



FEED THE FUTURE

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



Photo by: Noor Alam

Feed the Future Bangladesh Aquaculture Activity

Annual Progress Report: October 2019 – September 2020



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Acronyms

BDT	Bangladesh Taka
BFRI	Bangladesh Fisheries Research Institute
BMP	Better Management Practices
BSFF	Bangladesh Shrimp and Fish Foundation
CGIAR	Consultative Group of International Agricultural Research Centers
CLA	Collaborating, Learning, and Adapting
COP	Chief of Party
DCOP	Deputy Chief of Party
DoF	Department of Fisheries
FFI	Formal Financial Institution
FTFMIS	Feed the Future Management Information System
GIP	Genetic improvement program
GSC	GreenDale Service Centers
GIS	Geographical Information System
ICT	Information, Communications Technology
IR	Intermediate Result
LSP	Local Service Provider
MEL	Monitoring, Evaluation and Learning
NCE	No-cost extension
NGO	Non-Government Organization
OSP	Orange Sweet Potato
SBCC	Social and Behavior Change Communication
USAID	United States Agency for International Development
ZOI	Zone of Influence
ZOR	Zone of Resilience

Executive Summary

It was an eventful year for the aquaculture activity.

Implementation of the aquaculture and nutrition was greatly affected by the COVID-19 crisis during this year three reporting period. The slowdown due to Covid-19 began in the second quarter, and implementation remained adversely affected into year four of the activity.

The implementing partner, WorldFish, took action to minimize risk to beneficiaries, partners, and staff before any official direction from the government of Bangladesh (GoB) or USAID. All farmer training was postponed, practical demonstrations and farmer field days were canceled, school sessions and community awareness events were canceled, regular monitoring and data collection stopped, consultant field activities were suspended, and WorldFish implemented a lengthy list of internal safeguards including closing offices, prohibiting air travel and other mass transit, and a range of inter-personal protective measures.

Partners also restricted movement of their staff and suspended activities. All partners were affected, six were given no-cost extensions (NCE), and a few have reported serious downturns in their businesses. In the fourth quarter, two partners about to sign agreements reconsidered their decisions and withdrew. JITA Social Business Bangladesh, Ltd., was to promote a women's micro-franchise business model, but with the COVID-19 pandemic their overall sales have declined drastically, and they choose to focus on re-establishing their existing operations rather than launch a new program. Shohoj, Ltd., was to implement a transport solution which integrates rural fish farmers, but they have found it easier to transport fish from a nearer region.

At the end of the first quarter the implementing partner was served with a corrective action notice which included a moratorium on new partnership formation (no new partnership awards were made during for over eight months). The "cure" notice was lifted on 23 July 2020.

The aquaculture activity's progress against targets was excellent this year. Achievement against target for the number of individuals participating is 145% among aquaculture market actor disaggregates, 94% for market actors applying improved methods, and 93% in hectares under management. These numbers are a marked improvement from the previous year and achieved in spite of the COVID-19 downturn in all sectors of aquaculture and the moratorium on new partnerships.

The aquaculture activity signed 23 new partnerships during this year for a total charge against the sub-grant line of \$1,864,462. (see Annex 1) These partnerships are across all intermediate indicators (IRs), and 21 of the 23 are with private sector market actors.

Major operational changes were made during this year. Significant staff changes were completed in the second quarter, and seven out of ten market systems development staff were replaced, a new Manager - Market Systems position was created and filled, the DCOP was replaced and relocated to a field office, seven Senior Market Systems Specialists were replaced and four were deployed in field offices, a Senior Program Manager was created and filled to lead cross-cutting efforts, and six new Program Officers were hired for field postings.

The activity streamlined its processes for reviewing partnership applications and completed revisions to its grant manual. Roles, responsibilities, deadlines, and documentation are all specified in the improved process. The process has been streamlined for efficiency and faster review and decision.

COVID-19 Situation

The Institute of Epidemiology, Disease Control and Research detected the first confirmed case of Covid-19 in Bangladesh on 8 March 2020. Caseload increased day by day and by 20 April 2020, the total had reached 2,948 with 101 deaths. The government of Bangladesh ordered

educational institutions closed and declared a series of lockdowns in which it was suggested that people stay at home, restrict outdoor movement, maintain social distance, and self-isolate.

As a result, the work of the aquaculture activity slowed dramatically. During this period, all partners stopped group activities. Some partners tried to continue activities and support to the beneficiaries over the telephone.

By June, some field work had resumed after two months hiatus in areas not under a specific lockdown ('red zones', as the GoB calls them). In the cases, the partners generally divide a typically 20-member group into two smaller sub-groups and maintain social distancing.

The aquaculture activity began a series of twice monthly survey of market actors to gather specific data on the impact of the lockdown. The survey series includes telephone surveys of 100+ market actors in the ZOI and ZOR and tracks price and production changes, transportation, and market activity at in all sub-sectors. The survey tracks proxy inputs such as pituitary gland, oxygen, and ice sales to predict trends. Interviews with a range of market actors discovers coping actions and plans.

By the end of May, about six weeks into the crisis, there had been significant declines in all sub-sectors-- declines in production, in sales, and in re-stocking and maintaining current stock. These declines were significant-- often over 50% below previous levels and rarely less than a third lower. Labor shortages were particularly serious; with lockdown limiting mobility, there are substantial shortages of day labor across all sub-sectors in aquaculture. Aquaculture production was reduced, and household incomes were severely hurt. By the end of June, there were slight signs of easing, but these were only in comparison to the serious shocks of the first months.

In Bangladesh, this lockdown hit during the peak season for the fish business, and when travel restrictions were eased on 31 May the fish business took an upward turn. Most retail fish markets started to resume normal operations, though feed sales points at Jessore and Cox's Bazar are in covid "red zones" and remained closed. With the end of the government ban on transport services, fish seed and food fish transportation services improved notably along with travel from outer distance districts.

Average weekly fish consumption in the household from home ponds remained low, down 58% from pre-covid levels. Women farmers' consumption has dropped from 11 kg per week to 3, and men's consumption is down from 8 kg to 5. (The 11 kg/week figure is presumably overstating the case by including family consumption to some degree. This number was obtained via different sampling method.)

As of this writing, the trend lines since April, 2020, show little change in most sub-sectors:

- Levels of commercial activity remain well below baseline in all aquaculture sub-sectors with most sub-sectors are 30 and 70% below pre-COVID levels.
- For small holders the situation remains very bad as household consumption and small holder sales remain very low, 70-90% off normal levels. Small holders are suffering greatly.
- Sales of food fish have increased as more fish are reaching markets after a two-month delay in harvesting. Pent up demand and the increased production and keeping larger fish in ponds have been pushing prices up.

This activity's response to the COVID-19 crisis

The aquaculture and nutrition activity adjusted very quickly to the crisis and began a program to deliver information & assistance.

WorldFish has the active phone numbers of 116,638 aquaculture markets actors in ZOI and ZOR and sent SMS and voice messaging about availability of emergency finance and gender issues (data attached). Examples:

Do you know, due to COVID 19, Government has announced loan with 4% interest to provide working capital for agricultural sector including aquaculture? To learn more about this loan please contact nearest bank and agent banking outlets. Stay at home and frequently wash hands with soap water. Wear a mask and maintain social distancing when you are out of home.

By: USAID Feed the Future Bangladesh Aquaculture and Nutrition Activity.

Well wishes to sisters and brothers in fish farming during this pandemic. Maintaining health and hygiene is bringing added workload to the home. Let's not the household work burden go to women only. Let's share, let's care. Father-Mother-Brother-Sister, let's do the care work and chores together.

By: USAID Feed the Future Bangladesh Aquaculture and Nutrition Activity

The aquaculture activity also issued a press release addressing an early rumor that COVID-19 could be contracted by eating farm-raised fish, particularly tilapia. This release was published 25 times across the country. Example here: <https://banglarkagoj.net/?p=8754>

The activity's Breeding Specialist maintained regular communication with hatchery owners about bio-security measures, and there was increased partner outreach by Coast, Shushilan, Protyashi to thousands in both ZOI and ZOR. The activity distributed GoB announcements about sanitation and emergency credit to farmers and also produced new nutrition posters for distribution in all 23 districts of the ZOI and ZOR.

In addition, WorldFish proposed a two-part COVID-19 response strategy to USAID.

Mitigation actions are needed to take action on near-term, critical needs and overcome the adverse effects of the lockdown. The activity's detailed survey series, revealed priority needs in information, transportation, finance, and wet market sanitation.

The activity began co-creation discussions with potential partners in the second quarter to design interventions. For recovery of the aquaculture sector, the activity designed sustainable mechanisms to rebuild better via sub-grant funded partnerships and increased direct delivery of interventions.

To implement these, activity management has requested a modification to the grant agreement to shift funds from the sub-grant line to other direct cost (ODC) to enable the activity to be more prescriptive in intervention design and streamline approvals. The modification was received in October, 2020 (year four).

Internally, WorldFish places the highest emphasis on the safety of its staff, beneficiaries, and partners. WF follows all GoB guidance and safety measures pertained to the COVI-19 pandemic and has instituted a comprehensive protocol regarding sanitation and social distancing. All WF offices in Bangladesh have been closed since early April.

Country-wide, WorldFish has worked with the DoF throughout this period and published guidance in the national press. In addition, WorldFish is a member of a working group and met to work on "Keeping Food Supply Chains Open and Safe" in May. IFAD, CiMMYT, IFPRI, and FAO joined the WorldFish country Director, Chris Price, to prepare programs to demonstrate how handling, retail, and management practices can be COVID-19 safe, and markets can be safe places. They have created guidelines for food processors, traders, market workers, so that they can continue to operate safely during the COVID-19 era,

Activity Description

The USAID Feed the Future Bangladesh Aquaculture Activity (BAA), formerly called the Bangladesh Aquaculture and Nutrition Activity (BANA), is intended to foster sustained, positive aquaculture sector growth through an inclusive market systems approach. BAA is a five-year PIO activity (2018-2023) implemented by WorldFish with funding of \$24.5 million. Of this, \$8 million is

reserved for sub-grants. BAA sustainably improves the livelihoods of fish farmers and other aquaculture market actors by applying a market systems approach through which BAA joins with the private sector to identify solutions to systemic obstacles and the partners then test the solution via activities funded through the sub-grants and significant co-funding. BAA 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.

Activity Goal, objectives, and Targets

BAA's goal is to achieve inclusive aquaculture sector growth through a market system approach. The objectives are:

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

Life of activity targets are:

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

The Market Systems Approach

BAA uses a market systems approach to achieving its objectives. In this approach to development, there is no direct delivery of services, but rather the intent is to discover and replicate practices which overcome obstacles to lasting improvement. These obstacles might lie in any aspect of the aquaculture industry-- in fish health and feeding, certainly, but also in transportation, finance, or marketing.

The market systems approach understands that both the causes of and solutions to market obstacles are known to the market actors. That is, farmers want to grow more food, people want higher incomes, and processors want to reach new customers, but they face difficult challenges. They might have tried to overcome the challenges and fallen short or they have never tested possible solutions for lack of resources. Virtually all program activities are done through partnerships with private sector enterprises and professional associations. In the ZOR, however, there are few private partners with sufficient capacity to engage in USG funded activities so some of BANA's work in Cox's Bazar and Bandarban is done through conventional sub-grants to NGOs.

Geographical Focus

BAA works in the Bangladesh Feed the Future Zone of Influence (ZOI, consisting of 21 southwestern districts) and the Zone of Resilience (ZOR, two districts in the southeast affected by the Rohingya situation).

IRs, Sub-IRs, and Cross-cutting Programs

Sub-grants are currently the activity's only vehicle for delivering service; there is no direct delivery. During this past year, signing new partnership agreements was delayed due to the corrective action moratorium.

IR 1. Increased aquaculture productivity

Sub-IR 1.1. Increased availability of improved fish seed

The activity focuses on hatcheries and nurseries under this sub-IR, and these partnerships are among the activity's smaller sub-grants. Hatcheries and nurseries are almost all small businesses, and their needs rarely include significant investments. These partner hatcheries typically establish demonstration ponds and hold farmer field days to showcase the quality of their seed or fingerlings to their customers and potential customers-- quality increases achieved after installing a range of better management practices (BMP) made possible by the partnerships.

In the second quarter, four partner hatcheries completed their interventions-- all deliverables and targets were met-- and BAA began crowding in the lessons learned by making a video documentary focusing on the recipe for success of a small hatchery business to demonstrate to other hatcheries. During this period, 5,232 fish farmers were reached but other capacity building sessions could not take place due to the outbreak of covid-19. Into the third quarter, while South Bay Hatchery and Rupali Fish Hatchery collected 725 kg and 694 kg brood fish before the lockdown, Asa Fish Hatchery was unable to collect any due to travel restrictions.

By the fourth quarter, Rupali Fish Hatchery had resumed capacity building effort and 33 seed agents participated training on seed business ethics and norms, client management, modern nursery management, and fish cultivation techniques. Partner staff, technicians, and hatchery owners from 18 firms were trained on 'Good Aquaculture Practices' (GAP) about breeding techniques for carp, the impact of inter-breeding and in-breeding problems, negative selection, hybridization, carp disease management, brood management, and better management practices (BMP)-- improved fencing, entry and exit with hand washing and foot bathing, renovating water inlet-outlet system, improved hatchling loading and packaging area, sludge removal, pond bottom/dyke renovation, and water recycling.

Rupali Hatchery trained 552 fish farmers in 18 batches; Asa Matshya Hatchery reached 1,002 fish farmers (60 female) and 35 seed agents; and South Bay Private Ltd. trained 375 fish farmers (64 female) and 36 seed agents.

In the Carp genetic improvement program (GIP), the dissemination of the high yield variety (HYV) of rohu generation-3 moved began in the second quarter with the signing of a Memorandum of Agreement with BRAC. In the MOA it is agreed that the G3 rohu will be raised at the BRAC facility in Magura in addition to WorldFish Talbaria facility in Jessore. BRAC will also preserve improved varieties of silver carp and catla. This supplied the start of a sustainable brood stock of the HYV carp along with 365 rohu generation-2 along with 192 catla generation-0 and 668 silver carp generation-1 for care and production of fish seed for area nurseries.

At the Talbaria site, construction of the semi-portable carp hatchery was completed in July and supplied four nurseries in Jessore with the first market distribution of the fast growing carp. These fish are expected to grow 30% faster than the rohu existing in the country today. This is part of a nationwide WorldFish program in collaboration with the Department of Fisheries, Bangladesh Fisheries Research Institute, BRAC, and the Jessore Fish Hatchery Association.

In the fourth quarter Quazi Shams Afroz, the DG of DoF made an official visit to the Jessore site. On 5 August she visited the farm at Talbaria to see the GIP activities. BAA delivered a power point presentation, provided documents about the CGIP activities, and showed the process of selective breeding. During this visit she has observed the activities of carp genetic improvement program and was highly appreciated the initiative. She suggested continued close cooperation with DoF, BFRI, and universities for sustain the genetic improvement program. After this visit talks began to make delivery of fry of G3 rohu to stock their centers.

One issue is the effort to gain permission of the DoF to send fish samples for testing to overseas laboratories. They prefer to do the work in country, but capacity does not exist. There is scope for capacity building of the concerned staff of the DoF by WorldFish, and she promised to discuss the matter with higher officials. This is a precursor to the delivery of the fry to DoF.

In the third quarter, the activity formed a partnerships with MWorld, a local marketing firm, to bring HYV carp to the wider market. The partnership will guide a phased market introduction of HYV sales throughout the ZOI during the coming year and beyond this to the country as a whole. MWorld completed a rapid market assessment of the overall cultivation process and supply chain issues. MWorld organized four courtyard sessions for 58 market actors from different layers of the carp value chain.

The GIFT program (genetically improved farm raised tilapia) introduced a fast growing variety in Bangladesh, and in the second quarter the activity formed two partnerships to ensure a profitable supply chain. BRAC Enterprises and the Bhola Hatchery are coordinating on the cohort breeding hatchery system to supply quality mixed sex tilapia seeds as broodstock for commercial multiplier hatcheries and on to grow-out farmers. The BRAC facility will be a breeding 'nucleus', and the Bhola facility will be a 'cohort breeding center'. They will work together to deliver high quality mixed sex tilapia fry as broodstock to multiplier hatcheries; Bhola Hatchery projects production of 0.5 million mixed sex fries to be disseminated to 20 multiplier hatcheries.

This global WorldFish program will also include at least two hatcheries outside the ZOI (funded by WorldFish). One of these, ASA Tilapia Hatchery, introduced the first batch of 25,000 mixed sex fries as elite broodstock from the TBN of Bangladesh Fisheries Research Institute (BFRI), Mymensingh, to replace old brood to increase the productivity and disease free quality fry production for grow-out system and supported 875 Tilapia fish farmers in Bagerhat.

Sub-IR 1.2. Increased availability of affordable quality feed

Two significant grantees under this sub-IR, Spectra Hexa and Victor Feeds, Ltd., both completed their interventions as per the work plan and a third, KNB, began work this year.

Spectra and Victor tested variations of LSP involvement and how improved technical assistance can increase sales of feed and improve on-farm performance.

Spectra Hexa completed its sub-grant in January. They established 51 Mega Feeds Schools in seven districts (Khulna, Satkhira, Jashore, Barishal, Patuakhali, Barguna, and Bhola), and their training reached 635 farmers in 19 trainings, 1,325 via 18 farmers field days, and another 11,955 through 94 video shows organized by their dealers at the schools. They also added seven essay competitions and seven debate programs for "student fish farmers" at the high school and college level on the growth of aquaculture in Bangladesh and its impact. Mega distributed 1,000 copies of the guide on "Farmers Support Guide on Aquaculture technology based on BMP".

Victor Feed established 14 service centers and 53 sub-service centers out of which they conducted capacity building training for 352 market actors and 1,606 farmers. Victor Feeds' approach provides extension services using an LSP (Local Service Provider) model, and they conducted capacity building training for 464 market actors such as dealers, sub-dealers, associations, and business groups this quarter.

The activity is assessing the performance of these two approaches and will begin crowding in activities of the best practices in year four.

A new partner, KNB Agro Industries, began work in the fourth quarter to improve feed quality at their factory by reducing pellet size and making trials of different formulations of feed via pilots with lead farmers. Simultaneously, KNB applies a LSP model to achieve greater outreach and improve on-farm performance. Due to COVID-19 pandemic, KNB had a delayed start in September but has since completed onboarding of all project staff and staff orientation. 18 KNB project officials were oriented on the business model, programmatic aspect, monitoring and evaluation process, and grants and financial compliance necessary for project implementation.

Sub-IR 1.3. Increased adoption of improved pond management practices

To improve farm productivity and output, BANA has four active sub-grants under this sub-IR this year: FishTech, GreenDale, United Agro Fisheries, and Eon Animal Health Product Limited.

The FishTech partnership strengthens aquaculture service by establishing a privately own and run fish health lab in Khulna to serve fish and shrimp hatcheries as well as the larger commercial farms throughout the central Zone of Influence (ZOI). due to COVID-19, however, the partner could not complete its setup of the “Aquatic Animal Disease Diagnostic Laboratory” on time. Considering the necessity of rearranging the work plan, the activity approved a three month NCE, and in the fourth quarter Fish Teach resumed near normal operation.

United Agro Fisheries (UAF) is building a business to supply natural carp pituitary glands (PG) domestically to replace chemical variants and imports to ensure quality fish seed production at the hatchery level. In a fast start, UAF made a PG processing and operational video to help market promotion of dry PG by increasing the awareness and knowledge of users (hatcheries), traders (buyers and commissioning agents) and other stakeholders (DoF, BFRI, Researchers etc.) on benefit and incentives of use of dry PG compared to wet PG and synthetic hormones. In the second quarter, UAF was already reporting sales of BDT 3,497,950 (about \$41,600) domestically and \$18,390 exported. Since the lockdown PG prices have increased four to five times as imports stopped, and UAF continues to operate at capacity. The aquaculture activity is now engaged in active co-creation discussions with hatchery groups to find a model for rapid start-up of additional small scale PG producers to meet the demand for this critical input.

The sub-grant to GreenDale is to introduce 'GreenDale Service Centers '(GSC) to provide training and technical assistance to fish farmers in the ZOI. 16 of the planned 20 were operational by the second quarter. Before activity stopped in the third quarter dues to COVID-19, GreenDale had conducted 150 technical sessions for 2,904 fish farmers (468 female), four lead farmer trainings on aquaculture technology and BMP for 104 lead farmers (11 female), and transportation management training for 48 fingerling traders (*patilwala*) with sales of 3,598 units (kg/liter) of aquaculture medicinal products (AMP) to 3,800 farmers.

EON Animal Health became a partner in the first quarter and began work to strengthen aquaculture services for small holder farmers through its proprietary retail points and existing distribution channels (a vertical integration model) in 32 *upazilas* in seven ZOI districts. They completed the recruitment of key staff as 38 sales and marketing staff completed orientation on the business model, activities, and established four of its targeted total of ten retail points in the second quarter. By the third quarter, however, the COVID-19 crisis has severely damaged their core business, and EON requested an end to our partnership. They will return the funds.

In another effort to improve pond performance, the activity has been working for two years to address the problem of tilapia lake virus (TiLV) which reportedly affecting farmed tilapia in 16 countries across multiple continents, and during the first quarter completed an important paper on the subject. Based on an early warning in 2017 that TiLV might be widespread, the activity executed a surveillance program at tilapia grow-out farms and hatcheries in ten districts of Bangladesh in 2017 and 2019. Among farms experiencing unusual mortality, eight of 11 farms tested positive for TiLV in 2017, and two out of seven farms tested positive in 2019. These farms were immediately referred to appropriate service providers, With continued research, this study revealed circulation of TiLV in 10 farms and six hatcheries in eight districts of Bangladesh. We recommend continuing TiLV-targeted surveillance efforts to identify contaminated sources to minimize countrywide spread and severity of TiLV infection.

IR 2. Strengthened aquaculture value chains

Sub-IR 2.1. Increased market linkages

This year the activity had three partnerships under sub-IR 2.1: Gorai, Parmeeda, and Pranti.

Gorai Films is a new partner, and they will work to build consumer demand for farm-raised tilapia. This is important because there is a belief among some consumers that the hormone treatment

used on tilapia spawn to ensure that all are faster growing males somehow affects humans months later. This is not true; it is, in fact, utterly baseless. Gorai will enroll popular Bangladeshi celebrities, conduct social marketing campaign, and create an image around healthy tilapia. During the reporting period, Gorai completed two inception meetings in Jessore and Khulna with a total of 53 tilapia farmers. They discussed the rumors, nutrition, and the commercial value of tilapia. The farmers were very enthusiastic about the support.

The Parmeeda Enterprise partnership closed in the first quarter with good progress on scaling-up safe fish production and marketing by introducing GAP and HACCP practices (good aquaculture practices and hazard analysis). During the period of active implementation Parmeeda selected 225 farmers out of 606 trained versus their target of 200. This is the beginning. As their business grows, more supplier farmers will join. In addition to this, Parmeeda is using social media and their own app to reach suppliers. About 800 farmers have downloaded the app at the time of this writing after Parmeeda outreach and Facebook promotion. During the sub-grant period over 55,000 people visited the Facebook page and 35,000 of these had "post engagement", as Facebook calls it.

Parmeeda will continue to add content to the app to make it a useful learning platform, build a traceability mechanism for supplier farmers, and "forecast harvests" by planning purchases from farmers in advance.

Certification as a means of assuring consumers of quality is very promising, but traditional crowding-in practices are unlikely to succeed in a systems issue at this level. It is necessary to identify perhaps two additional market actors to earn certification to establish a convincing business case. Toward that end, BANA held a consultation workshop in December where 43 participants from 30 organizations participated. The co-creation activity generated 15 concept papers which are under assessment now.

The Pranti partnership ended prematurely when irregularities in procurement were discovered, and activity management ended the partnership agreement a couple months early. The partner has promised return the disputed amount. Regrettably, in the third quarter, WorldFish grant management staff had reason to investigate Pranti's procurement practices and assigned an external auditor to investigate. After a thorough investigation and looking at the potential of the business model, the COP decided to continue the partnership under strict financial oversight conditions-- conditions the partner refused to accept, and the partnership was ended.

The partnership was very near completion and had built linkages between farmers and producers. Pranti has good quality ready to cook (RTC) fish products and is pursuing certification via the Bangladesh Standards and Testing Institution (BSTI), an agency under the Ministry of Industries. Pranti had selected 1,000 farmers to provide quality table fish with higher prices in comparison to traditional market rates. They provided training to 627 farmers (168 female). Due to the end of the partnership, it is unclear if Pranti will continue to receive fish from these farmers.

COVID-19 and the resulting lockdown led to very serious disruption in all phases of transportation. The lockdown has exposed a very fragile distribution system. In aquaculture, distribution and transportation are handled by small market actors and independents. Major food companies do not participate.

The aquaculture activity worked throughout the third and fourth quarters with established food distribution companies to identify action steps to build a safe distribution solution in aquaculture value chains to ensure business continuity of input and forward market actors and demonstrate safe transportation practices in the fish value chain to diminish virus exposure. Shohoz, Direct Fresh, MarGen, and Parmeeda Enterprises are engaged in co-creation discussions with the activity's market systems development team.

Sub IR 2.2. Increased engagement of private sector in aquaculture markets

This year, the activity has four partnerships to increase private sectors' engagement and investment in aquaculture sector: Bank Asia, City Bank, Alim, and Fish Bangla.

All aquaculture market actors have serious unmet needs in finance, and the aquaculture activity has a good access to finance program. Two partnerships with formal financial institutions (FFI) are central to this effort this year.

The sector is facing a serious liquidity crisis due to the suspension of loan advances from lenders and the commercial banks. Many small operators are taking loan from their relatives, neighbors, and informal sources to continue their business. For operating capital, seasonal credit to farmers has been common in this sector, but this practice has largely shifted to cash transactions due to low harvests and lower market prices for table-size fish. Feed dealers often buy on credit, but this is changing as low sales and lower demand for feed have reduced incomes and cash at the dealers; many are facing problems repaying existing credit from the companies. Almost all sub-dealers must now purchase in cash rather than on credit.

Bank Asia made a fast start to extend collateral-free credit services to small holder fish farmers in the second quarter reaching 80 market actors had been reached through three district level meetings, and 63 input retailers already opened their accounts with Bank Asia. Within the sub-grant tenure, 100 input retailers will be established as merchant and each merchant will refer at least 10 farmers for this loan package. The market systems aspect is to modify agent banking to include digital payment options for loan repayment.

The partner projects over \$4 million in new credit for aquaculture as a result of this partnership, but COVID-19 caused a brief moratorium on field activity this summer so the activity has agreed to a no-cost extension. Bank Asia has revised its activity plan and started following a 'small-group' approach to comply with COVID-19 protocols, and by the fourth quarter the partner was back on pace to achieve all targets.

City Bank became a partner in the third quarter. The City Bank partnership will mobilize 72 crore in new loans-- \$8,470,000 in new lending to small aquaculture enterprises. In the fourth quarter the partner launched activities in the ZOI.

In addition savings and credit products, City Bank will work to increase financial literacy of the 1,500 aquaculture market actors. In the fourth quarter the partner completed TOT for its staff and banking agents. The staff and agents will in turn develop capacity of the aquaculture fish farmers on financial management, bookkeeping, and loan management. North South University is the training partner of City Bank.

To promote aqua machinery in the Feed the Future areas, the aquaculture activity formed a partnership with Alim Industries Ltd., a national agro-machinery distributor. Alim recruited and trained new staff and began product demonstrations in the ZOI. Alim will promote a range of smaller aqua-machineries (pumps, filters) to small holder fish farmers to improve farm efficiency. Working closely with 50 LSPs, Alim will reach 2,500 farmers.

The Fish Bangla partnership closed this year. Fish Bangla is an online platform to connect farmers directly to buyers. Digital *MachHaat* is a smartphone app on which farmers list their offers and through which individuals and restaurants can place orders for delivery. Fish Bangla ensures quality packing and timely delivery. Fish Bangla organized 5,360 small holder fish farmers (539 female) and there have been 315 offers to sell posted and 21 sales totaling \$901.

The ACI partnership closed in the first quarter. ACI developed an app called *rupali* to provide aquaculture information and access to extension services to smallholder farmers. This sub-grant closed in December with 32,349 downloads and 9,064 registered users. Over 1,200 user questions had landed in app's Q&A section.

After FTF funding ended use continued to grow, and in the third quarter ACI report that the *rupali* app had passed 50,000 subscribers.

Significantly, analysis of the users of the ACI app reveals that feed dealers are the users who benefit most-- it is faster and easier for them to order new inventory. It is this aspect of distribution that appears to be a market systems improvement, and the activity will explore it for crowding in opportunities because the reduced cost of selling and shorter order-to-delivery times are true increases in efficiency.

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

The activity has two partners working to improve the enabling environment: BSFF and Byte Ally.

With Bangladesh Shrimp and Fisheries Foundation (BSFF), the activity works in policy consolidation, improvements in licensing, and information and effective use of aqua inputs. Throughout the year BSFF organized consultation workshops with all relevant stakeholders-- officials from the Department of Fisheries (DoF), other departments and ministries, and private sector actors.

BSFF completed development of a fish pharmacology course curriculum and conducted a series of workshops for input for revisions for farmers, dealers, and retailers-- in all, 764 participants. They compiled a compendium of articles in Bangla on aquaculture and fisheries from authors of different organizations including WorldFish, the aquaculture activity's implementing partner. DoF plans distribution of the compendium (around 8500 copies) to different institutions at the local and national levels in Bangladesh.

This year, BSFF also produced a list of aqua inputs used in Bangladesh with their generic names and source/point of origin, an inventory of the country's existing rules and regulations on aqua inputs as well as those from neighboring countries to identify where new rules might be needed or existing rules modified, and a directory of operating aqua chemical testing facilities and recommendations for improvements in the testing system.

ByteAlly is an Indian data management firm and has partnered with the aquaculture activity to implement a blockchain-based system for food traceability. Using the carp GIP as a model market, the partner will install and manage a digital platform for the aqua-farming industry. In the fourth quarter ByteAlly completed its scoping assessment, documented supply chain validation processes, and drafted the first version of farmed fish traceability framework. The system should be operational by the second quarter at which time Byte Ally will begin extensive efforts to crowd in the traceability process with larger aqua-businesses and other food companies.

IR 3. Improved nutrition related behaviors in rural households

The activity actively engages nutrition stakeholders including the GoB, INGOs, local NGOs, and UN organizations. Regarding COVID-19, the general sense is a "nightmare scenario"; the Needs Assessment Working Group reports that about 75% of their survey respondents are without sufficient access to food at home and almost 66% people think that closed markets as the main challenge.

The study by the working group shows that 42% of respondents say hygiene materials are not easily accessible, about 48% are using safely managed drinking water services, 75% have hand a washing facility with water and soap, and almost 65% use of "basic sanitation" services. Soap and detergents are somewhat available in the market but, there is a shortage of sanitizer and face masks.

Sub-IR 3.1. Improved nutrition awareness and practices

The activity has three partners under this sub IR: CODEC, Shushilan, and Duranto TV.

The partnership with the Community Development Centre (CODEC) closed in the first quarter after a short no-cost extension. Their project, Promotion of Nutrition-Sensitive Agri-Aquaculture for Social Sustainability, promoted fish as a nutritious food for pregnant & lactating women, trained on *mola* farming, and dyke cropping along with nutrition training. CODEC reached its target of assisting 4,680 household fish farmers and 100 small business entrepreneurs in aquaculture.

Duronto TV aired the planned 26-episodes of the animated show *Mecho Tota Gecho Bhut* (Fish loving Tota and the Tree Ghost) with the final episode airing in July. Aimed at parents and their children, the series follows Tota, a boy who loves to eat fish. Most episodes contain some activities or scenes with fish, and messages include the benefit of eating fish, functions of different types of food, and special care for pregnant and lactating mother along with challenges to gender stereo types such as boys and girls playing together and harvesting fish as exclusively men's work.

Following each broadcast there is a quiz, and viewers respond with answers via SMS messages. The quizzes include the importance of fish in the first 1,000 days of life, care for pregnant and lactating women, adolescent nutrition, and gender messages. Here is one example:

- 'What happens when you eat fish?'
- a) Helps for proper physical growth
 - b) Helps for mental growth
 - c) Helps for good sleep at night
 - d) Helps for mental and physical growth

This brought 591,158 unique participants for the 17 nutrition messages. Following the practice of Feed the Future's behavior change activity this result is counted under 'EG.3-2-Number of individuals participating in USG food security programs' because it is active participation in USG-funded program element. This is dis-aggregated from aquaculture market actors in reporting

The NGO partner Shushilan conducted 1,224 sessions of community level farmer training in the reporting year on aquaculture, intra-household food distribution, nutrition, and inclusion of women, men and youth in household chores for 3,060 individual beneficiaries. Within the project period their staff made 17,776 visits to the 3,060 project beneficiary households.

They were able to do this by reducing group size to allow social distancing in group meetings. During the lockdown Shushilan communicated with farmers through mobile phone and online platforms (facebook messenger, IMO, whatsapp). Their messages included staying at home, maintaining physical distancing, wearing masks, washing hands with soap and water for 20 seconds, and the need to contact a hospital immediately if symptoms appear. Importantly, they also communicated contact information for health care providers.

With the sudden onset of the virus, Shushilan added efforts to raise awareness of the virus and how people can protect themselves. In addition to regular topics, the training participants also learned about activities and precautions necessary to contain Corona virus. The trainings organized during the COVID-19 pandemic were arranged maintaining appropriate social distancing.

During this year the aquaculture activity's nutrition team engaged in co-creation discussions with book publishing companies and melamine companies to explore market-oriented ways to bring fish based cookbooks and bowls and plates with nutrition messages.

Typically, these items are purchased by nutrition programs and distributed free of charge to participants. The idea here is to launch these as consumer products with a marketing campaign to sustain sales. This generated several partnership applications which are now under review.

The nutrition team also produced videos on fish and nutrition. These videos show the nutrition value of small fish and fish chutney as well as the benefits of consumption particularly for pregnant women, lactating mother and children. The videos are here:

Small fish:

https://cgjar-my.sharepoint.com/:f/g/personal/m_h_ali_cgjar_org/EtBj1wLmcOVEu4172IGSHpABuCtwAWvdmgdHXOglwNNA_w?e=Y6yTv3

Fish Chutney:

https://cgjar-my.sharepoint.com/:f/g/personal/m_h_ali_cgjar_org/EhW6QxhRZvIOpY9uKeeogcYBaBbgY6PvV5VHyldkHt72Q?e=gjD7GP

These videos will be used to reach rural households by various partners over the next two years along with two previously produced videos: 'Fish in first 1,000 days of life' and 'Nutrition-sensitive pond polyculture'.

For COVID-19 response, the activity produced four Bangla version language on COVID-19 awareness and distributed 10,000 copies of each in the ZOI and ZOR.

In collaboration with Feed the Future's behavior change activity, the aquaculture activity joined the Nutri-Champs series. In this cooking competition show, the aquaculture activity supported the six field shows with funding and technical support on the fish recipes. The three winners of the fish recipe competition will work with the aquaculture activity to promote RTE/RTC fish in the coming year.

Sub-IR 3.2. Improved access to diverse and nutritious foods

The partner Shushilan works under this IR as well and during this year distributed *mola* brood/tilapia fingerlings and carp fry to 3,060 project farmers as input support. 2,907 farmers received almost 1.5 kg of fish fingerlings each, and 153 demo farmers each received 2.5 kg of fish fingerlings. The result of this new species into household ponds will be an increase in consumption of animal protein and possibly an increase farmer income.

To promote pond dyke agriculture, the partner distributed orange sweet potato vines to 3,060 household fish farmers in Khulna and Satkhira districts for cultivation on pond dykes and in homestead gardens along with vegetable seeds (yardlong bean, bottle gourd/pumpkin, malabar spinach, spinach, and red amaranth).

The partner CODEC also contributed in this area with distribution of *mola* brood stock and carp seeds at a subsidized price to 588 household fish farmers and set up 36 *mola*/carp poly culture demonstration farms. *Mola* are high in micronutrients.

The aquaculture activity is in discussion with the World Food Programme (WFP) to outline a sustainable model for inclusion of fish products at the school feeding program, though this appears to be a longer term proposition than the activity could complete.

The activity is also working with Feed the Future Bangladesh Nutrition Activity (BNA) to plan linkages between fish processors and retailers in small villages.

And co-creation talks are underway with RTE/RTC fish processors for market development partnerships in the coming year.

Cross-cutting Program Areas

Gender

In response to the COVID-19 crisis, the aquaculture activity sent two SMS messages on gender issues to the WorldFish list of 130,000 aquaculture enterprises. The first was about sharing the burden of increased work around the house in pandemic situation and men's and boy's

engagement, and the second was about maintaining a spirit of togetherness in the family and understanding each other to prevent and resolve conflicts.

There has been a good deal of discussion about stress related to fear of infection and lockdown pressures and a resulting worry about the potential for increased gender based violence (GBV). Unable to find any data on this, and the aquaculture activity's COVID-19 survey series asked if there is any perceived increase in disagreements or conflict within households. Overall, 51% of respondents to this survey answered 'yes' (45% of female and 52% of male respondents).

The activity launched a new partnership on income generation for women in aquaculture this year. United Purpose will create income opportunities for women in aquaculture and also provide a needed product for increased production of mola, a small fish high in micro-nutrients.

Research has revealed that a certain type of gillnet is effective when raising mola fish, and a qualitative study shows that household farmers, especially women, prefer using this net to catch small fish from the pond because it can be done by one person alone and without getting into the pond. This gillnet is not readily available in local markets, however, and this partnership will enable women entrepreneurs work through existing business centers provide quality gill nets to new and existing fish farmers to initiate or expand their pond production of mola and then collect the fish produced through a strengthened cold chain supply network for retail sale to support the livelihood and well being of producers and community

The partner will build on 20 established Women's Business Centers in the Khulna district and form 800 producer groups (informal collectives of women producers) to reach approximately 10,000 households.

Also this year, all new partners received training on Gender Equality in Aquaculture, Unpaid Care Work, and Intra-household Food Distribution.

Youth

Youth mobilization around income opportunities has been the focus during this year, and the positive youth development effort of the aquaculture activity has led to a good response from young entrepreneurs.

The activity's youth specialist completed online training-- USAID Positive Youth Development 101-- and began applying the learning to program activities. The first step was a consultation meeting with representatives of ten social enterprises working with youth to understand their business models and to capture their analysis and learning about youth employment and self-employment. This led to meetings with community youth groups in Botiaghata, Khulna, to engage youth in the effort to increase incomes through job readiness, employment, or self-employment in aquaculture.

18 applications were received in response to a call for applications and outreach to area universities. Students who have and are studying in the aquaculture and fisheries sectors were invited to present their ideas for small businesses. Of these 18, two were selected for small grant funding. One is about providing quality input and expert guidance to aquaculture market actors, and the other is about establishing small scale fish culture systems in urban areas and bring the production to market.

As a part of the Positive Youth Development, one agreement has been signed with a university student to enhance the youth entrepreneurship in the aquaculture sector. He along with his other team members will work to provide quality inputs and expert guidelines to the farmers. The initial activity has already been started according to the plan.

Environment

The Activity is working with all the team members to ensure that none of the interventions of the activity leaves negative impacts on environment or on people. Throughout this year, 51 Environmental Due Diligence assessments were conducted for partners and applicants, an animated video was developed to popularize the environmental compliance in aquaculture (https://drive.google.com/file/d/1V_fssXa89p-ULLWjsp90yb2cj0STBNxb/view), and integrated guidelines on 'safe' tilapia seed production were drafted.

Basic training-workshops on *Environmental Compliance – the USAID Way* were held for new activity staff and the 23 new partners. The workshop focuses on developing a common understanding of the importance of environmental compliance and climate risk management for sustainability, USAID requirements, and the scope of environmental compliance and CRM in the activity's EMMP.

Three integrated guidelines on *Safe Fish Feed Production, Safe Tilapia Seed Production, and Safe Carp Seed Production* were drafted this year. The focus of these guidelines is to bring together guidance on fish health, bio-security, traceability, worker safety, hatchery sanitation, and other environmental issues into single volumes. These will be distributed to DoF and universities.

The Zone of Resilience

During this year the aquaculture activity had six partnerships in the ZOR: CMAI, Coast, Prottyashi, Graus, Tazhingdong, and Ma Matshya Khamar.

Ma Matshya Khamar is the activity's second private sector partnership in the ZOR. Commercial aquaculture is not well developed in the ZOR. The goal of this partnership is to provide higher quality stock to area farmers to increase yield and farm income in a very under-served areas of Bandarban and Cox's Bazar. This partnership will foster ten new mini nurseries, register and train 20 *patilwala* (fry traders) who will pass the training to at least 60 pond/creek owners, and set up four demonstration ponds. Through the intervention, a fingerling transportation system will be introduced for the *patilwalas* to reduce seed mortality. Launched in the fourth quarter, Ma Matshya Khamar has set up four demonstration ponds, and participants received 5500 carp fingerlings and 320 kg fish feed from MMK.

Chittagong Meridian Agro-Industry (CMAI) is the other private sector partner, and they wrapped up in the first quarter of this year. CMAI is the largest tilapia hatchery in the Chattogram region and their experience with COVID-19 is notable. "We saw this as a challenge to our business," says Hasan-Uz-zaman, Head of Operations at CMAI, "and reorganized our own transport pool to send our fries to the agents and farmers. Each of the trucks can carry 400,000 fingerlings to reduce the transportation gap." By April 10, three weeks into the lockdown, CMAI had shipped 6,900,000 fingerlings through its 60 agents to almost 400 farmers. Nonetheless, however, CMAI expects a prolonged lockdown situation and a 50% reduction in sales. CMAI managed 25 batch trainings for seed agents and lead farmers on commercial tilapia culture and collected 100,000 GIFT tilapia seeds from BFRI and imported another 200,000 GIFT tilapia brood stock fry from Thailand. CMAI is rearing the brood stock which will be used for mono-sex tilapia seed production. Corresponding bio-security measures were implemented with technical support of WorldFish experts on fencing of individual units of hatcheries, setting the bird prevention net, renovate entrance/exit gate with the facilities of foot bath & washing hands, and similar.

In Bandarban, the NGO Graus brings 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. The NGO 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.

GRAUS staff was not allowed to travel at all in Bandarban due to COVID-19 and so communicated over the telephone with 908 fish farmers. Of these, 314 have completed pit preparation in their pond dykes, and all area nursery farmers have completed their pond

preparation and are ready to stock new spawn. GRAUS also disseminated the government circular on the movement and transportation of agricultural products issued by the Ministry of Fisheries and Livestock among 259 beneficiaries.

GRAUS managed to organize 211 training sessions on gender, 138 on aquaculture, 46 on nutrition for 1,729 farmers. They distributed fingerlings of four species among 329 farmers with each farmer receiving 550 fingerlings and creek owner receiving 700 fingerlings. The Upazila Chairman, Upazila Fisheries officer (UFO), Chairman and member of union parishad have attended and distributed the fingerling among the farmers. Fish feed has also been distributed among 329 farmers along with vegetable seeds.

Despite of COVID-19 pandemic situation, GRAUS organized six meetings (53 participants) with *upazilla* aquaculture and nutrition officers. In collaboration with upazila fisheries office, GRAUS celebrated National Fish Week from 21-27 July 2020 with a view to conserve and develop the country's fishery resources through creating awareness among the mass people to boost up fish production. GRAUS also organized 10 community meetings on National Fish Week for 606 people.

Tahzingdong accomplished a total of 50 training sessions on aquaculture for 993 people. Topics were the dyke repairing and bottom leveling, de-weeding, liming, fertilizing, removal of predator fish, examination of natural feeds, and toxicity in water.

Fish fingerlings of four fish species were distributed among 511 farmers with farmer receiving 550 fish fingerlings, creek owner receiving 800 fish fingerlings, and rice-fish pond owners receiving 610. A total of 20.44 MT fish feed was distributed among beneficiaries.

With the technical support of the aquaculture activity, Tahzingdong developed and printed total 550 copy of pond record book for the aquaculture farmers. The record of all types of expenditure, income and stocking and harvesting of fishes are recorded in the pond record book. 531 farmers are using the books as of this writing with 427 ponds, 68 creeks, 16 rice fields, and 20 nursery.

Tahzingdong team marked National Fisheries Week with upazila administration and DoF on a message of conserving and developing the country's fisheries resources.

There are two NGO partners in Cox's Bazar. Coast Trust provides aquaculture support to small holders and dry fish producers to increase incomes, raises awareness of nutrition and hygiene, reduces health hazards to consumers by increasing the availability of pesticide-free dry fish in the market, and develops market channels for dry fish products. Protyashi focuses on inclusive aquaculture for geographically and socially challenged and financially insolvent rural areas, enhances the availability of fresh water fish among rural people, and works to fill nutrition gaps and provide income opportunities for rural people especially women, youth, and adolescents.

The sub-grant period for both COAST Trust and Protyashi ended in the second quarter, but considering the covid-19 pandemic, both got no-cost extensions through July.

Protyashi was able to conduct Protyashi organized 299 batch trainings on carp-mola polyculture, dike cropping, family nutrition, mola gillnet making, and eel farming; distributed vegetable seeds, orange sweet potato vines, and lemon saplings to 2,000 farmers and 14 batches of training on family hygiene and hand washing for cleanness for 274 participants during this period. Each session was divided into small groups of 5-6, and health cautions were maintained to prevent the spread of COVID-19. Protyashi developed and distributed three communication pieces: on mola-carp polyculture and vegetable cultivation on dykes (5,000 copies), Kuchia farming (2,500 copies), and fish nursery management (2,500 copies).

COAST Trust conducted 341 batch trainings on carp-mola polyculture, fish diseases, cost profit analysis, dike cropping, family nutrition, gender integration in aquaculture, fish drying and related waste management, and hygiene; distributed vegetable seeds to 1,300 fish farmers.

During the lockdown, Coast staff is keeping in contact with 1,985 farming households via cell phone to deliver timely information on fish harvesting, summer vegetables plantation and the importance of hygiene practices to prevent spreading of COVID -19. Staff also communicated with 622 dry fish entrepreneurs and discussed their dry fish production problems-- there is no dry fish production. Between the lockdown and the cyclone Amphan, Cox's Bazar has been a red zone, and most farmers have not been able to stock fry or fingerlings in their ponds at all.

Project Management

At the end of the first quarter the implementing partner was served with a cure notice which included a moratorium on new partnership formation (no new partnership awards were made during this reporting period), and midway through this quarter the covid-19 virus led to a nationwide lockdown which prohibited all gatherings of more than a few people so few activity-supported training or events took place.

Internally, however, there was considerable progress on remedial action in response to the cure notice, and all milestones required for lifting the cure were achieved.

The activity bolstered its field presence with the addition of six new Program Officers-- two each in Jessore, Khulna, and Barisal-- in the third quarter. The Program Officers' primary task is to work closely with partners to support the implementation of program activities. Working closely with partners, the Program Officer is in constant contact with participants and not only monitors but actively supports on time implementation of field activities.

WorldFish selected Deloitte Bangladesh to perform an external audit of BANA, but with the office closed and all staff working remotely, we intend to start the audit in the last quarter of this year.

Internally, continuous improvement of partner and sub-grant management is a rule. This quarter, BANA introduced the airtable database system (airtable.com) to keep all communication and documents in a single, accessible tool. All staff were trained on its use this quarter, and proper, diligent use of airtable is now a job performance requirement.

In addition, the activity has added a group chat for partner management. Using MicroSoft Teams, the finance & grants group and the market systems group now communicate directly on all questions related to partnerships rather than relying on email. This direct message system should improve information flow and document completion.

The activity has also introduced a new, expanded due diligence checklist. In May partner assessment tasks are now consolidated in one 11-page guide for pre-award site visits. This document is kept in each partner file.

Grants and Finance

Due to lockdowns and restrictions on movement, six partners experienced serious difficulty in implementing activities in their partnerships. The aquaculture activity issued no-cost extensions:

Organization Name	Required Extension (in months)	NCE end Date
BSFF	2 months	31/12/2020
Rabeya Hatchery	3 months	28/02/2021
Rupali Hatchery	2 months	31/01/2021
South Bay	1 month	31/12/2020
FishTech (for fish lab)	4 months	28/02/2021
Bank Asia	3 months	31/03/2021

The aquaculture activity signed 23 new partnerships during this year for a total charge against the sub-grant line of \$1,864,462.

The activity has utilized a total amount of \$10,531,987 and has an available budget balance of \$13,926,205 as of September 30, 2020. While under spending overall, accelerated activities the fourth quarter led to an increase in the expenditure rate. The fully executed modification P012 signed in February 18, 2020, increased the obligated amount to \$11,700,000 available for program expenditures for the estimated period from effective date to July 31, 2020. The total remaining obligated funds by the end of September 30, 2020, is now down to \$1,168,014.

Cost Categories	LOA Budget	Actual Expenditure			Cumulative Expenditure	Budget Balance
		Year-1 (Feb'18-Sept'18)	Year-2 (Oct'18-Sept'19)	Year-3 (Oct'19-Sept'20)		
Direct Labor	\$ 5,474,565	\$ 414,022	\$ 926,710	\$ 1,082,060	\$ 2,422,792	\$ 3,051,773
Fringe Benefits	1,765,430	131,311	294,843	375,758	801,911	963,519
Consultants	288,593	-	70,998	73,348	144,346	144,247
Supplies, Equipment and Operating	1,741,916	153,671	478,943	325,368	957,983	783,933
Travel and Per Diem	967,676	51,841	206,295	141,701	399,836	567,840
Other Direct Cost (Activity)	4,282,319	112,324	695,954	333,383	1,141,661	3,140,658
Sub-Grants	5,800,365	-	1,274,492	1,607,383	2,881,875	2,918,490
Total Direct Cost	20,320,864	863,169	3,948,235	3,939,001	8,750,404	11,570,460
Indirect Cost	3,657,756	155,370	710,682	709,020	1,575,073	2,082,683
CGIAR Cost Sharing Fee [@ 2% of total direct + indirect cost]	479,572	20,371	93,178	92,961	206,510	273,062
Total Activity Cost	24,458,192	1,038,910	4,752,095	4,740,982	10,531,987	13,926,205

By the end of September 30, 2020, BAA had signed forty six sub-grants with a total value of \$4,613,040. Among these forty six, twenty four were signed in year three with a total award value of \$1,814,889. Eighteen projects have closed and three were terminated.

An accumulated actual expense of \$2,881,875 was recorded as of September 30, 2020. This is behind projections. To address this, the approved year four workplan includes notable increase in both the number and size of sub-grants. In addition, an expected modification will move one million USD from this line to ODC to allow the activity to make contracts for services and direct delivery. Together, these will spend the sub-grant line by the end of the activity.

Monitoring Evaluation and Learning

The aquaculture activity's progress against targets was excellent this year. Achievement against target for the number of individuals participating is 145% among aquaculture market actor dis-aggregates (593% for all participants), 94% for market actors applying improved methods, and 93% in hectares under management. These numbers are a marked improvement from the previous year and achieved in spite of the COVID-19 downturn in all sectors of aquaculture and the moratorium on new partnerships. A separate, detailed report on achievement against targets has been delivered to USAID.

At the outset of the pandemic, the MEL unit developed a contingency work plan to use a virtual communication platform (MS Teams and mobile) to communicate with farmers, market actors, and stakeholders to collect regular monitoring data and complete surveys.

The aquaculture activity has delivered a series of surveys of aquaculture sector market actors to assess the impact of COVID-19 pandemic and associated lockdown on all aquaculture sub-sectors. The surveys show trends as well as actual changes in production, sales, prices, transportation, market activity, buyers, and more. Complementary interviews have discovered coping actions and learned about recovery plans. The activity delivered seven survey updates during the reporting period and continues with regular data collection, analysis, and reporting.

The activity reported FY2019 performance and set targets for FY2020, FY2021, and FY2022 into the FTFMS platform in the first quarter. At the suggestion of USAID the activity has included two new indicators pertained to gender and youth.

COVID-19 made data collection difficult, but the MEL team successfully conducted level performance surveys both on-line and in person. The Annual Performance Survey was conducted in July-August 2020. The performance data was collected from 1,017 fish farming households (455 women farmers) from ZOI and ZOR. In addition, sales data was captured from 50 dry fish processors (1 woman) of Cox's Bazar.

To map aquaculture resources, the activity has added aquaculture resource mapping to the GIS platform. It is a complete GIS census on aquaculture features over the entire 23 districts of ZOI and ZOR. Collection of geo-spatial data began, and the activity collected GIS data points of 6,669 aquaculture farmers (4,995 women) and 125 Market actors (2 women) in the fourth quarter.

This was put to immediate use when combined with other WorldFish GIS data as the activity identified viable cluster candidates for program focus. Primarily three clusters were identified in Barishal, Jashore, and Satkhira based on the concentration of aquaculture market activity and concerned actors. ArcGIS software was used to identify suitable location of cluster areas.

The activity continued to upgrade the web-based MIS system this year. The info-hub was regularly enriched with learning captured by the team using a paperless and online data collection (e.g. using KoBo/ODK platform) for all surveys. Real-time training reporting system was established.

The activity completed a census of local service providers (LSPs) were completed in ZOI. The census graded the 861 LSPs in the database. Only 3.3% were rated excellent and 20.2% rated good. Another 44.7% were rated acceptable to yield 588 viable to semi-viable candidates to engage with the activity (7% women). Fish nurseries were found as the largest single segment of LSPs at 35.7% among the qualified LSPs with *patilwalas* as the second largest part (22.3%) and feed traders as the third (13.8%). The LSP database was updated and mapped for use in the year four cluster activities.

MEL training for new partners was held on real-time training reporting and donor requirements. The KM and CLA Platform was shifted to MS Teams Channel and updated.

Communications

COVID-19 response was the central task of the aquaculture activity's work in the second half of the year. The activity issued press releases, sent SMS & voice messages to fish farmers, created posters (sample attached), and distributed one-pagers (10,000 distributed via partners). A couple of samples:

- Facebook posting by USAID
 - The government of Bangladesh has announced an emergency loan fund for small farmers in response to the economic fall off due the lockdown. USAID's Feed the Future Bangladesh Aquaculture & Nutrition activity sent details to over 32,000 small scale fish farmers via both SMS and voice mail. The first messages in a new, rapid info advisory service.
- SMS text and voicemail sent to 116,638 farmers
 - The government of Bangladesh has started providing loans at 4% interest to all those involved in Fish Farming. You can also be covered by this loan facility. Contact your nearest scheduled bank/Agent bank today to get this loan. (sent in Bangla)

The aquaculture activity also issued a press release addressing an early rumor that COVID-19 could be contracted by eating farm-raised fish, particularly tilapia. This release was published in 25 newspaper across the country and widely shared on social media. This is attached in English, and a Bangla example is here: <https://banglarkagoj.net/?p=8754>

And the partners publicize their work. One example, a press release from City Bank:

"City Bank and USAID funded 'Feed the Future Bangladesh Aquaculture & Nutrition Activity' implemented by WorldFish, have signed an agreement.

According to a press release issued on Sunday, the agreement was signed to promote financial

literacy and access to finance through different loan products for Aquaculture stakeholders of Bangladesh. The loan will help the stakeholders to run their business smoothly while the financial literacy will help them to increase the efficiency of the business, the press release said. This project will be implemented in Jessore, Khulna, Barishal, Kustia and Faridpur districts of Bangladesh."

This year the activity launched two media partnerships for the promotion of nutrition and aquaculture messages.

BackBenchers will present messages about nutrition via community radio in an entertaining series of 30 minute radio shows which will "portray how to become a successful fish producer, the nutritional value of fish, and how fish producing can be a great business." *Macher Vobiswat* (The Future of Fish) will target younger audiences with humor, folk performances, and celebrity guests. The audience of 25-40 years of age and 30% women and 70% youth is attractive to advertisers, and the partner plans on profitable sustainability within three months.

Rohita is a sister a concern of The Daily *Bhorer Dak*, a daily newspaper in Bangladesh, and they will launch a series of newspaper columns on nutrition and aquaculture. There will be five columns to start as they solicit advertisers to sustain the new column.

The Communications Specialist supported all partners this year as they developed and branded their communications materials this year, and as a part of celebrating National Fish Week 2020, the activity disseminated messages on use of quality fish seed and feed, fish nutrition, gender in aquaculture practice, and COVID-19 safety.

##

ANNEXES

Sub-grant table

Success Story: Women and Mola