cutting-edge technology in this regard but requires high investment in biological, civil, electronic and electrical engineering to deliver results.

In June 2021, BAA has on-boarded two new partners, Afil Aqua Fish Ltd. and Sardar Agro, to help promote intensive aquaculture by implementing IPRS technology. High-Value Fish (HVF) such as sol, magur, rohu, and grass carp have been stocked into four separate IPRS production cells. The planned training and advertising initiatives will be implemented in the coming quarter. We will go over this in a greater depth in the next quarter.

#### **1.1.13. Training on marketing, promotion, and sales for 33 partner's staff**

Training has been provided to BRAC and Bhola Cohort breeding System (CBHs) hatchery staffs, and marketing staff for their business promotions, seed quality improvement and services linked with market promotion.

#### **1.1.14. Follow on training for partner's staff**

Two batches of training sessions have been conducted at ZOI (Jashore, Khulna, Sathkhira and Magura) and Cumilla where 49 hatchery professionals of different multiplier hatcheries have participated. The key objective of the training was to create awareness about GIFT Tilapia brood quality for commercial monosex fry production, seed quality improvement at hatchery production and proper application of better management practices.

#### **1.1.15. Establish market and technical linkages with SPAITS participants**

SPAITS (Scaling Systems and Partnerships for Accelerating the Adoption of Improved Tilapia Strains by Small-Scale Fish Farmers) funded by BMZ/GIZ, one of the projects is being implemented by WorldFish developed a fact sheet on “Quality Seed Production and Dissemination of Genetically Improved Farmed Tilapia (GIFT)” and a poster on “Elite Brood stock for Quality, Profitable Seed Production and Dissemination of Genetically Improved Farmed Tilapia (GIFT)” (*Annex 3*). Apart from that, a ToT manual will be developed on Tilapia seed production and grow-out which will be used by BAA participants capacity building on hatchery production at the same time of SPAITS participants. Furthermore, a workshop will be organized by SPAITS at Zone of Influence in next quarter where Activity different layers of stakeholders will participate (*Annex 3*)

#### **1.1.16. Mola Seed Bank in Bhola - resolve packaging issues, explore a partnership**

Production of Mola (*Amblypharyngodon mola*) from natural resources were significantly reduced over the last few years mainly because of indiscriminate fishing from open waters and industrial pollution. As a mitigation strategy to promote this nutritional fish species, BAA has made a partnership with Bhola Monosex Tilapia Hatchery in June 2021 to produce, promote and develop a robust supply and distribution channel of quality Mola seed to the hatchery, nursery and grow-out farmers.

An introductory meeting, two-day staff training on the marketing and technical aspects of mola seed, and a coordination meeting were held this year. Renovation of the brood pond and nursery ponds, as well as the installation of inlet and outlet pipes in ponds, the establishment of mini hatchery facilities, the collection of broods, and BMPs such as pond perimeter fencing with wire net, pond covering with bird protecting net, foot baths, and so on, had all been completed.

### **Sub-IR 1.2 Increased availability of affordable quality fish feed**

#### ***Increasing better quality feed through Local Service Providers (LSP)***

##### **1.2.1. Partnership with KNB Agro to test micro-feed formula for small farms**

KNB will build knowledge and skills of more than 16,000 farmers on fish feed, aquaculture business through 50 dealers and 150 local service providers (LSP) (*Annex 4*). KNB will help improving access to micro-feed to these large number of farmers with the dealers and LSPs

KNB has organized ‘Product Promotion Events with farmer’ led by LSPs to demonstrate different types of feed for various fish species with the necessary technical information, reaching. A total of 2728 participants were there and 576 females have also attended. KNB has also organized a workshop on field trial result of micro feed where 24 different feed companies were attended. An annual performance workshop has also been conducted to share the overall project learning to the stakeholders.

KNB's LSP- driven business model has sold more than 61 MT of feeds, which is more than 13 MT from the previous quarter, and earned BDT 90,940 (USD 1092) as an incentive from dealers and retailers. KNB's one-stop service center sold 723 metric tons of feed at the project



site alone, as well as provided extension services to more than 3000 farmers from the one-stop service points

### **1.2.2. Locally produced feed to be sold via LSP sales network by AIT**

AIT (Agro-Industrial Trust) feed company aims to minimize feed adulteration by using local feed ingredients. AIT launched their trail carp floating feed during quarter 3 of the year 4 using indigenous ingredients. After receiving positive feedback from traders and farmers, AIT started commercial production using the new feed formula comprised of indigenous feed items and marketing from August, 2021. They sold an amount of 209 MT feed by September 2021 by utilizing renewed branding protocol.

AIT Feed held workshops for internal staffs to identify possible input providers in order to promote the new feed to farmers and relevant stakeholders. They have also trained 25 dealers and sub-dealers in technical services so that they could give extension services to farmers while selling the new feed. 50 Local Service Providers were introduced to the dealers through business-to-business events, and they received training in business management and customer service. During this time, 1535 farmers (69 of them are female) were reached through various promotional events.

### **1.2.3. Sign partnership agreement on Small Feed Miller**

The main objectives of this intervention are to explore ways to sustain small millers' business through increasing their technical capacity, improving product quality, formulation, market access, and process management. Efficient operation of feed mills, exploring alternative energy sources, raw materials, and overall improvements in the supply chain are also the key focuses of this initiative.

Matrix Business Development Ltd with the support from BAA aims to create B2B linkage between the millers, machineries and raw-materials traders separately. MATRIX will play a vital role and help improving access to quality ingredients to feed millers and market actors. They are also assuming to get incentive from selling local machine and other product following agreement with them. It is expected that partner millers increase in feed sales would influence other millers to collect inputs and equipments from Matrix.

Matrix will build B2B linkages with 50 small feed millers, 120 market actors, 80 LSPs, 100 machinery technicians by capacity building event and reach 3000 fish farmers by-product promotional event led by small semi-auto feed millers in partnership with BAA. Within a month of signing the agreement with BAA, they have identified 50 small millers and the training will be started from October 2021.

### **1.2.4. Connect local feed millers to the FTF Rice Development Activity's maize producers**

Three linkage workshops have been held with local feed millers, ingredient suppliers, feed and feed ingredient vendors, and fish farmers in the Jashore, Satkhira, and Barishal aqua-clusters, with a total of 47 participants, 28 of whom were feed millers and feed ingredient suppliers. Participants reviewed challenges, bottlenecks, obstacles, and potential solutions faced by the subsectors resulting better understanding of the situations and expectations from each other as well as possible measures to improve the situation.

### ***Data solution for feed inventory and demand forecasting feed supply incorporating LSPs***

### **1.2.5. Co-creation re using sales data for supply, LSP management, and feed sales**

Operational management of the feed supply chain is a major challenge for feed companies largely due to the lack of 'Information Integration' as sales and distribution information is not linked. That is, inventory levels and sales reports are not brought together in a way that makes re-ordering feed efficient. Stock at retail outlets is either too high or too low, and production runs do not sync with orders. A sort of 'bullwhip effect' takes hold as producers and sellers

swing from surplus to shortage. With support from BAA, Aftab feed products limited will develop a digital platform to minimize the gap and ensure appropriate feed selection through artificial intelligence

Following the Aftab's launch in the previous quarter, Aftab Feed held staff orientation sessions and signed agreements with Source Trace to develop cloud-based apps and Agro Solution to provide on-demand call-based service using CRM technology. In addition, they have provided CRM and customer service training to 11 call center employees. Aftab feed has also organized courtyard meetings with the fish farmers to train them on best management practices, product promotion, and embedded service using the digital platform. The meeting drew 806 fish farmers, 16 of them were female.

Aftab feed has received the trial version of the Apps application and its field trial is ongoing. The trial version is now being used by the employees, feed dealer, LSP, and farmers. Source Trace will continue to update the application after collecting all inputs in order to make it more user-friendly for farmers.

They have also started a CRM-based on-time call center service for rural fish farmers. Apart from this, Aftab finalized 50 dealers, 100 LSP, 50 demo farmers for pond trial, printed different communication materials including 30,000 leaflets, 12 set festoon, 10,000 T-shirt, 10,000 stickers to promote the CRM based call center hot-line number.

#### **1.2.6. Establish a joint business model to increase the capacity of aquaculture supply chain**

Under this intervention, KNB and Fishtech (BD) Limited, a reputable Aqua Medicinal input company, are involved in the Activity under a mutual business promotion agreement.

KNB and Fishtech aim to strengthen linkages between farmers and input supply chain actors (eg. KNB and Fishtech's dealer/sub-dealer, retailers) through building their capacities and awareness and link other market actors within the platform to provide advisory services when selling Aqua inputs, AMP and feed to farmers. This will also support the service marketing aspect of the aquaculture business, which is now lacking.

During this year 4, KNB has led a joint intervention and organized ten batches of business linking events at the district/upazila level, with 290 market participants (eg. dealer, sub-dealer, LSP, LEF and Arotder) in attendance. They have held business development events with farmers, with a total of 8,794 farmers in attendance, including 1,893 women. They have also printed and delivered 40,000 leaflets to farmers while encouraging them to use the best management practices.

#### **1.2.7. Access to quality AMP and Feeds through supply chain strengthen**

Under this intervention, KNB will create a collaborative business model where Fishtech (BD) Limited, a reputable Aqua Medicinal input company, will be involved in the project under a mutual business promotion agreement.

KNB and Fishtech will share their supply and distribution capacity (dealer/sub-dealer/retailers) to reach a large number of farmers. In the process, initially they will strengthen linkages between farmers and input supply chain actors (eg. KNB and Fishtech's dealer/sub-dealer, retailers) through building their capacities and then aware & link other market actors within the platform to provide advisory services when selling Aqua inputs, AMP and feed to farmers. This will also support the service marketing aspect of the aquaculture business, which is now lacking.

During this time, KNB led a joint intervention and organized ten batches of business linking events at the district/upazila level, with 290 market participants (dealer, sub-dealer, LSP, LEF, Arotder, and so on) in attendance. They also held business development events with farmers, with a total of 8,794 farmers in attendance, including 1,893 women. They also printed and delivered 40,000 leaflets to farmers encouraging them to use the best management practices.

## **Sub-IR 1.3 Increased adoption of improved pond management practices**

### ***Diagnose fish and shrimp diseases, analyze water and soil quality***

#### **1.3.1. FishTech partnership**

With the support of BAA, FishTech BD has launched private sector-led real time Polymerase Chain Reaction (RT-PCR) based commercial aquatic disease diagnostic laboratory in Khulna. The lab was established with the goal of diagnosing fish and shrimp diseases, analyzing water and soil, facilitating aquaculture research, and providing technical assistance to small-scale aquaculture farmers and other users. The lab has progressed gradually since its inception, providing services to clients according to their needs. The lab has also improved the company's brand positioning while continuing to play an essential role in its own research and product development. This year, the lab has provided services to 20 commercial fish companies, 5 hatcheries, 10 research students, and 1,659 small-scale fish farmers on a regular basis.

#### **1.3.2. Foster market linkages with the partners**

Alim Industries Limited and IMEXpro BD were linked and presented to around 65 Aquaculture stakeholders including farmers and nursery owners in Jashore and Satkhira through meetings and demonstrations, where they got the opportunity to showcase their aqua-machinery products and distribute product brochure, leaflets, etc.

#### **1.3.3. Strengthening Supply Chain of Indigenous Pituitary Gland for Carp**

##### ***Partnership with United Agro Fisheries (UAF)***

With the support from the USAID funded BAA implemented by WorldFish, a local Bangladeshi firm United Agro Fisheries (UAF) took a pioneering step to develop a formal supply chain of Pituitary Gland (PG). The business model aimed to increase domestic production and supply of high-quality PG by capacitating Commission Agents and CPG Collectors. UAF recruited 16 Commission Agents who created a market linkage between UAF and PG Collectors (PG Collectors are 'Fish Cutters' and locally known as 'Botiwala'). Through this 'Commission Agent' model, UAF developed a network of 386 PG Collectors during the project period and trained them on PG extraction, collection and preservation. UAF organized capacity building training for more than 200 hatchery owners and technicians. As a demand creation technique, UAF trained these hatcheries on Carp Breeding and Spawn Production method using dry CPG.

Previously, UAF could only collect about 2,000-2,500 pieces raw CPG monthly, which has now increased to some 150,000-170,000 pieces due to the project intervention and model extension. UAF sustainably keeps increasing their production capacity; they have produced nearly 3 KG of dry CPG during January-April 2021 period, almost two times than the previous period (1.7 KG during July-December 2020). Market value of 3 KG dry CPG is approximately USD 279,000.

Fish hatchery owners suffer losses due to unavailability and high price during the season of carp pituitary gland. Synthetic hormones that are available in the market with relatively low prices are widely used despite their negative impact on productivity and food safety. This intervention was initiated with Fishtech Hatchery to produce and market quality PG locally.

During the year, Fishtech held 54 communication events with 193 PG harvesters (fish cutters) and 44 PG collectors in order to establish a reliable supply chain for collecting raw pituitary glands from retail fish markets. 227 existing PG harvesters and collectors received capacity-building training to secure the supply of high-quality raw PG for Fishtech's PG processing plants and others.

##### ***Promote aqua product and services through LSPs***

#### **1.3.4. Develop incentive programs for LSPs and buyers**

The farmers living in remote areas often are not getting easy access to quality inputs as well as the appropriate advisory services. Petrochem Bangladesh Limited (PCL) with the support from BAA aimed to ensure advisory services for small-scale aquaculture farmers through developing women micro-franchises (WMF) n. Under this intervention, they agreed to develop 60 women micro-franchises and link them with the master franchises (company dealers). PCL also aimed to reach 4,800 smallholder farmers directly through courtyard meetings and also support 2,400 smallholder farmers through providing embedded advisory services from the WMFs.

PCL began onboarding all of its project staff in August, conducted project orientation for the project staff, primarily selected the women micro-franchises as well as the affiliated master franchises/dealers. They also started working on marketing and promotional materials for their company (Product Brochure cum Technical Handbook, business record-keeping books for the WMFs, leaflets, festoons).

### **1.3.5. KAAS Trade to strengthen the aqua medicinal product (AMP) supply chain to reach last mile smallholder farmers**

Smallholder aquaculture farmers are facing loss of economic potential due to lack of availability of quality raw materials, advisory services and knowledge on best management practices (BMP). KAAS Trade, an established aqua input company, commenced this partnership in the 2nd quarter of year 4 to strengthen the distribution channel of aqua medicinal products (AMP) to reach stallholder farmers with necessary BMPs and advisory services. KAAS with the assistance of its three implementing input companies (Argon, Agro Based, and Unique Agro Care) will reach 17,400 fish farmers, 360 nursery farmers, 36 hatchery owners, and 45 dealers and retailers. They will establish 30 AMP School where the farmers will have the access of quality inputs and advisory services along with water & soil quality parameter testing facilities (DO, pH, NH<sub>3</sub>, H<sub>2</sub>S)

As of year, 4 KAAS Trade has onboarded the project staff and finished the orientation for the field operation. Through meetings and promotional materials, they have selected and trained 66 dealers from three implementing partners and 32 last-mile local service providers (LSPs) to provide technical assistance to farmers. They have also provided training on AMP and Aquaculture technique to provide 360 degree services to farmers to 44 hatchery owners and technicians, as well as 301 nursery owners including 3 women nursery operators with the expectations that smallholder farmers will access technical information from these market actors.

#### **Challenges encountered while implementing activities in IR 1 during this year:**

BAA's partner MWORLD has observed a slow acceptance rate of Carp G3 in the market as the market is dominated by synthetic PGs with cheaper prices than natural PGs, FishTech Hatchery is having difficulty launching the natural Pituitary Gland (PG) product. These constraints are predictable when asking market actors to embrace new products or behaviors. COVID-19 has also continued to impede field activities due to crowding and congregation restrictions.

#### **Major activity plans for the next quarter:**

Major activity plans for the next quarter involves, partner MWORLD will dissemination communication material like 5,000 leaflets, 40 marketing events and 181 courtyard sessions to promote the G3 Rohu among the farmers. Fishtech hatchery will set up 2 PG processing plants and conduct a comparative study between synthetic PG and natural PG. KAAS will set up 30 AMP schools at dealer points and train more than 500 market actors.

## **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**

### ***Building a sustainable farm-to-fork supply chain***

#### **2.1.1. MarGEN and Parmeeda to promote farm-to-fork distribution model for increasing safe fish trading**

**MarGEN Ltd.:** Due the Covid-19 lockdown, the fish supply and logistics system have been severely disrupted reducing the amount of fish trade across the country. To mitigate this, MarGEN Bangladesh aims to build a sustainable farm-to-fork supply chain through sourcing fresh fish from the farmers to under its brand name of 'HALDA Fish'.

This year, the intervention was accomplished. MarGEN completed 5 training sessions and 38 courtyard meetings for fish farmers on fish harvesting, transportation, and handling, 6 knowledge sharing sessions for traders, transporters, and laborers on clean and hygiene management, 10 knowledge sharing sessions for retailers on pre-processing, developed 10 fish selling mobile vans for home delivery, branded 10 grocery shops for fish selling, and developed storage capacity of 2700 liters during this project.

They also reached out to 32,000 customers via SMS marketing and 16,000 customers via Facebook promotion. During the project's duration, MarGEN built the supply chain capacity of 3,145 farmers and 217 merchants and other actors, procuring 144 metric tons of fish with a market value of USD 279,000 from the farmers and linked market participants.

**Parmeeda Enterprise**, an e-commerce business, responded to the supply chain disruption caused by COVID-19 by increasing the volume of fish traded through its platform. The collaboration that began in December 2020 concluded in May 2021 with 492 farmers trained on post-harvest management of safe fish and 3,000 farmers registered in Parmeeda's supply chain officially through its digital app platform 'Nirapad Khamar' (*Annex 5 and Annex 6*).

Parmeeda disseminated 300,000 SMS to inform customers about safe fish and available discounts. They sent SMS to farmers to alert them on Cyclone Yaas, which helped farmers to take necessary pre-cautionary measures. Parmeeda ran special discount coupons, offers through credit card purchase and Facebook advertisement that helped them sell 65.84 metric ton cultured fish through online and paid USD 115,500 to producers located in Feed the Future zone.

### ***Clean Markets***

#### **2.1.2. Upgrade sanitary conditions at local wholesale and retail fish markets**

With the objective to create a clean, hygienic, and safe fish model market for consumers amid the COVID situation, BAA formed a six-month-long partnership with the Organization for Development of Society and Economy (ODSE) to build two 'model markets' in Barisal region.

The intervention was completed in this -year. ODSE delivered training sessions and organized workshops on effective protective measure, healthy practice of sound waste management and proper sanitation. Market actors including fish retailers, fish-cutters, and market management committee members joined in the training course and promoted social distancing to mitigate impacts of COVID-19.

ODSE reached 2,000 consumers and market actors including fish sellers, fish cutters, retailers and market management committee and ensured hygienic practices and safety measure. During the contract tenure, ODSE renovated exit and entry points, drainage systems in two markets. They also helped raising awareness on safe fish as food and mitigating risks factors associated with COVID 19 infection at the market place.

### **2.1.3. Promote results broadly in media**

One short video documentary was prepared on clean fish market and hygienic practices and demonstrated to 60 aquaculture stakeholders in Barishal Aqua-cluster. One pager document on clean fish market in response to COVID 19 pandemic was prepared and distributed among 41 aquaculture stakeholders in Jashore Aqua-cluster.

### ***Accessing inputs and information on new technologies at community level***

#### **2.1.4. Development of Aqua-clusters**

Individual aqua market actors often lack information on the changing market environment. The promotion of existing farmer networks (i.e., clusters) considered as a viable method to improve access to knowledge and adoption of new technologies. As a result of project interventions frequent interactions between actors has been established in such clusters. These farmer clusters are then linked to service providers for accessing inputs and market.

BAA identified potential areas with presence of hatcheries, nurseries, and other market actors relevant to the fish supply chain. Afterwards, potential leaders from local aquaculture market actors were identified with the help of a local consultant hired to form Aquacluster Development Teams (ADTs) for leading the aquaculture actor networks in 3 Aquaclusters in Jashore, Satkhira, and Barishal.

#### **2.1.5. Identify additional clusters [Mehmud]**

Based on market actor database developed in 2018, additional clusters were identified in Jalma and Gutidia in Khulna; Bapta and Char Samaia in Bhola and Lakhpur and Piljanga in Bagerhat in Zol.

#### **2.1.6. Recruit Aqua-cluster Development Team (ADT) members [All PO]**

Initially, 30-40 members were screened through three layers of selection process through several steps including qualitative and quantitative data collection using questionnaires. At the end, 8-11 market actors including men, women and youths were selected as members for each cluster.

### ***Improving transportation systems***

#### **2.1.7. “Macher Gari” an Innovative Uberized Model to Transport Fish**

According to the International Journal of Bioscience, 2021, 18% of fish are damaged due to transportation systems. Non-standard transportation systems lead to significant post-harvest losses and deteriorate quality of fish with respect to food safety. To improve the transportation system, **MWORLD**, partnering with BAA, launched an intervention titled ‘Macher Gari’. The intervention introduced an app based digital ride sharing mechanism for transporting fish from one place to another. It followed the Uber model and this is the first ever model in fish transportation in Bangladesh.

MWORLD started promoting app-based fish transportation system to target markets through various workshops and business-to-business sessions in the fourth quarter of the year., MWorld organized one inception workshop with 39 participants, including four DoF officials, five farmers, six hatchery owners, seven nursery owners, five truck owners, three fish traders, and five media. They also conducted 15 promotional events with a total of 244 people, including 228 farmers and 16 truck owners.

## **Sub IR 2.2 Increased engagement of private sector in aquaculture markets**

### ***Access to finance***

#### **2.2.1. Commercial lending through partner FFIs**

**Bank Asia** - completed BAA's 1st phase of partnership in Q3 of year-4 to improve "Access to Finance" for smallholder Aquaculture farmers, who are traditionally excluded from the formal banking system, instead relying on expensive local informal credit mechanisms. Recognising this as an opportunity, Bank Asia has adopted a retailer-based model where they can reach out to smaller farmers, including a digital cashless transaction system designed to help farmers and retailers make their business more convenient.

Bank Asia developed a digital financial transaction platform (*Annex 5 and Annex 6*), and delivered NFC (Near Field Communication)-enabled "Fish Cards" to 824 smallholder farmers and 100 input retailers (Feed, AMP shops), allowing 924 market participants to participate in the digital financial platform. As a result of this endeavor, Bank Asia included Aquaculture in their regular Agri-loan portfolio, indicating that this is a long-term aspect of the bank's operations.

Bank Asia began its second phase with the goal of increasing outreach. Bank Asia plans to give over BDT 3 crore (USD 354,000) in loans to over 450 aquaculture producers in this year. In addition, Bank Asia will train 1,500 aquaculture stakeholders, including 100 input sellers, in financial literacy. Another important expansion they plan to make is the loan's ticket size. The initial ticket size for aquaculture was BDT 40K-50K, but this will be expanded to BDT 50K-150K.

During the fourth year, Bank Asia disbursed BDT 1.79 crore (USD 211,000) in loans to 481 farmers (25 females), with 17 of them receiving loans for the second time. Bank Asia has recovered more than 90% of the loan thus far.

**City Bank**- Lack of knowledge on financial literacy is one of the key challenges for small and medium-sized enterprises (SMEs), including small-scale aquaculture farmers to operate their business successfully. However, opportunities to access such knowledge from public and private sectors are limited. BAA partnered with City Bank to improve financial literacy of aquaculture market actors. City Bank planned to deliver training course on financial literacy through North South University and Bangladesh Institute of Banking Management to 1,500 aquaculture market actors including hatcheries, nurseries, and farmers.

"The City Bank" conducted 45 batches of financial literacy training for a total of 1,187 farmers in the fourth year. A total of 207 aquaculture stakeholders received an amount of BDT 29.2 crore (USD 3.44 million) loan from "The City Bank." "The City Bank" developed 13 aquaculture access sites at chosen hatcheries and nurseries to enable simple access to loans and consulting services for smallholder farmers, in order to ensure the sustainability of information flow and to attract more Aquaculture stakeholders. These hatcheries and nurseries will thereafter serve as City Bank's sub-agent sites.

### **2.2.2. Explore digital lending mechanism to promote easy access to cash flow finance**

Access to formal financial services is a significant obstacle to growth for fish farmers and aquaculture enterprises. About 77.3% of farmers use local informal money lenders and Micro Finance Institutes (MFI) and take loan at exorbitant interest rates (25-30%) (BSFF-2018). A data-driven digital lending system (Cash flow-based model) could be a potential solution to reduce perceived risk for formal financial. To explore opportunity of connecting fish farmers to formal banking services, BAA made a partnership with KIU-Bangladesh (A fin-tech company) in the year to serve the purpose.

The KIU Bookkeeping App and Lending-As-A-Service (LAAS) Platform will be used to improve access to finance (*Annex 5 and Annex 6*). Fish Farmers/ Retailers will input their transaction data in KIU Bookkeeping App. Based on the transaction data, a credit rating profile will be generated. Using that credit rating profile, fish farmers/retailers will apply for loans to Financial Institutions. KIU Bangladesh will partner with Financial Institutions to facilitate this purpose, and the nominated partners will provide the loan.

During the fourth year, KiU onboarded 1200 aquaculture farmers from Khulna and Bagerhat, as well as identified 600 farmers for their bookkeeping application. KiU and AB Bank Bangladesh also concluded a triparty agreement for loan disbursement to selected aquaculture producers and other stakeholders. Kiu Bookkeeping App has recently been translated into Bengali to comply with local company process and loan application standards.

### ***Mechanization and technology in aquaculture***

#### **2.2.3. Increasing farm productivity through developing a market for aquaculture machinery**

With the development of modern fish farming and production techniques, there is an increasing need for mechanization. BAA began collaboration with Alim Industries Ltd. to promote the use of high-quality aqua machinery in FTF ZOI. Under the sub-grant agreement, Alim is developing the market for aquaculture machinery, particularly aerators, by applying an LSP-driven rural business model.

Alim conducted 21 demonstration sessions with over 2,000 participants in Jashore, Khulna, and Satkhira to show the effectiveness and benefits of the equipment. They appointed 10 dealers to drive sales and 30 aerators were sold to date as a result of these initiatives. Alim also heavily focused on offline marketing that included advertisement in a local newspaper “The Daily Purbanchal”. They also distributed 60 promotional banners to reach the target audience. Additionally, 23 LSPs were supported with technical and business knowledge to provide service to the last mile. Alim created a video documentary to generate interest in the purchasing of aerators. Alim's Below the Line (BTL) marketing efforts will feature this documentary.

#### **2.2.4. Develop 'small scale machinery' partnership**

The use of small-scale aquaculture equipment and technology is still in its nascent stage in Bangladesh. An intervention with IMEXpro (BD) Corp was launched in quarter 03 to promote science-based aquaculture practices and the use of small-scale aqua machinery at the farm level (i.e., Secchi disk, PH meter, DO meter, etc.). The objectives of this initiative include extending technical knowledge on water and soil quality parameters, and innovative aquaculture and biotechnological advancements (eg. probiotics). It is expected that this model extends services to 3,000 farmers and promoting and branding IMEXpro's products.

#### **2.2.5. Co-creation meetings on cool chain management and improved packaging techniques and materials to minimize post-harvest loss**

Partnership deployment process several meetings were organized on cool chain interventions. Considering post-harvest losses in aquaculture sector, WorldFish developed a cool chain model by co-creation with private sectors. The major issues of post-harvest losses found were poor packaging, poor transportation and mal practices of icing. The model of cool chain suggested a tri-party consortium to reduce losses during packaging, transportation and selling. Based on cool chain management model, WorldFish circulated an open solicitation for onboarding partners. Through different steps of selection process and requirements MarGEN was finally selected for implementation of this intervention.

#### **2.2.6. Complete business model for cool chain**

Small-scale fisheries sector in Bangladesh suffers from serious post-harvest loss every year due to ignorance and negligence of the people involved in different stages from the harvest to retail distribution. About 28% fish lost 60-70% of freshness quality before it reached the consumer in local retail wet fish trader's shop. It has been assumed that the trend of post-harvest loss of wet fish is almost similar throughout the country, although the actual loss might be very high.

For addressing this issue, BAA made a partnership with MarGEN Ltd. in July 2021 to promote cool chain management of fish to reduce post-harvest losses to minimum to zero



level. MarGEN built a consortium with NM Plastic as packaging partner for supplying dedicated fish crates and Shohoz truck as transportation partner for promoting cool van and freezer van. Through this intervention, MarGEN has already reached -215 farmers through business networking event. MarGEN held one project orientation meeting, -seven farmer business networking events, and one marketing and sales training for MarGEN staff. They also finished the branding of four new fish-selling insulated van for home delivery, as well as the development of 3,200-liter storage facilities and 400 fish crates to ensure the seamless functioning of the fish business.

### **2.2.7. New partnership in processed and RTE/RTC fish**

Due to the massive urbanization and lifestyle change, the demand for processed fish products is increasing. WorlFish has signed sub-grant agreement with two reputed organizations; Sea Natural Fish Limited (Roja) and MarGEN limited to increase availability and promote processed fish products. MarGEN will process and sell both ready-to-cook (RTC) and ready-to-eat (RTE) fish products in Dhaka city while Roja will only process and promote RTE fish products in major cities like- Dhaka, Chattogram, Narayanganj, Sylhet etc.

MarGEN conducted 20 training and awareness sessions for urban homemaker/ office going women to aware them about diversified fish item preparation. A brand ambassador for MarGEN (recipe expert) will be appointed who will train 200 women, on different RTE fish item preparation. MarGEN has already developed a mobile application named “eMargen” to ease the process of ordering RTC and RTE fish products online.

Roja has started working from September’21 and they have already distributed marketing materials in 25 stores of Dhaka within a month. Gradually, they will do this in 100 stores including both retail and super stores in Dhaka, Chattogram, and Narayanganj. In the coming months, they will train 2,000 fish farmers on post-harvest management maintaining an international standard.

For retail channel activation, ROJA has divided the whole Dhaka city and Chittagong in six and two clusters, respectively. Initially, they will penetrate the retail markets in 4 clusters (Mirpur, Dhanmondi, Khilgaon, Gulshan) of Dhaka. Each cluster contains three routes and each routes contain several shops. They will be first in the market to introduce freezer rental system where they will give rent to shopkeepers for space in their freezers. They intend to rent shelf space in 100 freezers. Moreover, they will also provide 100 rented/leased freezers across the 4 clusters in Dhaka city in the first year as well as providing freezers to dealers (if needed). TROJA will rent/ lease additional freezer vans to complete the cold chain network,

### **Supply chain**

#### **2.2.8. Finalize partnership on a "pond to plate" supply chain (Direct Fresh)**

Direct Fresh took a step back from this initiative as they changed their business strategy as a result of pandemic.

#### **2.2.9. Developing micro-franchise partnership to improve access to aquaculture inputs**

iSocial is developing a robust supply chain in aquaculture input market by forming a women-inclusive Last Mile Distribution model. They are testing the commercial viability of such model in the Bottom of the Pyramid (BoP) market for major agricultural products and services. Four (04) partnerships were made with local and regional level aqua-input dealers and distributors who use iSocial’s alternative distribution channel to sell products - feed, fertilizer and lime in particular.

iSocial identified and deployed 350 women as its aquaculture micro-franchisees. These women micro-franchisees were trained on small trading, product basket, aquaculture services, sales and marketing techniques in 31 capacity-building sessions. These micro-franchisees have now formed a network of small businesses and are providing inputs and services to their

communities. To date, they have extended aquaculture services to 3,278 fish farmers, sold aqua products worth BDT 800,000 (USD 9,600) and started living a better life.

### 2.2.10. Complete the partnership on spirulina and women micro-enterprise

EnerGaia has shut down their operations in Bangladesh as they see no commercial viability of spirulina production here.

## Sub IR 2.3 Improved enabling environment for inclusive growth in aquaculture

### 2.3.1. Contract local development planning expert(s)

Terms of reference have been developed to recruit a local consultant to expedite the collaboration with DoF in the areas: i) Fish hatchery branding protocol and monitoring, ii) Monitoring quality of aqua-inputs, iii) Building capacity and engaging Local Extension Agents to support aquaculture market actors, iv) Aquaculture Development Teams to lead stakeholder networks.

### 2.3.2. Close policy partnership with Bangladesh Shrimp and Fish Foundation

The Bangladesh Shrimp and Fisheries Foundation (BSFF) finalized a roadmap for a recommended policy on aquaculture medicinal products through policy consolidation and improvements in the licensing process. BSFF also consolidated and delivered policy documents (Annex 26 Annex 25: Bangladesh Aquaculture Activity Indicators (attached

Annex 26) before the partnership closed in December 2020.

### Advisory services

### 2.3.3. Promoting digital advisory platform Aquaculture Stakeholders

The Right Kind with its tech partner SourceTrace International aims to promote widespread 360-degree advisory support along with and digital trading for aquaculture sector. It is expected that farmers will get multiple support from this two-way digital communication channel such as (a) advisory support (b) product purchasing support (c) access to finance support (d) fish selling support and (e) weather information (Figure 2). On the other hand, private companies will also be able to expand their business opportunities. The Right Kind named this platform as “The Right Haat” (Annex 5 and Annex 6).



Figure 2: Services provided by the Right Kind

In the FY-4, “The Right Kind” reached 13,122 farmers through its different advisory service points and events (e.g. cluster meetings, field visits, input sellers, call center). Besides, they have established 143 retailers as their service referral points in 6 districts in ZOI. During the fourth year, "The Right Kind" also held 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, "The Right Kind" moved to the doorsteps of 10K farmers physically and make them aware of this advisory platform.

One of the most important aspects of this business model's financial viability is private company participation, and so far, "The Right Kind" has approached over 20 aquaculture firms; by December 21, a minimum of 3 companies will be on-boarded in this platform.

"The Right Kind" also created 10 visual digital contents that will be shared throughout social media platforms, mobile applications, and electronic media (a total of 13 visual contents). Furthermore, the RightFish mobile application is already accessible on the Google Play Store, with over 50 downloads already. They recently completed the installation of a call center, which is now fully operational. Since its debut in August 2021, the "Call Center" received over 100 calls with various concerns, and solutions were offered to farmers through the "Call Center" with the support of Aquaculture professionals.

This advisory platform's "Facebook" page is gaining a lot of attention from aquaculture producers all around the country. Since its inception, approximately 8,000 farmers joined the Facebook group and participated in live sessions on a regular basis. So far, 17 live sessions with various aquaculture specialists were organized, during which farmers can post questions to the experts in real time. Farmers can also register their complaints as an official post and receive answers within 24 hours.

#### **2.3.4. Advisory services business plan**

The Advisory Service business model (revenue generation plan) has been formed through the Advisory services project. The essence of the business model overs:

##### ***Advertising***

Private companies, ranging from input companies to banks, are invited to advertise on the website's banners and other locations. These adverts will be used to determine the likelihood of people clicking on/engaging with the companies, as well as the conversion rate (from banner ad to final product purchase) for private partners that agree to advertise with the Right Haat.

Although, at first, a small price will be levied to entice businesses into this channel. Private enterprises usually rely on traditional media. However, if they are offered data on how an advertisement reaches their clients through an established platform, there is a chance that they will earn good revenue from this source. Three companies have expressed interest in this platform thus far, and they will be included by December.

##### ***Food safety***

#### **2.3.5. Model of a blockchain based traceability system within the HYV Carp roll-out**

Traceability is a crucial aspect of ensuring the true value of any product, not only for public health reasons, with regard to food products, but also because of the increasing people's awareness of environmental and social aspects. A tractability system can open the export opportunity in the global market for the Aquaculture sector of Bangladesh and drive increased incomes for farmers. Therefore, to strengthen the aquaculture service market, BAA formed a partnership with **ByteAlly** to pilot a food traceability system. The partner will implement a blockchain-based system at the WorldFish Carp Genetic Improvement Program to demonstrate how the system can work in Bangladesh.

The project cover 50 participants (brood farm, nurseries, hatcheries & farmers) of the rohu (*Labeo rohita*) G-3 supply chain, and 50 grow-out farmers received training on blockchain applications. All these trainings were conducted individually to maintain the Government guideline on COVID-19 protocols. ByteAlly completed all necessary tasks related to web development (*Annex 5 and Annex 6*) and farmers training on this application.

After completion of this project, a number private companies showed their keen interested to purchase and use bolckchain system to establish digital traceability system for their business.

Some nationals also published the news regarding its growing demand. Some news links are below:

1. <https://www.newagebd.net/article/148363/blockchain-tech-fosters-trust-in-bangladesh-aquaculture-activity>
2. <https://www.dhakatribune.com/bangladesh/agriculture/2021/09/06/blockchain-technology-fosters-trust-in-bangladesh-aquaculture-activity>

### **2.3.6. Forum on food traceability**

With 15 private and public sector participants, a virtual blockchain forum was launched. On August 5, 2021, a webinar on block-chain traceability was held, and virtual training sessions would be held every two months. This forum was created in order to distribute additional information about the Block-Chain traceability system and to identify potential private sector adopters.

### **Challenges encountered while implementing activities in IR 2 during this year:**

Interventions under this IR 2 such as The Right Kind faced challenges while initiating the establishment of the digital platform and tools. On the other hand, the organization, ByteAlly, whose main task is to implement tracing modality throughout the fish supply process that required a vast training session in the field level, has been disrupted by the countrywide lockdown situation. Partner organization, Parmeeda has faced difficulties in procuring the full harvest from the farmers by following the set of specification due to the restriction of the movement, hence hampering the planned Business-to-Business (B2B) sales. Due to the COVID-19 restrictions, the farmers were less interested to invest in their business which affected City Bank's loan disbursement scheme. Apart from that, majority of the field activities have been halted due to the countrywide lockdown situation.

### **Major activity plans for the next year:**

Some of the major activities in the coming quarter under IR 2 includes, City bank will complete 30 financial literacy trainings and will disburse to around BDT 7.5 core loan to the aquaculture stakeholders. KIU will conduct 2 ToTs to train farmers on Book-keeping technologies. Alim will continue the batch of product demonstrations and dealer transformation into one-stop service point. iSocial will complete on-boarding micro-franchisee, training, branding of the micro-franchise points and conduct sales and promotional events to increase access to aquaculture inputs. ByteAlly will organize tractability forums with private sectors to promote the platforms.

## **IR 3. Improved Nutrition-related Behavior of Rural Households**

### **Context:**

Food security has significantly improved in Bangladesh; however, under-nutrition rates remain unacceptably high, and dietary quality for the majority remains low. Inadequate intake of vitamins and minerals such as iron, zinc, calcium, vitamin B 12, and vitamin A in infant child development contribute 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**

#### **3.1.1. Disseminate information on role of fish as a source of human nutrition through LSPs**

The aquaculture farmers and local service providers (LSPs) lack knowledge on nutrition, specifically the nutritional aspect of fish consumption. To help develop understanding of farmers and LSPs, the BAA nutrition team has designed an intervention to provide training to these LSPs in Year 4. By considering the fact that the LSPs have close relation and B2B linkage with farmers and have a wider scope to disseminate any useful messages to the farmers/clients.

The Activity hired a consulting firm named Matrix Business Development Ltd. (MBDL) to train 500 Local Service providers (LSPs) on human nutrition, Aquaculture, and concurrent COVID-19 issues. The training was planned to increase the capacity of the LSPs so that they can convey these messages to the households with Women of Reproductive Age (WRA) and children as an embedded service during their regular service delivery.

In year 4, Matrix Business Development Ltd conducted training courses in 54 batches where 502 LSPs (13% were female and 87% male) participated. During the training, MBDL distributed six types of promotional materials including 20,080 leaflets, 2,008 pieces of recipe books, 1,004 pieces (2 types) of promotional festoons, 502 nutrition plates and 502 bowls.

### **3.1.2. Coordination meetings with GoB health and family planning departments**

The health and family planning department plays a crucial role in educating the community on essential nutrition actions (ENA) and essential hygiene actions (EHA). However, they lack knowledge on fish nutrition and the potential contribution of fish to human life. As a result, the importance of fish consumption has not been given much priority in the message they deliver, particularly the potential contribution of fish consumption during the first 1,000 days of children's lives.

BAA planned to facilitate the meeting organized by the GoB health and family planning department to train the health professionals to stress the message delivery on the importance of fish consumption in the diet of children, adolescents, pregnant and lactating mothers. In this regard, the Activity facilitated targeted 4 meetings where more than 50 health professionals participated.

### **3.1.3. Observing nutrition week, 2021**

Due to the COVID-19 pandemic, the GoB didn't organize any national and sub-national level events to observe the National Nutrition Week 2021. However, BAA collaborated with BAA and jointly accomplished promotional events to observe the week.

The Activity shared the soft copies of the fish-based recipe Pamphlet (Machbhog) and a set of 13 important nutrition messages focusing on fish consumption to Bangladesh Nutrition Activity (BNA). BAA nutrition team has also handed over 600 hard copies of the fish-based recipe Pamphlet (Machbhog) to BNA for their local partner's offices. BNA distributed these materials and disseminated BAA's provided information through their partners at ZOI during the nutrition week 2021.

### ***Promote nutrition and consumption of fish***

#### **3.1.4. Media campaign to promote farm-raised tilapia (Gorai)**

To fight against the propaganda about the 'Tilapia' Fish, BAA is working with GORAI films to promote Tilapia fish in peri-urban and urban markets. GORAI developed several audience-specific communication and promotional materials in the project tenure such as celebrity endorsement, video shows, advertisement, leaflet, festival, social media campaign and 'Tilapedia'- a dedicated e-social platform to convey the brand value of this fish and bring about positive behavioral change among customers.

GORAI Films prepared and posted a documentary engaging celebrity actor Md. Mosharraf Karim on its 'Tilapedia' page (<https://www.youtube.com/watch?v=xZ0Z7DA9R7Y>) where consumers were inspired to consume Tilapia fish. Simultaneously, the English daily newspaper 'The Business Standard' had a webinar discussion moderated by well-known

journalist J E Mamun, ATN Bangla, to examine various approaches to promote Tilapia through greater production and marketing (<https://www.youtube.com/watch?v=4eZMaAMdc0>). Dr. Yahya Mahmud, Director General, Bangladesh Fisheries Research Institute, and Taufiqul Arif, Adjunct Professor, Bangladesh Fisheries Research Institute, were among the participants.

Since the Tilapia page was launched, 175,000 people have viewed the page's varied video/digital content, and a total of 201,982 people have visited the page to view various contents and obtain crucial information. Gorai Films produced a short drama for social media to raise awareness about the Tilapia fish hoax.

### **3.1.5. Support Nutri-champs winning chefs as ambassadors to promote consumption of fish**

### **3.1.6. Recruit Nutri-champs chefs for events in cluster communities**

### **3.1.7. Prepare nutrition pamphlets and signs and facilitating the events of the Nutri-champs**

Foodborne diseases are widespread throughout the world. The improper heating of the food, such as undercooking, re-heating, and waiting in the heat, or improper cooling of the food, accounts for 44% of the foodborne illnesses. Inadequate preparation and improper cooking practices, such as those involving cross-contamination, insufficient processing, poor hygiene, and the re-use of leftovers, are responsible for causing 14% of these diseases (WHO, 2004).

The BAA nutrition team demonstrated cooking methods and disseminated messages through the support of Six champion chefs, the Nutri-champs, in three-team one each in Cox's Bazar, Jashore, and Patuakhali. The Nutri-champs were selected from the champion chefs of the cooking competition organized jointly by the five USAID-supported projects, including FTFBAA, in 2019-20. 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.

Three Nutri-champs worked in Cox's Bazar, Jashore, and Patuakhali and organized 16 community-level cooking demonstration events. These events include 5 school-based events, 2 fish-market-based events, one awareness event at Kuakata, and one community-level special event. A total of 1,413 participants (women 1,058 and men 355) participated in these events. The Nutri-champs demonstrated best cooking practices of fish and different curries, disseminated essential nutrition, WASH, and COVID-19 messages, and distributed different IEC materials on nutrition, aquaculture, COVID-19 issues, and a pamphlet with nutritious fish recipes to the participants of these programs. Collectively, these teams distributed nutrition, aquaculture, and COVID-19 related 400 festoons, 3,000 leaflets, and brochures, 2,000 recipe pamphlets to the participants of these events.

The Nutri-champs teams also developed three cooking videos with different nutritious recipes taken from the fish-based recipe book Machbhog. They uploaded these videos where they reached almost 1K views. Moreover, they linked and advertised Activity IP-developed products to boost the selling, i.e., the fish-based cookbook of Somoy Prokashon, safe dry-fish of coxsbazarshop.com, and Shah Amanat trader's organicdryfish.com.

Furthermore, the Nutri-Champs teams installed 10 signages across ZOI and ZOR, four each in Cox's Bazar and Patuakhali, and two in Jashore. These signages display important messages on the benefit of fish consumption which is conducive to increasing fish consumption.

### **3.1.8. Improving access to information on human nutrition**

Malnutrition is a significant concern in Bangladesh, since about 5 million children under 5 years (31 percent) are suffering from chronic malnutrition (stunting or low height-for-age) and 8 percent are acutely malnourished (wasting or low weight-for-height) (National Institute of Population Research and Training [NIPORT] et al. 2020). People are not practicing expected

nutrition behaviors, particularly maintaining a proper diet, hygiene, and sanitation, mainly because of a lack of access to nutritional knowledge. In particular, pregnant women, lactating mothers, and children are not following these desired nutrition practices.

In its Year 4, BAA made an agreement with the private melamine company, Classic Melamine Industries Ltd. (CMIL), to inscribe a set of important nutrition messages into the bowls and plates. CMIL considers the selling of nutrition plates and bowls as their potential new business opportunity. CMIL inscribed nutritional messages and images of different food groups, including fish in the plates and bowls, keeping customers' demands in mind (Figure 3).

The sales of these plates and bowls with nutrition messages will contribute to the BAA indicators in promoting dietary diversity, consumption of fish, hygiene practices, and overall, increase in the nutrition practices of rural households.



Figure 3: Plate and Bowl with nutritional messages by CMIL

In year 4, the nutrition team of the Activity facilitated CMIL to produce 5,018 plates and 5,005 bowls with the nutritional information. In the reporting year, CMIL sold their produced 4,850 plates, and 4,745 bowls which sold value is BDT 5,58,400. In addition, they distributed 75 plates and 75 bowls, and promotional stickers to boost the sales of these products. CMIL also reported that they produced and sold similar to Activity supported 60,000 plates and 60,000 bowls to UNICEF, in which CMIL engaged the experience of working with the Activity. CMIL produced and supplied these plates and bowls during the project implementation with the Activity.

### 3.1.9. Publishing fish-based cookbook to promote nutritious fish recipes and fish consumption

Recent studies have revealed that people are receiving less nutrients from fish, particularly due to the malpractices in cooking as indicated in section 3.1.7. Young children and adolescents lack interest in consuming fish in recent times, mainly due to the traditional fish recipes. There are a few cookbooks in the market that contains fish related recipes. Therefore, In Yr4, BAA planned to make a fish-based recipe book which will be accessible to the community people.

The Activity's nutrition team made an agreement with a publication company, Somoy Prokashon, who produced a fish-based cookbook 'Machbhog' – meaning 'relishing fish.' This fish-based cookbook contains important nutritional messages besides more than 120 recipes, including small fish, dry fish, carp fish, etc. The cookbook can be found at <https://www.rokomari.com/book/215074/machvog>. Somoy Prokashon printed 2,000 copies of



the fish-based cookbook Machbhog and 4,000 copies of promotional pamphlets. They sold 351 copies of the cookbook in year 4.

### **3.1.10. Training on awareness building on the importance of Nutrition information next to COVID-19**

The Aquaculture stakeholders are supporting fish productions and vegetables at pond dikes. However, they are not following the expected nutrition behaviors. In Year 4 of its implementation, the FTFBAA explored and identified that Bangladesh Agricultural Research Council (BARC), with its cost, is facilitating nutrition training relating to COVID-19 issues.

The nutrition team of the Activity conducted a couple of meetings with the BARC and made a collaboration plan with the Govt. entity to co-facilitate two batches of nutrition training titled 'awareness building on the importance of nutrition information next to COVID-19', one each at ZOI and ZOR, at Khulna and Cox's Bazar, for the BAA beneficiaries and stakeholders.

A total of 60 participants from more than 15 professions, including nurserers, hatchery owners, dry fish sellers, teachers, fish farmers, journalists, university students, development workers, health professionals, etc., participated in those training. In both sessions, the training recipients received applied knowledge on essential nutrition actions. BAA carried only the venue cost while the BARC bore all the other training expenses, including transportation of participants, food cost, etc.

### **3.1.11. Shushilan-Establishing online market for promotion of nutrition-sensitive aquaculture through microfinance support**

In Year 3, the Activity IP Shushilan developed the capacity of 3,060 female and youth aquaculture farmers of fish farming in Khulna and Satkhira districts through the Shudin project supported by FTFBAA. However, these smallholder farmers face capital crises to strengthen their farming activities properly. They sometimes take a loan from local Mahajan (usurer) with an excessively high-interest rate and become the victim of a vicious cycle of loan. In addition, the adversity created by the COVID-19 pandemic and different cyclones – Amphan, Yaas – incidents made the business and livelihood harder for these farmers.

In its activities of Year 4, BAA planned to facilitate a project to increase the financial access of these farmers through micronfinance support to implement nutrition-sensitive aquaculture activities.

In year 4, the Activity made an agreement with Shushilan to support at least 1,800 fish farmers with microfinance support through at least a total loan amount of 1.8 crore BDT. Besides, Shushilan will also focus on creating farmers' awareness of essential nutrition messages and practices, financial literacy, and important technical aspects of nutrition-sensitive aquaculture.

Shushilan started its loan activities on September 21, 2021. Shushilan distributed an amount of 29,86,000 BDT loans to 123 aquaculture fish farmers, where the 119 loan recipients were women (97%), and 4 were men (3%). They have also started the process to hire their project staff, who will start full-fledged activities at the beginning of BAA year 5.

## **Sub-IR 3.2 Improved access to diverse and nutritious foods**

### **3.2.1. Designing a pilot school feeding program with World Food Program (WFP)**

WorldFish BAA and WFP is working together and drafted a concept note with the aim to develop a proposal titled "Ensure animal protein in school meals (*Annex 7*) (section 3.2.2 for details).

### **3.2.2. Developing a partnership agreement with WFP, RTE/RTC producer, and relevant ministry**

World Food Program is supporting the Government of Bangladesh in School feeding programs, including mid-day school meals. The school meal policy of Bangladesh 2019



suggests using animal source food as a protein source for the School-children. However, the GoB and WFP are using eggs as an animal source or protein source food for the school meals. The BAA planned to include fish as an alternative to Egg in the school meals, collaborating with WFP, a fish processor company, and GoB.

The Activity Nutrition team facilitated 4 formal and several informal meetings with WFP to design a pilot school feeding program with WFP and a fish-based product processing company. However, the final findings from a series of discussions with WFP and other stakeholders revealed that this intervention requires a huge investment along with prolonged time. In addition, it is associated with a few risk factors, which are out of BAA scope.

### ***Collaboration with Bangladesh Nutrition Activity (BNA)***

#### **3.2.3. Identify "last mile retailer" locations of BNA**

BAA aimed to collaborate with the Feed the Future Bangladesh Nutrition Activity (BNA) with their Last Mile Sales Agents (LMSA) to leverage the nutritional outcomes. BAA intends to support the sale of its existing implementing partner CHHIP Food BD's fish-based RTC/RTE products in the LMSA shops as well as developing them as a sustainable message dissemination platform (*Annex 8*).

Currently, CHHIP Food BD has 17 fish-based RTE/RTC products, including fish balls, fish fingers, fish nuggets, fish sausage, fish burger patty, fish samusa (a snacks), fish spring roll, etc. In year 4, BAA team has identified BNA's 28 potential LMSAs for selling RTE/RTC fish products, 5 LMSAs to incorporate and sell fish-based cookbook (recipe book) Machbhog, and 30 LMSAs to sell plates and bowls with nutrition messages. FTFBAA shared the LMSA list with the CHHIP FOOD BD to explore and identify the scope and opportunities for their business by collaborating with the LMSAs.

CHHIP FOOD BD already employed 5 field-level staff who started working with the LMSA shops. CHHIP is working with the push and pull marketing strategy to penetrate their fish-based RTC/RTE products at the rural districts through these LMSA shops. They already established a subsidized distribution channel of 36 outlets in Patuakhali and Faridpur districts and distributed free food sampling (Fishball, Fish finger, Fish nuggets, and Fish Sausage) in 15 promotional events.

#### **3.2.4. Sign three-way agreement to meet nutritional demand of children, adolescents, pregnant and lactating women**

The overall objective of this intervention is to promote fish consumption to meet the nutrient need of children, adolescents, pregnant and lactating, particularly meeting the demand for protein, essential fats, and micronutrients. This intervention is particularly targeted at the school-going children given the fact that they are more likely to consume unhealthy food during their tiffin breaks as a snack.

CHHIP Food BD have surveyed 4 high schools in Khulna and Jashore to start to identify potential spots for the school programs. They have developed 2 different types of leaflets, 1 Poster, 1 X-banner, 10 promotional small video clips, and 64 promotional still pictures. They have displayed and distributed posters and leaflets to the consumers to promote the consumption of fish and fish products. Furthermore, they carried out 140 promotional campaigns at 20 super shop food corners at Dhaka city. They organized 09 staff sanitation programs and 02 staff training & Orientation programs. CHHIP Food BD has shared small video

([https://cgjar-my.sharepoint.com/:f/g/personal/m\\_h\\_ali\\_cgjar\\_org/EqqQNjASIKtLvC\\_G1aw78kEBdRVYXf5HyF4QIJS3Z3Dh-w?e=URfwrz](https://cgjar-my.sharepoint.com/:f/g/personal/m_h_ali_cgjar_org/EqqQNjASIKtLvC_G1aw78kEBdRVYXf5HyF4QIJS3Z3Dh-w?e=URfwrz)) and photos with information about the benefits of consumption of fish and fish-based products through Facebook and YouTube.

**Challenges encountered while implementing activities in IR 3 during this year:**

Important activities such as field-level training by the Matrix Business Development Ltd., cooking demonstrations by the Nutri-champs, healthy food campaigns at the schools by CHHIP FOOD BD, and selling of fish-based recipe book Machbhog of Somoy Prokashon have all been deferred due to the COVID-19 issues. The Activity MEL system conducted performance surveys for applicable indicators and analyzed results as of May.

**Major activity plans for the next year:** The major activities coming up in next year, Year 5, includes disbursing loans to 1,800 aquaculture farmers by Shushilan, continuing selling of fish-based RTC/RTE products in rural districts by CHHIP Food BD, promoting the handwashing practices by a soap producing company, collaboration with Government entities to instigate the consumption of fish in the ZOI and ZOR, roundtable meeting with relevant GoB and private nutrition actors of the country to disseminate the success and intended messages of BAA, completing the remaining Nutri-champs activities. Furthermore, BAA also planned to observe the national nutrition week 2022, widely distribute its already developed IEC materials and penetrate fish-based RTC/RTE products at the schools replacing the conventional unhealthy snacks.

## **8. Project management and cross-cutting**

### **8.1. Activity Management**

#### **8.1.1. Staff capacity development**

The BAA team members attended different capacity development trainings, workshops, seminars and round table discussions during year 4. All the BAA staff received fraud prevention and compliance training jointly conducted by Glenda Munyukwi, WorldFish HQ and BAA Grants and Finance Team. Most of the BAA staff received two trainings on 'defining types of sensitive information' and 'handling and sharing sensitive information' organized by WorldFish HQ.

Nutrition Specialist received Market Systems Development training organized by DevLearn UK. Gender Specialist received training on Introduction to Gender, Diversity and Inclusion in CGIAR's Workplaces. Nutrition Specialist attended a workshop on 'Strengthening Nutrition-sensitive platform in Bangladesh' organized by Institute of Public Health and Nutrition. Aquaculture Specialist received training on 'Feed ingredients quality preservation' organized by USSEC. Program Officer attended a workshop on 'Value Chain Development Workshop with Fisheries Relevant Stakeholders' organized by United Purpose Bangladesh. A list of trainings/workshops with participants and other details is available in (*Annex 9*).

#### **8.1.2. Coordination with DoF with WF**

BAA initiative continued to collaborate with DoF to work closely, especially in the following areas;

- i) Building capacity and engaging Local Extension Agent for Fisheries (LEAF) of the National Agricultural Technology Program-Phase II (NATP) project to extend support to aquaculture market actors, namely fish farmers, nursery operators, *patilwalas*, retailers, wholesalers and others through training and in person visits.
- ii) Fish hatchery branding protocol and monitoring. BAA aims to promote and brand hatcheries to follow Best Management Practice (BMP) to set an example how seed quality could be improved sustainably.
- iii) Monitoring quality of aquaculture inputs. The quality of the inputs is always questionable and in order to address this further development of DoF rules and policies is very important.

#### **8.1.3. Senior Management Team (SMT) and other coordination meetings**

BAA conducted regular meetings with its own staff, Implementing Partners (IPs), GoB partners, WorldF projects and other stakeholders at different level and intervals. The primary objectives of the meetings were to maintain regular coordination, collaboration, review activity

progress constraints, and planning and reviewing proposals of potential IPs. This practice helped facilitate smooth operations, maintain workflows, and monitor activity progress and financial aspects more frequently for effective interventions management during the pandemic situation (*Annex 10*). The broad category of the meetings includes: SMT Meeting, Weekly Teams Meeting (MSD, Cross-Cutting, F&G, MEL, etc.), All Staff Monthly Meeting, and IPs Coordination Meeting, mostly arranged virtually to adapt the pandemic situation and way-forward.

## 8.2. Finance and Grants

### Year 4 Budget development

#### 8.2.1. Quarterly Forecast

The graph below shows that except for the first and second quarter of Year 4. BAA is meeting its forecast and expensed 94% of the total budget. The Activity started to accelerate its spending in March of 2021 when midterm budget review happened and the on and off ease of COVID 19 lockdowns eventually help BAA and its partners catch up with their activities (*Figure 4*).

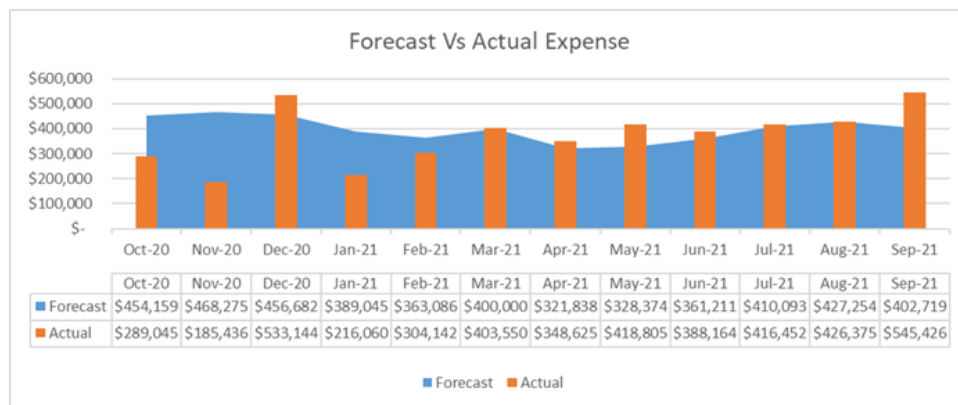


Figure 4: Year 4 monthly budget forecast vs actual expense

#### 8.2.2. Annual budget review

At the beginning of Year 4, BAA budgeted an amount of USD5,027,872 and later revised to USD4,743,156. By the end of September 2021, the Activity expensed a total amount of USD4,461,121 or 94% of the total budget (*Figure 5*).

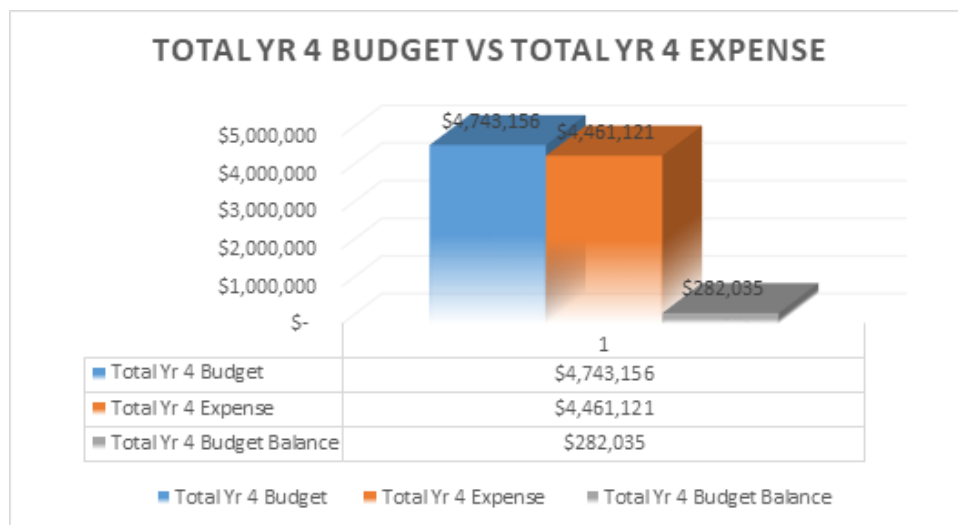


Figure 5: Activity total budget vs expense

The table below (*Table 3*) shows the total Activity budget and the detailed yearly expenditure. By the completion of year 4, BAA only spent an accumulated amount of USD 14,993,108 (61%) leaving an available budget amount of USD 9,465,084 by the end of September 30, 2021 (*Figure 6*). The low burn rate was due to the slow start, spending USD1,038,909 only in first year. The COVID-19 pandemic government-imposed lockdowns in 2020 through 2021 seriously limits BAA's and its partners' ability to carry out planned activities. The COVID-19 restrictions have significant impact on the burn rate, as activities such trainings, workshops, travels have to be postponed, cancelled or carried through online platforms. Many of the partners also had applied for No Cost Extensions reasons to revise our plan and budget in year 4.

Having a budget balance of USD 9,465,084 and remaining sixteen months of the Activity life and its performance trend, the management decided to request for a one year no cost extension.

Table 3: Activity Expenditure Year 1 to Year 4

Cost Categories	LOP Budget	Actual Expenditure				Cumulative Expenditure as of September 30, 2021	Budget Balance as of September 30, 2021
		Year-1 (Feb'18-Sept'18)	Year-2 (Oct'18-Sept'19)	Year-3 (Oct'19-Sept'20)	Year-4 (Oct'20-Sept'21)		
	\$	\$	\$	\$	\$	\$	\$
Direct Labor	5,474,565	414,022	926,710	1,082,060	1,162,779	3,585,570	1,888,995
Fringe Benefits	1,765,430	131,311	294,843	375,758	360,918	1,162,829	602,601
Consultants	288,593	-	70,998	73,348	57,419	201,764	86,829
Supplies, Equipment and Operating	1,741,916	153,671	478,943	325,368	173,893	1,131,876	610,040
Travel and Per Diem	967,676	51,841	206,295	141,701	103,476	503,312	464,364
Other Direct Cost (Activity)	4,282,319	112,324	695,954	333,383	599,437	1,741,098	2,541,221
Sub-Grants	5,800,365	-	1,274,492	1,607,383	1,248,560	4,130,436	1,669,929
<b>Total Direct Cost</b>	<b>20,320,864</b>	<b>863,168</b>	<b>3,948,235</b>	<b>3,939,001</b>	<b>3,706,481.42</b>	<b>12,456,885</b>	<b>7,863,979</b>
Indirect Cost	3,657,756	155,370	710,682	709,020	667,167	2,242,240	1,415,516
CGIAR Cost Sharing Fee [ @ 2% of total direct + indirect cost]	479,572	20,371	93,178	92,961	87,474	293,983	185,589
<b>Total Activity Cost</b>	<b>24,458,192</b>	<b>1,038,909</b>	<b>4,752,095</b>	<b>4,740,982</b>	<b>4,461,122</b>	<b>14,993,108</b>	<b>9,465,084</b>

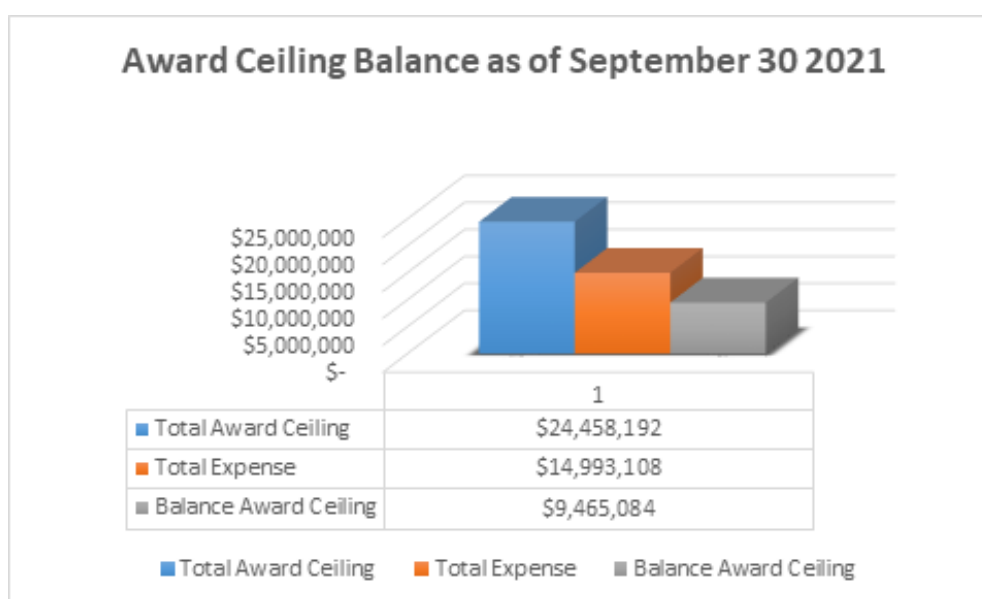


Figure 6: Award ceiling balance

Modification P015 provided an incremental funding of USD5,000,000 thereby increasing the total obligated amount from USD15,700,000 to USD23,700,000. The additional obligation will

allow the spending of year 5 work-plan and budget. This figure includes the ECOFISH amount and spent of USD 4,000,000.

### Sub-grants

The Activity signed thirty three sub-grants (33) & seven (7) service agreement in year 4 with a total value of USD 4,751,365. BAA's investment amounted to USD 1,988,809 (42%) and sub-grantees' investment was a total of USD 2,762,556 (58%). A total of USD 1,385,804 was expended under the partnership that gave a remaining budget balance of USD3,365,559 by the end of this reporting period.

To date, a total of eighty five (85) partnership of which 77 are sub-grants and 8 service agreement were signed between BAA and partners (*Table 4*). Among these eighty-five, four agreements were terminated because of committed fraudulent transactions of Banchte Shekha and Pranti Aquaculture Ltd. while Harvest Rich and Zahanara Green Agro fails to implement the project and eventually withdrawn from partnership.

Table 4: List of partnership signed in Year 4

Sl No	Partner (T)	Partner Agreement	Date From	Date To	Type	Total Budget (USD)	FTF BAA Budget (US\$)	Grantee Budget (US\$)
001	BRAC	PLA12318	November 1, 2020	October 31, 2021	Sub-Grant Agreement	142,880	55,211	87,669
002	MarGen Ltd.	PLA12321	November 8, 2020	May 31, 2021	Service Agreement	454,607	68,119	386,488
003	Parmeeda Enterprise	PLA12337	December 1, 2020	June 15, 2021	Service Agreement	145,548	83,440	62,108
004	Md. Shariful Islam	PLA12393	December 1, 2020	November 30, 2021	Sub-Grant Agreement	4,221	2,857	1,364
005	Somoy Prokashon	PLA12432	December 31, 2020	March 24, 2021	Sub-Grant Agreement	22,609	11,483	11,126
007	Classic Melamine Industri	PLA12435	January 1, 2021	August 31, 2021	Sub-Grant Agreement	11,040	6,000	5,040
006	CHHP FOOD BD	PLA12434	January 8, 2021	February 28, 2022	Sub-Grant Agreement	72,447	29,808	42,639
008	Organization for Develop	PLA12451	January 18, 2021	March 15, 2021	Sub-Grant Agreement	5,190	4,046	1,144
011	ENLIVEN	PLA12475	February 15, 2021	January 14, 2022	Sub-Grant Agreement	16,406	8,997	7,409
009	The Right Kind	PLA12471	February 18, 2021	January 31, 2022	Service Agreement	199,975	199,975	-
010	Agro Industrial Trust	PLA12473	March 1, 2021	February 28, 2022	Sub-Grant Agreement	120,018	66,452	53,566
012	FISHTECH HATCHERY L	PLA12480	March 1, 2021	February 28, 2022	Sub-Grant Agreement	49,808	22,012	27,796
013	Ms. Shah Amanath Trade	PLA12481	March 1, 2021	February 28, 2022	Sub-Grant Agreement	50,964	26,761	24,203
016	Asma Khatun	PLA12497	March 24, 2021	December 31, 2021	Sub-Grant Agreement	7,377	7,377	-
017	Md. Mofidul Islam Noman	PLA12498	March 24, 2021	December 31, 2021	Sub-Grant Agreement	8,691	8,691	-
015	Raisa Honaira	PLA12498	March 25, 2021	December 31, 2021	Sub-Grant Agreement	8,076	8,076	-
014	Matrix Business Develop	PLA12487	April 1, 2021	September 30, 2021	Service Agreement	30,179	30,179	-
018	Bolipara Nari Kaiyan Soni	PLA12500	April 1, 2021	September 30, 2021	Sub-Grant Agreement	7,275	5,710	1,565
019	KAAS Trade	PLA12502	April 1, 2021	March 31, 2022	Sub-Grant Agreement	177,679	98,735	78,944
020	CoxsBazarShop.com	PLA12508	April 1, 2021	March 31, 2022	Sub-Grant Agreement	48,331	24,772	23,559
021	Mukti Cocks Bazar	PLA12507	April 1, 2021	March 31, 2022	Sub-Grant Agreement	94,208	38,317	55,891
023	KIU Bangladesh Limited	PLA12523	May 15, 2021	May 14, 2022	Sub-Grant Agreement	414,566	178,197	236,369
022	IMEXpro (BD) Corporatio	PLA12521	June 1, 2021	May 31, 2022	Sub-Grant Agreement	130,313	65,156	65,157
024	MarGen Ltd.	PLA12558	June 1, 2021	May 31, 2022	Sub-Grant Agreement	287,828	94,957	192,871
025	Zahanara Green Agro	PLA12558	June 1, 2021	May 31, 2022	Sub-Grant Agreement	90,549	31,961	58,588
026	Afil Aqua Fish Ltd.	PLA12559	June 1, 2021	May 31, 2022	Sub-Grant Agreement	425,594	40,862	384,732
027	Sardar Agro	PLA12560	June 1, 2021	May 31, 2022	Sub-Grant Agreement	118,537	13,513	105,024
028	Bhola Monosex Telapia H	PLA12561	June 5, 2021	May 31, 2022	Sub-Grant Agreement	25,364	16,388	8,976
030	M-World	PLA12569	June 8, 2021	May 31, 2022	Sub-Grant Agreement	91,228	48,364	42,864
031	Gram Unnavon. Sanoatho	PLA12574	June 10, 2021	June 9, 2022	Sub-Grant Agreement	81,466	74,629	6,837
029	Aftab Feed Products Limi	PLA12567	July 1, 2021	June 30, 2022	Sub-Grant Agreement	272,748	135,706	137,042
032	MarGen Ltd.	PLA12597	July 1, 2021	June 30, 2022	Sub-Grant Agreement	146,688	59,272	87,416
033	KNB Agro Industries Ltd.	PLA12614	August 1, 2021	February 28, 2022	Service Agreement	119,980	64,669	55,321
034	Petrochem Bangladesh L	PLA12615	August 1, 2021	July 31, 2022	Sub-Grant Agreement	126,110	63,884	62,226
035	Matrix Business Develop	PLA12618	August 1, 2021	May 31, 2022	Sub-Grant Agreement	88,801	39,998	48,803
037	Gorai Films	PLA12624	August 15, 2021	May 14, 2022	Service Agreement	73,246	48,283	24,963
036	Bank Asia Limited	PLA12623	August 16, 2021	July 31, 2022	Sub-Grant Agreement	114,601	49,807	64,794
038	Bangladesh Shrimp & Fis	PLA12627	September 1, 2021	March 31, 2022	Service Agreement	54,400	44,257	10,143
039	Sea Natural Food Limited	PLA12629	September 1, 2021	August 31, 2022	Sub-Grant Agreement	293,921	65,534	228,387
040	Shushilan	PLA12651	September 1, 2021	July 31, 2022	Sub-Grant Agreement	117,895	46,364	71,532
<b>Total</b>						<b>4,751,365</b>	<b>1,988,809</b>	<b>2,762,556</b>

### Develop Sub-Contract guidelines

#### 8.2.3. Send sub-contract guideline to HQ for inputs and review

WorldFish updated its procurement policy on 1 July 2021 where guidelines, process and procedures related to subcontracts were included

#### 8.2.4. Develop standard sub-contract template vetted by HQ

The service contract template was reviewed and vetted by the Grants and Contracts office in HQ as well as WorldFish' legal office (*Annex 11*).

#### **8.2.5. Implement revised procedures**

BAA follows WorldFish procurement policy and the updated service contract template is now in use.

#### ***Risk Management Plan***

#### **8.2.6. Assemble risk management plan committee**

WorldFish has a Risk and Compliance office who has a responsibility to ensure the overall financial internal control environment and effectively mitigate risks. Activities include Enterprise Risk management, development of appropriate governance and policies, as well as supporting countries and projects in addressing audit recommendations. Countering fraud and supporting the organization in preventing, detecting and responding to fraud also falls under the mandate of Risk and Compliance. BAA Finance and Grants Manager reports and coordinates directly to the Risk and Compliance lead on any audit requirement, queries, recommendations and other partner/subgrantees' identified risks.

#### **8.2.7. Identify risk triggers and resolution ideas**

BAA Finance and Grants maintains a risk register management log and are reported to Risk and Compliance Office.

#### **8.2.8. Draft Risk Resolution Action Plan**

Risk register management log also include the resolution plan where Finance and Grants also worked closely with WorldFish Grants and Contracts and Risk Compliance office to address identified risks. One of this is the widely implementation of online banking and e-wallet to all WorldFish offices. It is noteworthy that Partner's Pre Award Risk Assessment Policy and Guidelines is already developed.

#### ***Activity and Partners' External Audit***

#### **8.2.9. Write ToR for the audit firm**

The terms of reference for the audit firm was drafted following USAID financial audit guide for foreign organization.

#### **8.2.10. Publish Request for Application**

BAA follows WorldFish procurement policy and published the Request for Application (RFA) in three job portals, BDjobs, DevNet and WorldFish website.

#### **8.2.11. Select Audit Firm**

Following WorldFish Procurement process, Deloitte Bangladesh was selected to conduct project audit for BAA. The appointment letter was signed in December 2020.

#### **8.2.12. Auditor orientation on activities and requirements**

The entrance meeting was held on January 7, 2021 through virtual platform and was attended by USAID AOR and OFM as well as WorldFish representative BAA DCOP, WF Bangladesh Office Head and BAA Finance and Grants Manager.

#### **8.2.13. Project Audits**

USAID audit threshold for foreign organizations is now at USD750,000. BAA has not given a sub-award of this amount and therefore BAA did not select partner audit and will only require if there's identified risk of mishandling of funds. Excerpt from USAID Financial guide for foreign Organizations "USAID assistance to foreign organizations and foreign public entities provide provisions for recipient responsibilities on annual financial audits. For federal financial assistance awards (ADS 303), the audit requirement in 2 CFR 2005, sets the audit threshold

at USD 750,000 or more in combined federal fund expenditures during the recipient’s fiscal year. The annual audit scope will be expanded to fulfill the closeout audit requirements. Even if an award does not meet the USD 750,000 audit threshold, the USAID Operating Unit may determine that an audit is warranted. Some reasons may include a need to mitigate risk or prevent fraud, waste, and abuse”.

**8.2.14. Perform Audit (Year 1-2 and Year-3)**

Although the audit was planned to start in January 2021, this was delayed because of the several lockdowns in between months imposed by government. During the lockdown period, both WorldFish and Deloitte Bangladesh offices were closed and work from home set up were implemented. This set up resulted to some limitations such as desk review of hard copies of selected sample vouchers, collection of hard copy vouchers from WorldFish rented storage room, visit to BAA selected partners and physical verification of assets located in Khulna and Jashore that are currently identified as COVID 19- red zones.

BAA was able to provide several soft copies of required documents that allow auditors to start reviewing project documents, WorldFish policies, procedures, internal controls and systems including IT systems. BAA team also provided auditors of the 5 partners audit performed in 2020. The situation only allowed us to open WorldFish office in June 2021 and able to receive auditors for desk reviews.

Auditors submitted the first draft of audit report to WorldFish on 21 August 2021. The report was reviewed by the Finance and Grants Manager, Global Financial Controller, Global Risk and Compliance Lead and Corporate Service Director and provided the management response. This was discussed with the Project Management Lead, Regional Director for South Asia and Chief of Party. The report was shared to USAID and exit meeting is scheduled on 24 October 2021.

**8.2.15. Perform Project audit for 5 selected partners**

The set threshold for foreign organizations is now at USD 750,000. BAA has not given a sub-award of this amount and therefore BAA did not select partner audit and will only require if there’s identified risk or allegations of mishandling of funds.

***Workshops and Training for Sub-grantees***

**8.2.16. Online Sub-grant orientation to new sub-grantees and Fraud Prevention and Compliance training**

Finance and Grants team had two separate partners online orientation held on April 2021 and June 2021 (*Table 5*). The aim of these orientation program is to prepare our partners and BAA team members on expectations, communications and collaboration for the project. It discusses the importance of understanding of the terms and conditions of the signed agreement, an overview of USAID rules and regulations, sub-award management and technical reporting, milestone and payment schedules. It also touches topics on financial management and procurement planning.

The next sub-grant orientation will be held on October 24, 2021.

Table 5: Finance and Grants Completed Trainings

Title	Number of participants		Date
	WorldFish	Partners	
Partners Orientation Program	31	28	April 13, 2021
Fraud Prevention and compliance	33	49	April 15, 2021
Partners Orientation Program	19	17	June 14, 2021
Fraud Prevention and compliance	26	31	June 15, 2021



### **8.2.17. Fraud Prevention and Compliance Training**

Finance and Grants team had two trainings held on April 2021 and June 2021. The objective of the Fraud Prevention and Compliance Training is to learn to fight fraud in the organization and how to be compliant to donors. It aims to build the skills and confidence of the staff to prevent fraud before it happens, detect fraud and manage incidences effectively. Each orientation and training program is attended by WorldFish staff, BAA's representative, POCs, MEL staff, Grants Specialist and Partners key staff.

The next training on Fraud Prevention and Compliance will be on October 25, 2021.

### **8.2.18. USAID Sub-award Management**

The topic of sub-award management was included in the two orientation programmes mentioned above.

### **8.2.19. Procurement and Internal Control and Finance**

The topic of sub-award management was included in the two orientation programmes mentioned above.

### **8.2.20. VAT and Tax online training/webinar for 30 participants**

BAA published a Request For Application (RFA) for this Activity but unfortunately did not receive applications. We would like to proceed for this training on the last quarter of 2021 and possibly get the training from USAID Vat officer expert. COP has already requested the said training.

### **8.2.21. Financial Management Guideline for partners who do not have Finance Policy**

A simple Financial Management Guideline sample is drafted and is available for partners who would need a reference.

### **8.2.22. Procurement Guideline for partners who do not have Procurement Policy**

A simple procurement policy sample is drafted and is available for partners who would need a reference.

### **8.2.23. Write lesson's learned from the 1st batch of sub-grantees**

The final draft will be available by December 2021.

## **8.3. Monitoring Evaluation and Learning (MEL)**

### **8.3.1. Update MEL plan (indicator target values, definitions)**

BAA's MEL plan is regularly updated to reflect new indicator targets as new partnerships are formed each year. This includes determining and assigning values and ensuring that partner-specific definitions align with USAID performance indicator reference sheets (PIRS). The plan incorporated indicators, updated achievement values of the annual results report for FY 2020 and revised targets.

### **8.3.2. Staffing plan for field data collection**

The MEL team deployed 25 data enumerators (DEs) this year; amongst renewed contracts of 17 DEs and hired new eight through competitive process to further strengthen the data collection pool aiming to ensure data quality across. The field survey experience suggested, to make the Activity participants/ survey respondents more communicative during the surveys as well as to capture accurate data from them, fluency on local dialect/ vocabulary, conversion is essential. Thus, included three from ZOR and 22 from ZOI to carry all performance and ad hoc surveys and collect GIS/ GPS data.



### 8.3.3. Web-based MIS upgrade and info hub development

The web-based MIS is continuously upgraded this year with development of an info hub and an integrated mobile app for improved data access, GIS navigation, and survey visualization (Figure 7). Through this platform, the Activity will be able to access real-time data for indicator dashboards.

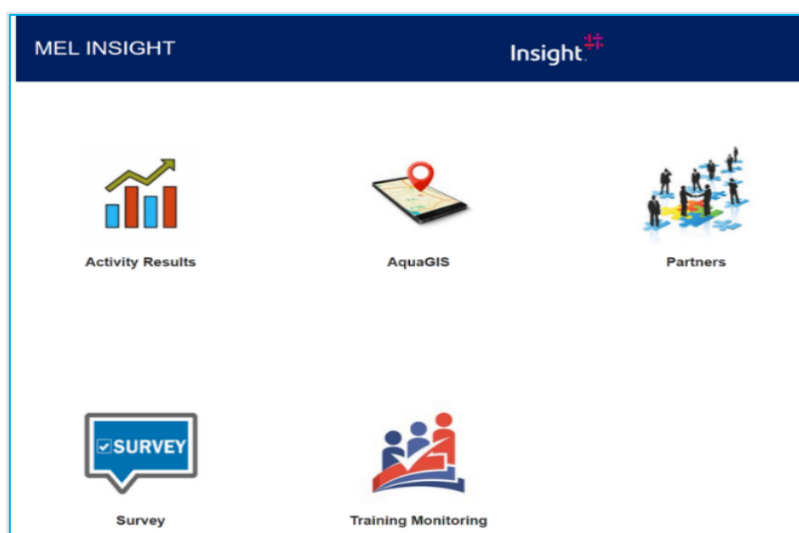


Figure 7: BAA MEL MIS interface

### 8.3.4. Development of integrated mobile app for GIS navigation and survey visualization

With support from a hired consultancy firm a well-suited user-friendly android mobile based application has been developed to present the participants' GIS information. This is still under trial stage and it will be fully deployed and launched for its usage in next year. The MEL team included an interactive dashboard to visualize and make easy access to see the Activity results based on its indicators. This will enable the Activity staff members and IPs to easily access and visualized the Activity participants in an interactive way. They will also get easy option to share quick and real time field learnings to inform the management, decision makers and implementers as well.

### 8.3.5. MEL team meetings

The MEL team meetings were one of the regular activities throughout the year where the MEL team reviewed the activities, adjusted its action plan and decided for next on the basis of the programmatic and reporting requirements.

### 8.3.6. Activity monitoring and internal DQA reporting

The MEL system tracked and monitored progress against individual IPs' Key Performance Indicators (KPI) and provided them feedback for programmatic improvement. The developed/ used an MS Excel based interactive, completed and integrated partners' matrix, which made the process easier, effective and visualized to the users. The Activity developed tools for internal data quality review and conducted several physical and virtual verifications/ cross checking on data quality. The key findings and observations were shared with the management and respective IPs.

Despite the challenges and limitations, the MEL team made several field visits before COVID-19 hard lockdown across the country. Even after lockdown, the situation was tough to execute field visits and field level data collection as the number of Covid-19 patients and deaths was uprising. To adapt with the new normal, the team tried to adapt a well-managed

safety measures following organizational guidelines and government directives pertained to COVID-19 pandemic.

In Y4 (January 2021), the MEL team participated in USAID Data Quality Assessment (DQA) on FY 2020 results reporting and working to prepare a detail MEL operational guideline based on the DQA recommendations.

## **Surveys**

### **8.3.7. COVID-19 recurring survey series**

BAA completed 12 rounds of surveys on the impact of COVID-19 on the aquaculture sector. The surveys show data over time since the crisis began in April, 2020. Changes in production, sales, prices, transportation, market activities, and buyer behavior were tracked. Following the recurring e-surveys an in-depth qualitative assessment was carried in February, titled “COVID-19 impact on aqua market actors and fish farmers and options”. Objectives of the study were to realize the short term and long-term impacts and challenges the market actors faced due to COVID-19, how they responded/ cope-up, what supports they received different sources to respond COVID-19 impact and its effectiveness and suggestions to accelerate the recovery of COVID-19 impact. A detail report consisting key findings and recommendations was shared in May 2021 and shared with USAID in Q3Y4 report (*Annex 12*).

The survey revealed that the COVID situation highly impacted on fish seed production by hatcheries and declined notably. Farmers also stocked less amount of seed to reduce overall farm operation cost. The increased inputs price remained high even after lockdown. Aquaculture market actors faced problems regarding cash flow due to credit sell as well as a sudden drop to overall sales and profit margin. Limited fish selling opportunity has created less amount of cash in farmer’s hand which lessened their affordability to buy required inputs spending additional cost. Farmers had only few options in hand-either they had to buy inputs on credit, or take loan at high interest rate or cut down necessary inputs use. This situation created an imbalance situation regarding overall cash flow in the aquaculture market. Farmer’s cost of production has been increased but they could not sell fish in better price.

### **8.3.8. COVID-19 summary report published & distributed**

Summary report of the quantitative survey series on “COVID-19 impact on aquaculture market actors and fish farmers” has been published in Y4, which was conducted during the period of April to December, 2020. The report features the sectoral impact on aquaculture and BAA initiatives to cope with the pandemic.

### **8.3.9. Quarterly performance survey for sub-grantees**

The MEL team started to collect sales information on quarterly basis from Y4. This helped to see the trends/early sign and improve the data quality. The team also collected annual sales information for last aqua season based on business pattern of IPs and their preferences. The survey revealed that most of the sampled carp hatcheries started operating seed production at end of February. Due to high temperature most nursery ponds dried out. As a consequence, spawn demand from nursery owners declined and hatcheries could not reach desired spawn production and sells targets. Data shows that the carp hatcheries produced 9,378 kg spawn in reporting production season (Jan-Dec 2020) which is (18%) lower than the previous season (Jan-Dec 2019). On the other hand, less number of buyers came in to the hatcheries due to COVID-19 pandemic, which also impacted on the hatcheries negatively.

### **8.3.10. Annual performance survey (farm and firm)**

The annual performance survey broadly focuses on two larger segments; 1) Farm, and 2) Firm. The data are being collected in different months from a larger number of aquaculture market actors and fish farmers considering aquaculture seasonality, operational modalities and market systems.

The firm level survey covers sales and leveraged investment data. The farm level survey, i.e., Annual Farm Productivity Performance Survey combines with both census and sample survey methodologies. Considering the dynamics of the Activity, the annual farm productivity survey was performed into two separate steps (step 1 and step 2).

**Step-1: Identification of potential reached participants (Fish farmers/ beneficiaries)**

The participant's tracking was conducted through four stages data collection (Figure 8), such as: Stage 1: the Activity supported partners which includes hatcheries, feed companies, AMP sellers and Banks were surveyed to list out next level actors in the supply chain, e.g., nurseries, seed agents, LSPs, feed dealers/sub-dealers and AMP sales points. Stage 2: Listed actors from stage 1 were interviewed, where the lists were validated and collected next level of actors' name including Patilwalas, farmers and market sheds (villages). Stage 3: the Patilwalas were interviewed to collect list of farmers as well as sales locations (villages). Stage 4: the team followed cluster sampling technique using the identified market sheds (intervened areas) based on intensity of interventions (feed, seed and AMP) to list down the Activity participants.

Below figure shows a simplified stages of the participants tracking survey under step 1:

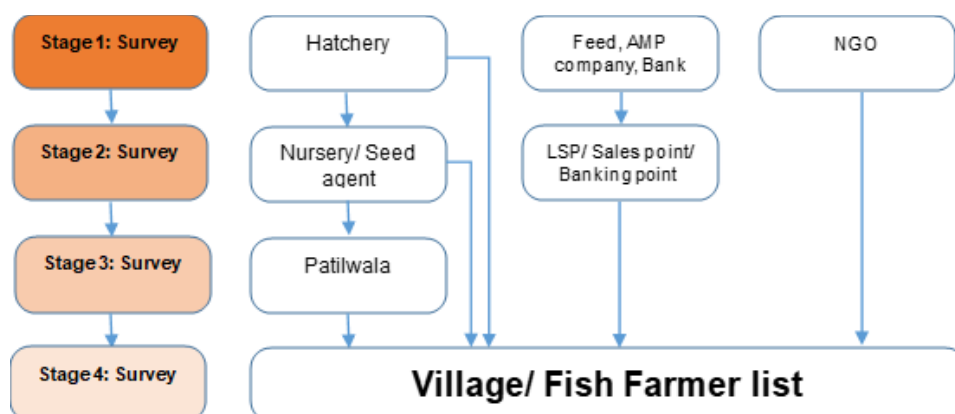


Figure 8: Overall flow diagram for fish farmers reached by partners

**Step 2: Farm productivity performance survey**

After completion step 1, the team moved towards the step 2 to collect farmer's aquaculture productivity and nutrition outcome data. Sampling method and sample size of the survey presented in below table (Table 6):

Table 6: Fish farmer annual performance sample summary

Type of farmer	Sampling method	Sample size
Tilapia fish farmer	One-Stage Design with Systematic Selection of Beneficiaries	238
Carp fish farmer	Two-stage cluster design with systematic selection of beneficiaries	525
NGO reached fish farmer	Two-stage cluster design with a listing operation and systematic selection of beneficiaries	525

Total sample size: 1,288 fish farmers. The survey results are used to report the achievement for nine standard indicators in FY2021 for Annual Results Report and FtFMS/ DIS inputs.

**8.3.11. Systemic change measurement survey for crowding-in**

The Activity expects that successful models will be adopted by other existing market actors (i.e., crowding in), which will significantly change the system by integrating innovative problem-solving ideas. It is also expected that small-holder fish farmers or other stakeholders have started to derive benefits from direct Activity intervention, others who are independent of the intervention copy the behavior of these Activity beneficiaries and avail similar products/services.

The MEL team is planning to collect the elements regarding systemic change at the onset of Y5. Developing qualitative and quantitative M and E systems (i.e., AAER models, most significant change, outcome harvesting etc. as found suitable) will be used to track systemic changes. Meanwhile the team is working to collect information on copying in i.e., secondary adoption and adaptation.

#### **8.3.12. Ad hoc surveys as needed by program teams**

The MEL team conducted and supported Ad hoc surveys and assisted in data collection as and when needed by the Activity. Listed below were completed during Y4.

- Semi auto-feed millers' current status and solution for improvement
- Assessment of women entrepreneurs' need and interest in aquaculture business
- RTE and RTC fish product scoping study with BNA vendors:

MEL team has conducted a scoping study with the Nutrition team on “Ready to Eat (RTE) and Ready to Cook (RTC) fish, and other nutritious fish products” with 121 Bangladesh Nutrition Activity (BNA) vendors.

- COVID-19 qualitative impact assessment was conducted

#### **Reporting**

##### **8.3.13. Quarterly report**

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

##### **8.3.14. Annual report**

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

##### **8.3.15. FTFMS USAID reporting**

Data analysis and reporting for Y3 Annual Performance Survey (FY2020) was completed in November 2020 followed by data verification and data cleaning. Standard indicator results including appropriate disaggregates, respective deviation narratives, and out-years target (FY2021-FY2023) were entered in to the FTF module on the newly introduced Development Information Solution (DIS) platform.

##### **8.3.16. Systemic change report**

Measuring systemic change will take place in early Y5 and will be reported accordingly.

#### **GIS**

##### **8.3.17. Continuous updates to GIS information database**

Activity MEL team collects and updates required GIS information for its activities, participants, markets actors, IPs and other stakeholders and store them in a database (*Figure 9*). They incorporate GIS information in the data collection process and from this FY new data is being collected on quarterly basis.

A overall FLOWCHART for GIS data collection form vaiious maket actors

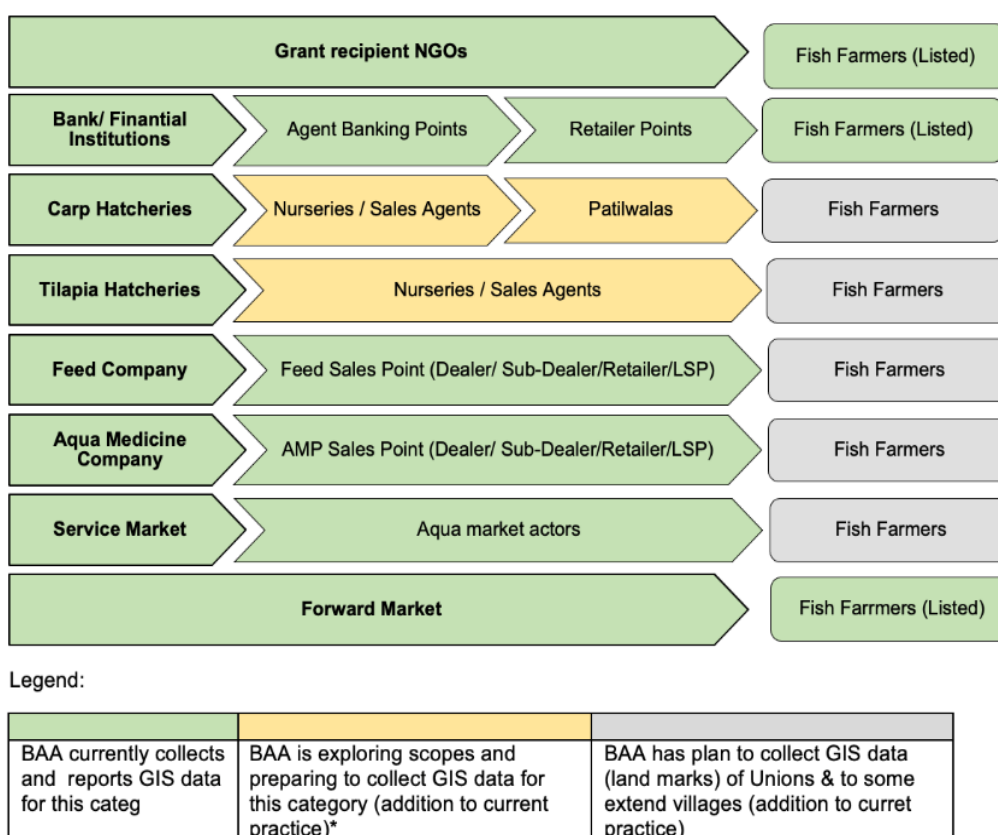


Figure 9: GIS data collection plan

The Activity prepared GIS database of 11,594 beneficiaries during the reporting period (*Annex 13*).

### 8.3.18. GIS integration with the current MIS

GIS data collection system is integrated into the web-based MIS platform. The system is still under trial stage and it will be fully deployed and launched for its usage in next year.

### 8.3.19. GIS based aquaculture market mapping tools available

An ODK based GIS tool has been prepared and used extensively to collect data precisely. Also, demo interactive mapping tool has been developed using Leaflet.js and Python to visualize the partner working area at district level and hatchery location. Another demo containing partner office location and address has been prepared. These tools contain data in different layers and show different features like popup, layer overlay etc. Notably, the activity will determine and visualize the market coverage areas (catchment) of partners and other market actors.

### 8.3.20. Market catchment maps developed and shared with ADTs

Aqua-cluster Development Team (ADT) was formed within each of the three selected aqua clusters from the first batch of aqua clusters. Activity had plan to facilitate ADTs with useful maps so that they could identify potential sources of input supplier, farmer base, customer base, information source etc. and build linkages with those in doing business.

### 8.3.21. Additional aqua-clusters identified

Three additional clusters which were selected in Jalma and Gutidia in Khulna, Bapta and Char Samaia in Bhola and Lakhpur and Piljanga in Bagerhat which is discussed in "Identify additional clusters" section 2.1.6.

### 8.3.22. LSP and small miller locations and data into GIS at union level

A survey was conducted over phone to explore the GIS location of the 60 feed mills established by AIN project. During the data collection process current situation of the feed mills were explored. The condition of these feed mills was added in a map (Figure 10). As the survey was conducted virtually/ over telephone, out of targeted 60 millers only 40 could be reached. Of them, 9 could confirm that the feed mills were in good condition and 8 millers were running it for business purpose. Another survey was conducted to know the current condition of the 1,275 Local Service Providers (LSP), trained by AIN/ WorldFish. The survey team was able to contact 860 LSPs (67.45%) and rest could not be traced. Location of these LSPs was mapped showing their concentration at upazila level (Figure 11).

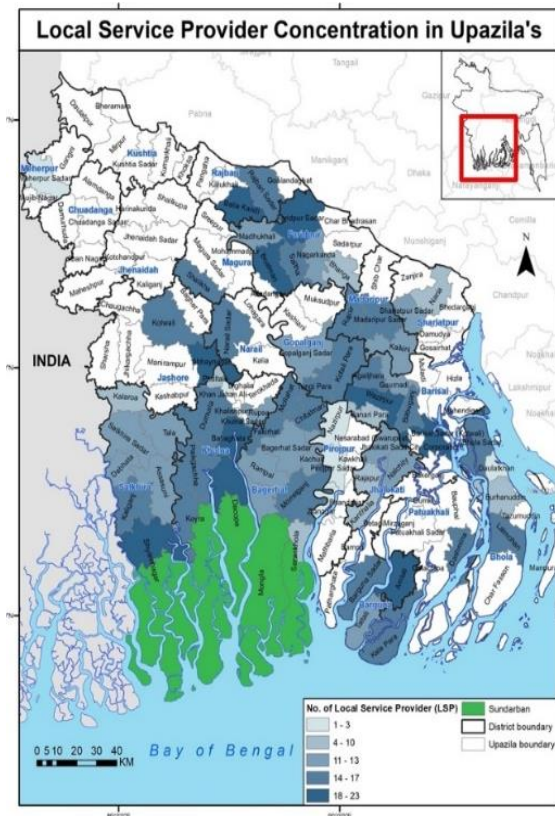


Figure 10: Location of feed mills

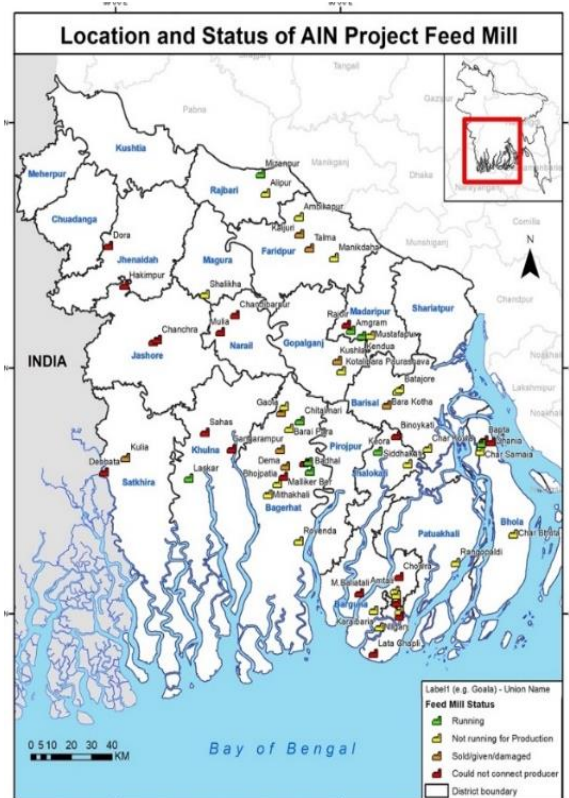


Figure 11: LSP concentration in Upazilla

### KM and CLA

#### 8.3.23. CLA workshop for new partners

#### 8.3.24. CLA Workshop Reports written and distributed

Because of the prevailing COVID-19 situation, this activity could not be accomplished. BAA will conduct the workshop in year 5.

#### 8.3.25. Lessons learned meeting with individual partners under close-out process

This activity could not be accomplished because of the COVID-19

#### 8.3.26. Case studies

30 case stories were drafted and disseminated in year 4 to foster learning and capture progress of the interventions taken by BAA (Table 7).

Table 7: Stories for learning and sharing



Serial	Title of the stories	Theme
1	Strengthening production and supply of carp pituitary gland to produce better quality seed: A United Agro Fisheries story	Aqua input
2	FishTech BD's disease diagnostic lab sets out to unlock aquaculture intensification	Aqua input
3	Using innovation to get more people eating fish	Forward market
4	Delivering fish right to customers' doorsteps	Forward market
5	Using aqua machines to improve farm productivity and strengthen commercial fish farming	Aqua input
6	Unleashing women entrepreneurship in aquaculture	Gender
7	E-commerce in aquaculture: A medium for including smallholders into the formal economy	Access to finance
8	Changing the fortunes of fish farmers, one LSP at a time	Advisory Services
9	Building a successful hatchery business the right way	
10	Bank Asia: Using digital finance to enable fast loans for farmers and quick returns for banks	Access to finance
11	Piloting a blockchain-based aquaculture traceability system in Bangladesh	Access to finance
12	City Bank: Financial management literacy as a step forward to ensure access to finance for aquaculture enterprises	Access to finance
13	Bank Asia to the rescue: A case study	Access to finance
14	Using advisory services to expanding fish feed businesses	Advisory Services
15	Credit for capital helps dried fish processors improve business	Access to finance
16	Fish farming makes life better for a family in Rowangchari Maddhyampara	Awareness-building
17	Improving market conditions increases benefits for users in Bandarban	
18	Popularizing aquaculture in the hills	Awareness-building
19	How adopting handwashing has led to healthy living for a family in Balaghata	Awareness-building
20	Kuchia farming brings new hope to farmers in Cox's Bazar	
21	Turning quality into quantity for fish farmers in Bandarban	
22	How new knowledge, skills and inputs have created a better life for a family in Lambergona	
23	How a simple switch in farming methods turned a day laborer into a promising fish farmer	
24	How a woman fish farmer pulled herself out of poverty	Gender
25	Using a fish-based recipe book to spread important nutrition messages about fish	Nutrition
26	Increasing revenue through online marketing during the COVID-19 pandemic	
27	Gender equality can lead to more income from fish farming and vegetable cultivation	Gender
28	Developing new, women-led aquaculture in Khulna, Bangladesh	Gender
29	Using plates and bowls to teach people about nutrition and the importance of eating fish	Nutrition
30	Providing quality aquaculture inputs and expert guideline services through a youth-led business initiative	Aqua input

### 8.3.27. MEL one pagers on each partner

BAA produced 8 one pagers on its partners in Y4. This document features basic information on partnership with the Activity including objective, target and achievements.

#### **Capacity building**

### 8.3.28. Maintain Knowledge Management (KM) platform for staff learning

KM platform has been well maintained. BAA staff use MS Teams and its' channels, including the KM platform regularly.

### 8.3.29. Training on data collection and quality assurance for the enumerators

The MEL team facilitated capacity strengthening trainings for all data enumerators (DE) (*Table 8*). The training courses included performance surveys, GIS data collection, safety measures, precautions and directives that each and every one must adhere if they engage in field works.

Table 8: Major MEL trainings for DEs in Y4 on field level data collection and data verification

Sl.	Date	Title	Participants		
			Total	Male	Female
1	Dec 6, 2020	Training on semi-auto feed mill present status data collection	14	14	0
2	Jan 23, 2021	Training on United Purpose producer training monitoring at field level	9	8	1
3	Feb 14, 2021	Training on COVID-19 qualitative survey data collection	13	12	1
4	Mar 9, 2021	Training on GIS data collection	31	28	3
5	Mar 23, 2021	Training on RTE/RTC selling prospect survey	10	10	0
6	Mar 29, 2021	Training on Household income data collection	20	17	3
7	May 7, 2021	Training on Identification potential reached participants by Activity (Stage-1)	13	13	0
8	May 30, 2021	Training on Identification potential reached participants by Activity (Stage-2)	25	24	1
9	Aug 18, 2021	Training on Identification potential reached participants by Activity (Stage-3)	26	25	1

The training helped to develop a common understanding on data collection requirements, tools, protocol and data quality. As a result, the surveys produced accurate data from the field which was verified from desk check and field observation.

### 8.3.30. MEL training for new partners

In this reporting FY, MEL team conducted orientation and trainings for 40 IPs in ZOI and ZOR on data collection tools, online data collection platform, reporting and record keeping, data quality assurance etc. The team also supported the partners through regular IP meetings where MEL issues were discussed.

The Activity MEL team conducted field visits to review and strengthen partners' record keeping systems and reporting processes. The findings were shared with the activity's program team for follow up.



## **8.4. The Zone of Resilience (ZOR)**

### ***Dry fish market recovery***

#### **8.4.1. Improving access to Micro Finance from formal Institutions for dry fish business recovery**

Dry fish processors in Cox's Bazar lack access to formal finance to operate their business smoothly. There are limited opportunities for processors to get access to loan from local lenders at high interest which impacts negatively on profitability of their business. BAA in partnership with Mukti Cox's Bazar is working together to provide the access of dry fish actors to finance from formal institutions to address capital shortage of the dry fish entrepreneurs.

Mukti Cox's Bazar has provided BDT 18.325 million (USD 218,228) to 292 women and 09 men dry fish actors as loan. They have also delivered training to 286 dry fish actors on financial management and 250 dry fish actors on savings and credit management. A total of 301 dry fish actors sold an amount of 27 Metric Tons of safe dry fish worth BDT 12,150,000 (USD 144,694) by September 2021. Moreover, dry fish actors have started their activities of procuring raw fish and drying by utilizing the loans received to sell safe dry fish in the coming season. With this loan support and new financial knowledge, they are expecting to recover the losses they have incurred during last years.

Major activities accomplished during this reporting period are; conducting training on financial management for 33 project staffs (male-26, female-7), provided training on financial management for 286 beneficiaries (male-7, female-279), ToT on savings and credit for 33 project staffs (male-27, female-6) and training on savings and credit for 250 dried fish actors (male-4, female-246)

#### **8.4.2. Partnership with dry fish marketers on branding and promotion**

BAA made a partnership with Cox's Bazar Shop to develop dry fish business and improve sales of different dry fish products through promotion and branding reaching target markets all over Bangladesh.

Major activities accomplished during the reporting year: conducting training on dry fish business management and development for dry 57 fish producers and 19 RTE dried fish producers, advertising through social media, printing 20,000 labels for RTE dry fish products, printing 1,000 stickers, printing 120,000 leaflets, developing Android App development, purchasing vacuum packaging machine, smart packing 30,000, developing 60 digital contents on dried fish various recipes, and establishing sale center. Moreover, Cox's Bazar Shop has sold 2,773 Kg dry fish products from April to September 2021 which is 126.7% higher than the last year's sales (at a same period of time) valued at BDT 3,170,435 (USD 21,397) (159.2% higher) among 1,199 customers (49.9% higher). The sales of dried fish products were hampered/stopped from May 20 to July 23 due to lack of supply or production of dried fish products as raw fish was not available because of government ban on sea fishing.

#### **8.4.3. Partnering with dry fish entrepreneurs for business development and marketing**

BAA created a partnership with Shah Amanath Traders (SAT) to address branding and promotional activities of safe dry fish. Due to the lack of proper marketing and branding strategies dry fish entrepreneurs are struggling to grow their business.

SAT has trained 200 dry fish entrepreneurs on business development and developed 5 distributors who sold 15102 kg dry fish valued at BDT 4,53,0801 (50% higher than last year) and reached 4,700 customers. They have also conducted training courses on sorting, grading and cleaning for 140 women workers.

Major activities are carried out during Year 4 include, printing 2,000 leaflets on safe dry fish production, established better management practices of sorting, grading and cleaning section, delivering trainings on dry fish business development for dry fish entrepreneurs in 10 batches, delivering training on sorting, grading and cleaning for women workers in 7 batches, manual printing on dry fish business development, video documentary on safe dry fish production technology, smart packaging system, and social media and website campaign to aware customers about safe dry fish products.

### ***Aquaculture market development***

#### **8.4.4. Explore solution in the forward market of marine fish**

After discussing with the private sector partner, it has been decided not to pursue with this concept as it has very limited scope to scale. Marine Fish is costly for the domestic consumers and mostly exported to foreign countries. Minimum private sector penetration and less interested to work.

#### **8.4.5. Issue solicitation on market promotion of seaweeds**

Seaweed is one of the best ingredients in the world that has high chemical, medicinal and food value. Bangladesh is rich with 133 species of seaweed and eight of them are commercially important. BAA has been exploring an opportunity of creating diversified domestic markets for different seaweed-based products in collaboration with Zahanara Green Agro (ZGA) promoting and marketing of seaweed-based beauty and food products for consumers.

ZGA was expected to develop a variety of delicious and nutrition-based packaged food items such as Toffee, Jelly and soups and natural facial cleansers as beauty products and primarily market them in Cox's Bazar and develop skills of 300 seaweed farmers/collectors to ensure supply of raw materials. Another 150 local market actors were supposed to work with ZGA for market promotion. With this intervention, product development with appropriate packaging, promotions and branding coupled with market positioning strategy. All these together would generate a pathway for revenue generation and income for the seaweed producers and marketers. Unfortunately, ZGA was not able to repair their physical plant, install machineries and incapable to produce seaweed-based food and cosmetic products despite of required supports. Therefore, the Sub-grants agreement was terminated mutually on 30 September 2021.

#### **8.4.6. Partnership for clean and sanitary markets**

To improve hygienic and sanitary condition of a fish market located in Bandarban, BAA has made partnership with Bolipara Nari Kallyan Sangstha (BNKS) of Bandarban. The purpose of this partnership is to address the challenges that are being faced in regards of maintaining proper hygiene in the fish market place and preventing the spreading of COVID 19 among people during shopping.

Major activities that were facilitated during this reporting period include- improving water supply systems to supply clean water in the fish market, installation of hand washing station for washing hands of customers and traders before entering in the market, cleaning market place regularly to ensure a healthy environment in the fish market, installation of foot marking signs to maintain physical distances among customers, developing festoons to aware traders and customers about health, hygiene and prevention of spreading of COVID 19, training for fish sellers and Fish Market Management Committee on hygiene and selling of safe fresh fish, setting up exit and entry points, garbage reservoir and set up waste baskets, protocol preparation on hygiene and waste management, and project closing meeting. The Sub-grants agreement with BNKS has been successfully finished on 30 September 2021.

#### **8.4.7. National Fish Week Observation in ZOR**

National Fish Week has been observed during 28 August to 3 September 2021 in ZOR as per DoF schedule. BAA has designed five different banners and five different festoons and printed 60 copies of banners and 90 copies of festoons with various messages on fish culture and nutrition. These were distributed/placed at prime locations of the project areas. Due to pandemic situation and time constraint, BAA only printed and distributed banners and festoons through its implementing partners.

#### ***Bandarban activity***

#### **8.4.8. Close activities on nutrition sensitive aquaculture with GRAUS and Tahzingdong**

GRAUS works to bring improved aquaculture to rural areas, conducts training to increase nutritional knowledge and practices, works to enhance fish and vegetable production to address malnutrition, and has activities to increase incomes for women and youth.

Tahzingdong works to increase yield and incomes in aquaculture by increasing the availability of fish seed, improves nutrition by enhancing fish and vegetable production, and increases incomes by establishing market linkages.

The two partners successfully completed all the activities on nutrition sensitive aquaculture in Bandarban area and phased out on December 2020.

#### **8.4.9. Partnership with Maa Mothsha Khamar to strengthen quality fish seed supply in the hilly district of Bandarban**

Scarcity of quality fish fingerlings is one of the major constraints for profitable fish farming in the hilly regions of Bangladesh, resulting poor production and poor profits for farmers. Even though there is huge potential to earn from fish culture but farmers in the hilly regions are often reluctant to involve in fish culture due to adequate knowledge, quality seed, feed and inputs. BAA's partnership with Maa Mothsha Khamar was to strengthen market linkage to ensure the supply of quality fingerlings in the Bandarban region.

MMK has conducted- training event on fingerlings transportation and best management practices for 10 fry traders (patilwalas), 2 batches of capacity building training on fish culture and entrepreneurship for 38 fish farmers, 2 market linkage events with 45 backward and forward aquaculture market actors (male-42, female-3), 4 Farmers Field Days (FFDs) were organized with 69 fish farmers (male-56, female-13), demo pond owners, neighboring fish farmers and social leaders, MMK has advertised their quality fingerlings through loud speaker in different big bazar places of Bandarban, and has distributed communication materials such as leaflet, visiting card and sticker among people, and has conducted annual progress review and planning meeting.

Through these training courses, a good relationship has also been developed between MMK and fry traders. Fry traders are now able to transport fingerlings safely by reducing mortality of fingerlings during transportation. MMK is transporting fingerlings in oxygenated poly bags with water after conditioning the fingerlings in cemented tanks with water shower that reduced mortality significantly. The sales of fingerlings of MMK have doubled compared to the last year as a result of these market linkage events and advertising and promotions launched by MMK. FFDs and results demonstrations initiatives have generated confidence among the farmers and neighboring fish farmers regarding the quality fingerlings of MMK and gave an opportunity to introduced MMK among the local fish farmers.

MMK has sold fingerlings to the farmers in Lama, Alikadam and Chakaria. MMK has sold 8 kg rui, catla and mrigel spawn worth BDT 52,000 (USD 619) to 6 fish nurserers. They have also sold 240 kg grass carp and Thai puti fries worth BDT 432,000 (USD 5,145) to 12 fish nursery operators. A total of 831 kg rui, catla and mrigel fingerlings worth BDT 25,2400 (USD 3,006) were also sold to 56 farmers, fingerlings of catla, grass carp total 16 kg value of BDT 7,000 (USD 83) to 2 farmers, tilapia fries (0.5 inch in size) of 5,50,000 pieces value of BDT

215,000 (USD 2,560) to 20 persons and tilapia fingerlings of 14,500 pieces BDT 23,250 (USD 277) to 4 farmers. MMK also sold 100 kg live mola brood fish value of 100,000 taka (USD 1,191) to 20 farmers. Finally, MMK was able to sale BDT 1,081,650 (USD 12,890) and remains 750 kg fingerlings of carps valued at BDT 300,000 (USD 3,575) for producing yearlings.

#### **8.4.10. Partnering with GRAUS to develop market actors and market channels for promoting nutrition sensitive aquaculture in Bandarban**

For the successful promotion of nutrition sensitive integrated carp-mola polyculture with dike cropping in Bandarban, BAA has made partnership with GRAUS. Major activities that are being facilitated during this reporting period include project orientation for 6 staff (male-4, female-2), 25 community meetings with 616 participants (male-430, female-180) farmer selection, group formation, profiling and database preparation.

ToT on integrated nutrition sensitive aquaculture, business planning and development for 6 staffs (male-4, female-2) was conducted. Refreshers training for Integrated nutrition sensitive aquaculture, business planning and development for 327 graduated farmers (male-98, female-229), refreshers training on carp mola fish nursery technologies, business planning and development for 7 graduated fish nursery operators (male-6, female-1) were organized. GRAUS participated in National Fish Week organized by DoF. Project inception meeting at Naikhongchari Upazila with 20 participants including 02 women, meetings with community fish feed producing group, and market linkage events with 20 aquaculture market actors (male-18, female-2) were also organized.

#### **8.4.11. Round table discussions with aquaculture market actors on developing market channels in Bandarban**

This activity has been completed successfully in Y4Q1. As a result of the round table discussions, Satata Poultry has submitted a business proposal titled “Supply of quality inputs and advisory services for fish farmers in Bandarban” which has been approved by BAA management and sent to USAID for approval.

#### **Challenges encountered while implementing activities in IR 2 during this year:**

All the field level activities such as training, meeting and HHs visits were postponed due to countrywide lockdown. It hampered the achievement as per time frame.

Under the ZOR activities main challenges faced are the ban of sea fishing from 20 May to 23 July, 2021. Due to ban, there were less availability of the raw fish to have sufficient production of dry fish. As the sea fishing was halted for the time being, less dry fish businessman has availed loan from Mukti Cox’s bazar. Apart from that, all the field level activities such as training, meeting and farmers field day have been postponed due to countrywide lockdown.

#### **Major activity plans for the next year:**

Starting partnership with Maa Mothsha Hatchery and Nursery (MMHN) on “Product and market development of high-quality carp seeds and aquaculture business development in Bandarban region” and also starting partnership with Satata Poultry on “Supply of quality inputs and advisory services for fish farmers in Bandarban”. BAA will solicit with private organizations to identify potential IPs for implementing following interventions 1) dissemination of quality tilapia fries to hatcheries for developing future broods, 2) production of quality seeds of mono sex tilapia following better management practices and market promotion, 3) strengthen the supply chain of quality feeds for profitable aquaculture in Cox’s Bazar 4) establish market linkages to ensure the availability of quality seed, feed and embedded service in Cox’s Bazar district 5) promote processing and marketing of seaweeds, and 6) aquaculture business development through developing market linkages and access to finance

Major activity plan for the ZOR interventions also include, Mukti will provide training to 300 beneficiaries on financial Management, 320 beneficiaries on savings and credit and will also disburse loan amounting BDT 7,000,000 to 350 dried fish actors. Shah Amanath Traders will

provide training on sorting, grading and cleaning to 60 dry fish women workers, conduct a market linkage event, an exhibition and advertise through social media and website for business development. Cox's Bazar Shop will conduct 2 sales promotion events with health-conscious people, various professionals and 2 awareness campaigns among tourists on safe dried fish products while developing 30 digital content and advertise through social media and website.

Major activities plan for the ZOR Bandarban intervention include, GRAUS will provide training on integrated nutrition sensitive aquaculture, business planning and development for the 250 Aquaculture farmers, capacity building on carp-mola fish nursery technologies, business planning and development for 15 fish nursery operators, 3 market linkage development events with aquaculture market actors, extension input support for the new 250 aquaculture beneficiaries.

## **8.5. Gender**

### ***Women's economic empowerment***

#### **8.5.1. Partnership to promote women's employment and self-employment in input supply**

BAA partnered with United Purpose to promote women's empowerment and self-employment opportunities by enhancing women-led gillnet business (*Annex 15*). In this reporting year following activities were performed;

Total 100 women entrepreneurs from Women Business Center (WBC) have received basic ToT and refreshers training on business model. As a result of the trainings, they were able to learn daily accounts keeping, monthly business plan, quarterly financial statement, and cost benefit analysis. A module on Improved farming practices, processing and marketing of mola fish was developed. Using the module, 100 trained WBC members were trained. With the assistance of that module 9,645 women fish producer group members, have applied the training knowledge to increase their production and income.

1,70,000 leaflets on improved farming practices were developed and already distributed among 10,000 producer group members, 200 market actors, wider community, private and public sector actors. These communication materials and activities allow the participants to bring change in their practices in mola farming, processing, marketing, consumption and mola-gill net business. Apart from that, 500 demo ponds on mola farming have been established to demonstrate results in the localities. A WBC operated outlet was established at Gollamari in Khulna for forward market linkages and supply chain management from producers to consumers.

#### **8.5.2. Partnership for women's micro-franchises**

Petrochem Bangladesh Limited (PCL) with the support from BAA aimed to ensure advisory services for small-scale aquaculture farmers through developing women micro-franchises (WMF). Under this intervention, they agreed to develop 60 women micro-franchises and link them with the master franchises (company dealers). PCL also aimed to reach 4,800 smallholder farmers directly through courtyard meetings and also support 2,400 smallholder farmers through providing embedded advisory services from the WMFs.

### ***Support to women in aqua business***

#### **8.5.3. Identify women market actors in clusters**

In this reporting year 120 business women has been identified from Zol. They are mostly engaging with aquaculture related business like: fish nursery, fish feed and medicine seller, like and fish net seller along with other agriculture products. Through spill over technique number of women entrepreneurs has been maximized. It helped to mobilized and getting to know each other as a unique force. Hidden potentiality has been recognized.

#### **8.5.4. Assess business needs and interests of women**

A total of 101 women were interviewed adopting online and in person survey methods to assess their needs and interests to adopt their business with current COVID-19 situation. Partner Enliven have produced a report with the survey findings highlighting business needs and interest of the women surveyed (*Annex 16*).

Based on the needs and interests four batches training conducted for 100 women entrepreneurs on their Business Development Services to turn back from COVID-19 damages.

After completion of these 4 batches trainings covering 100 women entrepreneurs those who are working in aquaculture sector; ENLIVEN have planned to move forward for achieving Milestone #4 under SGA.

For this purpose, all of these 100 participants had a separate one-to-one counselling session with business graduates and filled up Business Profile form as a part of first step of mentorship. To address their business problem, business profile will serve below two purposes.

- I. It will help the business graduate to understand their need, potentials and strategies to address post COVID19 business challenges; and
- II. It will categorize these 100 participants in 3 different level of their business capacity and prospective.

ENLIVEN have plan to analysis further of these business profile and develop guidelines for respective mentors. Mentorship guideline will eventually help to track their progress and generate networking to explore opportunity for potential inclusive business cases. It will work under Y-5 plan.

#### **8.5.5. First group meetings in the aqua-clusters**

In the reporting year A total of 6 business women attend in the cluster meeting as representatives on behalf of 140 business women entrepreneur from Jashore, Satkhira and Barisal. By attending meeting created confidence among them to speak in public place, increase mobility and enhance presentation skills.

#### **8.5.6. First networking across clusters**

Didn't hold any meeting in this reporting year.

#### **8.5.7. Build ULAB students for mentorship program**

This initiative in reporting period is allowing 15 business students/ graduates majority is female) to take part in the process and mentor/ guide these women owned SMCEs with their formal academic business knowledge and skills. In return, they learnt, explore and understood rural businesses and women entrepreneurship challenges existing in the countryside. This concept helped both BAA and ENLIVEN to created small opportunity for youth engagement in a mainstream development initiative to forward for its success and scaling up in future. Enliven's core teams and ULAB identified 15 graduate students to enroll them under mentorship program in this reporting period. They have attended ToT course on business development service to build their capacity to facilitate the women entrepreneurs as a mentor. Also attend during training to facilitate session and special coaching after training mainly those who are lagging behind. This opportunity helped them to enhance their soft skills set and will be added value in their future carrier paths.

#### **8.5.8. Identify the vocational needs of women in the aqua-clusters**

To identify the vocational need of women in aquaculture, 42 has been identified from Zol. In that regard, a training needs assessment report has been developed with the assistance of MEL team. The findings from assessment report helped to identify training contents, methodology and materials, thus contributed to develop a operational module.,

### **8.5.9. Co-creation discussions with Enliven for simple models of vocational and skills training for women in aquaculture**

Through discussion with Enliven, a simple inclusive business model has been developed to address vocational skills for women in aquaculture sector. A simple operational handbook has been developed for women entrepreneurs to run the self-guided business and lesson they learnt from training. On the job and follow-up support will help to track in the operational modalities.

### **8.5.10. Farmer to Farmer volunteer provides training and advice**

In the reporting period, SoW has been developed by Volunteer and shared with respective team members of BAA project for review and feedback, 40 business women has been identified from Barisal and Khulna division for mentioned training and advice Two batches training conducted on “Training on Business Management and marketing for women groups in aquaculture business. Cliff Wener and Neelam Canto-Lugo remote Farmer to Farmer Volunteer from USA virtually facilitated the session where local volunteer helped to make it communicable with women entrepreneurs. It was under the assignment number RB 024. Training learning will be implemented by BAA Project where volunteers will do remote follow-up support. *This was a remote assignment with all of the implicit challenges. Too many subjects, too little time to provide detailed, supportive training.*

## **8.6. Youth**

### **8.6.1. Improving access to information and inputs**

BAA is engaging more youths (age 15-29) into the aquaculture sector, given the fact that there are many youths who are working and are involved within the aquaculture value chain system. BAA believes that, youth have the capacity to view farming beyond traditional practices which can bring new lenses in the sector from business motive (*Annex 17*).

Under this activity, there are two youth entrepreneurs who have been working with BAA to fulfill their business initiatives. Throughout the year 4 of the Activity, youth partner Saifuddin Rana with 8 other youth team members have supported and implemented the task of providing expert guidelines and quality inputs to the through a platform call FishBooth to the remote areas of Chattogram and Bandarban. Input services include providing feed and seed, testing kit, aqua medicinal products and also the consultancy services when required. Services are provided through both online and offline platforms. In total, 456 customers and stakeholder have been reached by FishBooth during this year. The project has ended during mid-September 2021.

Another partner Shariful Islam, who is providing a consultancy service to promote bio-floc based aquaculture systems. He has established a demo bio-floc to enhance the better consultancy service. An online workshop has been organized where 38 potential entrepreneurs have attended to understand more about the biofloc fish culture system and the services that will be provided by Shariful Islam. After the workshop, Shariful has provided consultancy services to 2 clients and communicated with 3 other potential clients who are interested to avail their services. With Shariful Islam, 3 other youth team members are working to make this business a successful one.

### **8.6.2. Identify potential youth groups in aqua-clusters and apply PYD**

This activity has been merged with 8.6.3

### **8.6.3. Identify new youth partnerships in aqua-entrepreneurship**

To include more youth into the field of aquaculture with the facilitation from BAA, a Terms of Reference (ToR) has been circulated to gather potential business ideas led by youth. In total, 25 business ideas have been received. Afterwards, 11 ideas have been shortlisted for seeking detail proposals and from these 11 proposals 5 business ideas have been considered for finalization.

#### **8.6.4. Soft skills development workshops (Farmer to Farmer)**

BAA in collaboration with Land O'Lakes has carried on two-day Farmer to Farmer remote volunteer training program from 12 to 16 September 2021, for two batches on Soft Skill Development for the youth in the aquaculture sector. The main motivation of the training was to support and develop the soft skills for the youth who are directly or indirectly involved aquafarming, aqua-business or Aquaculture and Fisheries Education program as students at universities.

Key impact of the training was the linkage creation among the youths who have come from different backgrounds but with a common understanding on the aquaculture sector. Through the training sessions, total 40 youths have attended from the two batches. It is expected that these youths would implement the learning from the training in their regular lives and actively participate in the economic development activities by focusing the field of aquaculture sector.

#### **8.6.5. National Youth Day Observation**

National youth day has been observed with WorldFish Headquarter in a Webinar by focusing on a discussion on the scope of youth inclusion in the aquaculture sector/ aqua business.

#### **8.7. Environment and climate change**

One of the key objectives of the Activity is to ensure that none of its interventions leaves any negative impacts on the environment or on human health. In order to popularize environmental compliance in aquaculture, an animation video has been developed and published in the MEL platform of WorldFish, which is also available at YouTube (<https://youtu.be/tjvokWTGk44>)<https://dx.doi.org/20.500.12348/4681>.

### ***Climate-smart aquaculture***

#### **8.7.1. Environmental assessment of raceway and other intensive fish farming method**

Two sub-grant agreements were signed with Afil Aqua Fish Ltd. and Sardar Agro, in June 2021, who will implement in-pond raceway system (IPRS). The environmental assessment of IPRS and other forms of intensive fish farming methods has not completed yet because it is required to observe couple of full production cycles. The assessment reports will be drafted when they will be completed.

#### **8.7.2. Develop three guidelines on safe seed and feed production**

The three guidelines have been developed, as below –

- a. 'Safe' Fish Feed Production: Integrated guidelines to facilitate comply feed safety, fish health, traceability, workers' safety, mill sanitation, and environmental issues.
- b. 'Safe' Carp Seed Production: Integrated guidelines to facilitate maintaining genetic purity, biosecurity, fish health, climate-induced risk reduction, traceability, workers' safety, hatchery sanitation, and environmental issues.
- c. 'Safe' Tilapia Seed Production: as same as carp seed production.

### ***Sound Environmental Practices***

#### **8.7.3. Conduct environmental due diligence and monitoring field visits**

Continuous backstop supports were extended to the Market Systems and Grants team members. A total of 41 (the cumulative number reached to 92 over the LOP) Environmental Due Diligence (EDD) assessments were conducted during the reporting period to extend sub-grants. The documents used for EDD contained potential mitigation actions to embed



environmental compliance and climate risk management (CRM) issues into the agreed and approved interventions.

#### **8.7.4. Train partners on environmental compliance and climate risk reduction**

In order to develop a common understanding, two 2-day long training events were conducted for 23 new WorldFish staff and 44 representatives from 22 new sub-grantees during the reporting period. The training focused on the relevance of environmental compliance and climate risk management (CRM) to the sustainability and competitiveness of the interventions; how to identify and mitigate environmental and climate risks; PERSUAP and judicious use of aqua-medicinal products (AMPs); climate service for aquaculture; and how to produce 'safe' fish feed and seed.

The implementation of environmental compliance and CRM process at partners' and field level can be illustrated as below –

- 3 partners who promote safe food-fish production (e.g. pond aquaculture) trained 1,087 small holder farmers (567 male & 520 female) in 72 batches on best management practices (BMPs) and avoiding use of harmful AMPs.
- 12 partners who promote safe fish-seed production (e.g. hatchery/nursery) trained their own staff (about 100) on best management practices (BMPs) and avoiding use of harmful AMPs.
- 4 partners who promote safe fish-feed production and distribution trained their own staff (about 100) and 17,810 farmers and dealers (13,324 male & 4,486 female) in 632 batches on best management practices (BMPs) and avoiding use of harmful additives/AMPs.
- 6 partners who promote safe food-fish handling, fish drying, and distribution trained their own staff (about 30) and 276 actors (262 male & 14 female) in 15 batches on best management practices (BMPs) and avoiding use of harmful additives/AMPs.

#### **8.7.5. Knowledge sharing visits between hatcheries**

An exclusive knowledge sharing event was conducted at BRAC Learning Center, Jashore to detail out how best the participants can produce 'safe' tilapia seeds. The event focused on how to protect genetic purity, biosecurity, fish- and human-health, climate risk reduction, traceability, hatchery sanitation, and other environmental issues. In addition to the event, numbers of knowledge and experience sharing sessions were conducted with CGIP team members as well as several carp hatcheries.

### **8.8. Communications**

#### **8.8.1. Partnerships in community radio & newspapers for nutrition / aquaculture promotion**

##### **Newspaper – Rohita Advertising**

The print media can play an enormous role in disseminating information to promote expected nutritional behaviors and aquaculture production. However, the print media are not playing much of a role in promoting aquaculture and nutrition-related messages.

To address this issue, BAA formed a partnership with an advertising company, Rohita Advertisement, to create a dedicated column on aquaculture production, sales, and nutritional issues in newspapers. Rohita partnered with a local newspaper, The Daily Bhorer Dak, and published 5 articles with advertisements of two sponsoring companies. The Activity nutrition team is in regular communication with Rohita Advertisement to put their highest emphasis for

the sustainability of the event to produce more articles with their fund and publish in the newspaper.

### Radio – Backbenchers Communications

BAA planned to help improve the roles of community radios in message dissemination in the area of aquaculture production, sales, fish consumption, and nutrition aspects.

The Activity supported its partner, Backbenchers Communication to develop a five-episode series named '*Macher Vobisshot*' – meaning the future of fish. They engaged one successful aquaculture farmer and one renowned nutritionist in each episode. The successful farmer shared his/her success story to motivate community people in Aquaculture production, whereas the nutritionist conveyed the importance of fish consumption and the benefits of maintaining the nutritional practices at the household level. Backbenchers broadcasted all the episodes through Radio Jhenuk and Meghna IP Television during July 25, 2021 to August 29, 2021. Radio Jhenuk reported that they covered almost 250K audience through each of the episodes broadcasted.

The COVID-19 pandemic crippled Backbenchers Communications in managing a title sponsor for their program. Backbenchers Communications reported that Radio Jhenuk would continue this show for a year –long period. Meghna TV has planned to make more 25 to 30 small contents from these five long episodes to air throughout the year. It is expected that these small contents would help to reach more audience and make the initiative profitable.

#### 8.8.2. National nutrition week celebration

BAA nutrition team observed the National Nutrition Week 2021, April 23-29, in association with the Bangladesh Nutrition Activity (BNA) (details are in section 3.1.3). BAA, in collaboration with the Bangladesh Nutrition Activity (BNA) observed the National Nutrition Week 2021, April 23 to 29, under the theme "**Think Food, Think Nutrition**", supervised by Health Service Division, Ministry of Health and Family Welfare (MoHFW). Despite the lockdown in this pandemic, BAA, with the support from the stakeholders and partners, did promotional activities and ensured reaching the target audiences with key messages to raise awareness on/around nutrition and disseminate the benefit of fish consumption widely.

In addition to this, the BAA team shared the soft copies of the fish-based recipe Pamphlet (*Machbhog*) and a set of 13 important nutrition messages focusing on fish consumption to Bangladesh Nutrition Activity (BNA). Furthermore, more than 600 hard copies of the fish-based recipe Pamphlet (*Machbhog*) were handed over to BNA for their local partner's offices. BNA distributed these materials and disseminated B information through their partners at ZOI during the National Nutrition Week.

#### 8.8.3. Success stories published

To facilitate evidence based collaborative learning, BAA collects and disseminates case stories from its working areas. In the reporting period, the Activity collected 14 stories for internal and, external learning and partner networks (*Annex 14*). The stories were collected from both ZOI and ZOR, which covered the topics regarding quality fish input, aquaculture supply-chain, ICT-based advisory services, ICT in aquaculture marketing, gender, access to finance activities (*Table 9*).

Table 9: List of success stories developed by themes

Serial	Title of the Story	Theme
1	Strengthening production and supply of carp pituitary gland to produce better quality seed: A United Agro Fisheries story	Aqua-medicine

Serial	Title of the Story	Theme
2	FishTech BD's disease diagnostic lab sets out to unlock aquaculture intensification	Aqua-medicine
3	Using innovation to get more people eating fish	Aqua supply-chain
4	Delivering fish right to customers' doorsteps	Aqua supply-chain
5	Using aqua machines to improve farm productivity and strengthen commercial fish farming	Aquaculture Machineries
6	Unleashing women entrepreneurship in aquaculture	Gender
7	E-commerce in aquaculture: A medium for including smallholders into the formal economy	ICT in aquaculture
8	Piloting a blockchain-based aquaculture traceability system in Bangladesh	ICT in aquaculture
9	Changing the fortunes of fish farmers, one LSP at a time	Advisory Services
10	Using advisory services to expanding fish feed businesses	Advisory Services
11	Building a successful hatchery business; the right way	Quality Fish Seed
12	Bank Asia: Using digital finance to enable fast loans for farmers and quick returns for banks	Access to Finance
13	City Bank: Financial management literacy as a step forward to ensure access to finance for aquaculture enterprises	Access to finance
14	Bank Asia to the rescue: A case study	Access to Finance

#### **8.8.4. Broadcast a one-minute teaser (video documentary) on state-owned Bangladesh Television (BTV) Network**

On March 19, 2021, a one-minute length teaser video was broadcasted on BTV, the national TV channel in the country. This was co-produced by the USAID funded Bangladesh Aquaculture and Nutrition Activity and the BMGF-funded Aquaculture: increasing income, diversifying diets, and empowering women in Bangladesh and Nigeria (IDEA) project. This TVC highlights the stories of fish farmers experiencing and overcoming the COVID-19 challenges under the projects of the WorldFish.

Before the pandemic, aquaculture farmers in Bangladesh were progressing well with fish production and were on track on developing their businesses. However, with the sudden outbreak of COVID-19, production in farms across Bangladesh halted in fears of possible spread and infection. This problem is temporary and there is a strong hope for gaining momentum in the fish sector through overcoming the current crisis. With the support from USAID, the Bangladesh Government, WorldFish, and other stakeholders are aiding the aquaculture sector along with fish farmers to provide all the necessary support and assurance that the fish market will boom after the COVID-19 waves.

The full 3 minutes video: [https://www.youtube.com/watch?v=LkQ88gWW\\_Z0](https://www.youtube.com/watch?v=LkQ88gWW_Z0)

## **9. ANNEX**

Annex 1: List of BAA IPs (attached)

Annex 2: Consultancy reports (attached)

Annex 3: Fact Sheet (attached)

Annex 4: List of Local Service Provider (LSP) by IPs (attached)

Annex 5: BAA Digital initiatives (attached)

Annex 6: Interface of developed apps (attached)

Annex 7: Proposal for WorldFish BAA and WFP collaboration project on ensure animal protein in school meals (attached)

Annex 8: BAA collaboration with other USAID projects [Intra & Inter] (attached)

Annex 9: BAA Staff capacity building activities (attached)

Annex 10: Activity progress review meeting with IPs (attached)

Annex 11: Service contract template (attached)

Annex 12: COVID-19 impact on aqua market actors and fish farmers (attached)

Annex 13: BAA participants GIS information (attached)

Annex 14: Case stories (attached)

Annex 15: BAA Gender interventions (attached)

Annex 16: Need assessment report by ENLIVIEN (attached)

Annex 17: BAA Youth interventions (attached)

Annex 18: Success stories (attached)

Annex 19: Photo (attached)

Annex 20: BAA key interventions (attached)

Annex 21: Partner/ IPs Inceptions meeting/ workshop (attached)

Annex 22: IPs Capacity buildings events (attached)

Annex 23: List of IEC Materials developed by BAA and IPs (attached)

Annex 24: BAA Staff list (attached)

Annex 25: Bangladesh Aquaculture Activity Indicators (attached)

Annex 26: Policy consolidation, improvement in licensing, management process and effective use of aqua inputs (attached)



# FEED THE FUTURE

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