# Project Completion Report

Submitted by

**COAST Foundation**

Submitted to

**Feed the Future Bangladesh Aquaculture Activity**

**WorldFish**

Date of Submission: 31 August 2023.

## Project Briefs:

| | | |
|---|---|---|
| **Project Title** | Promotion of small-scale aquaculture and high valued SIS species in Barishal region | |
| Agreement Period | Start Date: 01-02-2023 | End Date: 31-08-2023 |
| | Extension Date: Not applicable | |
| Duration | 7 months | |
| Total Agreement Amount | US Dollar: 82,154 (BDT 8,451,228) | |
| Feed the Future Bangladesh Aquaculture Activity Contribution | US Dollar: 82,154 | Percentage: 100 % |
| Sub-grantee Contribution | US Dollar: 0.0 | Percentage: N/A |
| WorldFish Contact Person | Name: Dr. Manjurul Karim | Designation: Chief of Party |
| Sub-grantee Contact Person | Name: Barequl Islam Chowdhury | Designation: Deputy Director-EnD |
| | Email: barek@coastbd.net | Phone: +8801713328811 |

## Abbreviation:

| | |
|---|---|
| **AMP** | Aquatic Medicinal Product |
| **DIP** | Details Implementation Plan |
| **IYD** | International Youth Day |
| **IEC Materials** | Information Education & Communication Materials |
| **IWD** | International Women Day |
| **KAS** | Knowledge Attitude and Skills |
| **KPI** | Key Performance Indicator |
| **LEAF** | Local Extension Agent for Fisheries |
| **LEK** | Local Ecological Knowledge |
| **LSP** | Local Service Provider |
| **MOC** | Mustard Oil Cake |
| **NFW** | National Fish Week |
| **SIS** | Small Indigenous Species |
| **SRS** | Self-Recruiting Species |
| **UAO** | Upazila Aquaculture Officer |
| **USAID** | United States Agency for International Development |

## Table of Contents

## 1. Executive Summary

In collaboration with Coast Foundation, the USAID-funded and WorldFish Bangladesh-led Feed the Future Bangladesh Aquaculture & Nutrition Activity has been promoting small-scale aquaculture and highly valued SIS fish in the Barishal region. In the region of Barishal aquaculture farmers has lack of information, markets, and technology competence. Successful nutrition-sensitive aquaculture farmers can form local service providers to advise and train clients and local fish farmers. The project aims to improve farmers' access to market information and improved aquaculture technologies. Additionally, fingerling vendors, carp hatcheries, and feed merchants need to strengthen their expertise and capabilities in their companies. They must know advanced aquaculture technologies to help farmers expand their businesses with technical assistance.

The project spanned a period of 7 months, commencing on February 1st and concluding on August 31st, 2023. The project was conducted in 9 upazilas, namely Barishal Sadar, Jhalukathi Sadar, Nalchity, Mirzaganj, Kaukhali, Bhola Sadar, Daulatkhan, Borhanuddin, and Tazumuddin, which are located in 5 districts: Barishal, Bhola, Jhalukathi, Pirojpur, and Patuakhali, all falling under the jurisdiction of Barishal region. A total of 7 proficient individuals were enlisted as "Upazila Aquaculture Officer" for 9 upazilas, in addition to an Aquaculture Specialist, a Finance Officer, and a Project Coordinator. Deputy Director of Enterprise Development designated as Project Focal from COAST Foundation side. Newly recruited staff members were given an orientation on project activities, followed by the organization of capacity building training. 2 coordination meetings were arranged with the COAST micro-finance team in two districts, namely Barishal and Bhola. The purpose of these meetings was to enhance coordination with the core work and ensure the successful implementation of strategies in order to fulfill the organization's objectives.

6 ToT on improving aquaculture were organized for 121 selected LSPs in 9 project implementation upazilas. Local actors (dealers, sub-dealers, agents, aqua- inputs agents, Nurserer, Patilwala, etc.) are trained to provide extension services (technology transfer, trainings, and exchange of quality aquaculture inputs) to farmers at the field level. 6,000 homestead pond farmers, including women and youths, were trained in 299 training batches on enhanced aquaculture and nutrition. In addition, work was performed on the field level of the project area to expand aquaculture through various market promotion activities, including the installation of billboards and signboard. Observed National Fish Week at the community level to acquaint individuals with its theme. 30 awareness-raising activities were conducted with rural residents and students. The primary objective of the events was to raise awareness of the nutritional requirements of individuals of all ages, especially infants, pregnant women, and lactating mothers.

Provided fingerlings to 600 beneficiaries and summer vegetable seeds to all 6,000 beneficiaries as input support and implemented the initiative with a focus on nutrition. During the project period, 16 mola broods were established in these Upazilas so that other farmers in the project area would have convenient access to mola seed. In an endeavor to expand the range of services available to homestead fish farmers, ties were forged with hatcheries, traders, and government entities, among others, via meetings. Household fish producers who seek technical and input support from local government and private service providers provide feedback as required, thereby aiding the service providers in improving the quality of their services. Thus, a relationship has been formed between the COAST Foundation, government entities, service providers, and small-scale fish farmers.

The project has yielded some valuable insights, which are the discretionary selection of suitable LSPs may ensure need-based technical assistance and high-quality inputs like fish fry and aquatic medicinal products for domestic pond farmers. Furthermore, establishing more robust connections between LSPs and pond farmers will likely yield positive outcomes in small-scale aquaculture. The inclusion of technologically proficient women & young individuals, in addition to males, in small-scale aquaculture might have potentially improved both family nutrition and provided an alternative source of income. The establishment of a Mola brood bank at the community level has effectively facilitated a reliable provision of Mola fish production in farmhouse ponds. Growing vegetables in pond dikes and fallow ground may shift the cost to other conditions. Small quantities of vegetable seeds could promote interest among beneficiaries in consuming freshly grown veggies sustaining the practises year after year. Several significant obstacles were encountered during the project's implementation. LSP seeking reimbursement or monetary benefits from the initiative and absence of relevant LSPs in the target locations. Very hard to enhance farmers' KAS through a single training session. On an equitable basis, only a handful of small-scale pond farmers (10%) received minimum aquaculture inputs such as fish fingerlings. It poses a considerable challenge to sustain beneficiaries who have not gotten any fish fry supports, whereas their neighbors or training partners have obtained fish fry via the projects.

The initiative's overall budget amounted to BDT 8,451,228, which is equivalent to USD 82,154. Program-related expenses accounted for roughly 42.69% of the total budget. A significant proportion of the overall programmatic expenditure, specifically 88.5%, was utilized through the implementation of its planned activities. The budget allocation for signboards exhibited a substantial deviation of 39%. The COAST Foundation has established discrete procurement committees. The signboard price quotations exhibited a broader spectrum of price fluctuations. Based on the established policy, the contract was granted to the bidder with the lowest offer, leading to a deviation in the depletion rate of the signboard budget from the originally projected budget.

## 2. Introduction

### 2.1. Background of the Project

In Bangladesh, the fisheries industry serves as a primary or secondary source of employment, livelihood, and income for the impoverished. Fish is the greatest source of essential macro- and micronutrients, vitamins, and minerals on the planet. Fish cultivation and fishing provide employment and income to millions of impoverished people, and trade in fishery products plays a crucial role in the alleviation of poverty and the economic development of nations.

Aquaculture producers in rural areas of Barishal have limited access to information and markets, as well as knowledge and skills regarding the most suitable aquaculture technologies for their farming systems. Existing aquaculture farmers must follow up on COAST Foundation-funded visits in order to improve their problem-solving skills and employ more advanced technologies on their farms. To increase farmers' access to information on markets and enhanced aquaculture technologies, local service providers can be developed from successful nutrition-sensitive aquaculture farmers, who will offer advice and training to their customers and local fish farmers. In addition, other market actors of aquaculture value chains, such as fingerlings traders (Patilwala), nursery owners, carp hatcheries, and feed dealers, have limited knowledge and skills in their respective enterprises. In addition, they must be familiar with improved aquaculture technologies in order to provide technical assistance to producers as an integral part of their business.

LSPs will connect farmers with government and private aquaculture-agriculture extension service providers, as well as coordinate between farmers and various service providers. In this region, there is a lack of village-level distribution networks for seeds, feeds, and other aquaculture inputs, and small producers face capital shortages for implementing enhanced aquaculture production systems. Currently, a significant number of producers in Barishal, Bhola, Jhalukathi, Pirojpur, and Patuakhali Districts can be regarded as one of the optimal fish production regions in the southern region of Bangladesh. The majority of waters are suitable for fish farming. The pond owner in this region has a tremendous opportunity to enhance their socioeconomic conditions by cultivating fish using scientific methods. However, this region's ability to increase fish production is hindered by a lack of technical knowledge, the inaccessibility of credit, and multiple ownership. Multi-ownership was the most problematic aspect of pond-based cultivation in the specified region. Even though some Upazilas in the Barishal region were identified as potential fish culture areas, the expected yield from pond farming was not observed due to the multiple ownership of the ponds.

## 2.2. Proposed Solution

In the Barishal region, a significant number of homestead ponds are mostly utilized for domestic reasons, with aquaculture being of comparatively lesser importance. The limited understanding, suboptimal water conditions, and exorbitant costs associated with aquaculture inputs have impeded the progress of small-scale aquaculture. The productivity of a pond is primarily influenced by the quality of fish fry, the availability of natural food and the provision of supplementary feed in accordance with the specific requirements. The expenditure associated with supplementary feed is the highest cost component within the field of aquaculture. Farmers have the potential to increase their profit margin by using strategies to decrease the cost of feed.

**Business model 1** **The manufacture of supplementary feed at the village level:**

The "Feed Manufacturer Group" could have been composed of 30 to 50 homestead Pond producers in a village. Calculating the total surface area of the ponds, the group determines how much supplemental feed they will need per day. Purchase of feed ingredients and a low-priced feed manufacturing machine requires an initial investment. The group will work with microfinance institutions to secure business loans with lenient terms. The respective local service providers shall invest in the group and profit-share on an equity basis. The unit price of (excluding all operation costs) should be determined by the group members with the lowest profit margin. The profit will be used for group savings or loan repayment. The LSP could provide the facilities for storage. The member will pay cash for the sustenance. In the event of a transaction in kind, terms will be appended.

**Business model 2** **Establish farmers' market:**

Stable market conditions are a prerequisite for any type of enterprise. The supply of fish largely determined the market price of fish. The price of fish decreased due to the availability of comparable species on the market. A group of homestead pond owners is establishing a marketplace for fish. Traders from various locations are informed and congregated at a particular location. The group members will harvest diverse species and market them in their respective locations. Farmers should implement techniques for marketing and transporting live fish. A live fish is significantly more expensive than a dead fish. Unless producers improved their communication with fish merchants. Appropriate market information assists producers in obtaining a fair price for their farmed fish.

## 2.3. Objectives of the Partnership

- To enhance LSP's understanding on improved aquaculture technology.
- To sensitize homestead pond owners about nutrition-sensitive & low-cost aquaculture technology.
- To establish a business-oriented relationship between aquaculture LSPs and homestead pond producers.
- To integrate SIS species into the existing carp-poly culture system.
- To engage women and youth in homestead aquaculture.
- To increase opportunities for household income through aquaculture and vegetation.
- To enhance the stock of Mola fish by establishing a mola brood bank.
- To increase farmers' access to information on markets actors
- to educate individuals on nutrient-conscious cookery.
- To obtain a lenient loan for homestead pond aquaculture in conjunction with the COAST microfinance team.

## 2.4. Geographic Coverage:

| District | Upazila | Union |
|---|---|---|
| | | 5 Districts, 9 Upazilas & 26 Unions |
| Bhola | Sadar | Bhelumia, Samaiya, Ilisha, Dhania, Shibpur & Bapta |
| | Daulatkhan | Medua, Joynagar & Charpata |
| | Borhanuddin | Boro-Manika, Tobgi, Dewla & Kachiya |
| | Tazumuddin | Shamvupur |
| Barishal | Sadar | Raipasha & Jagua |
| Jhalukathi | Sadar | Bhairabpasha & Magor |
| | Nalchity | Bashanda, Kirtipasha & Natullhabad |
| Patuakhali | Mirzaganj | Madhabkhali & Mirzaganj |
| Pirojpur | Kaukhali | Chirapara, Shialkathi & Kaukhali |


## 2.5. Project KPI and Budget Summary

The KPI activities, target, total budget ceiling, and burn rate percentage of the project are as follows.

| # | Activity | Means | Target | Total Budget (BDT) | Burn rate (%) |
|---|---|---|---|---|---|
| 5.1 | Project orientation meeting & workshop | # of meeting | 1 | **9800** | **101** |

| | | | | | |
|---|---|---|---|---|---|
| 5.2 | Training/capacity development of Project Staffs | # of training | 1 | **9800** | **84** |
| 5.3 | Coordination meeting with micro-credit team | # of meeting | 2 | **56000** | **100** |
| 5.4 | ToT on improve aquaculture for LSP | #of training | 6 | **178800** | **93** |
| 5.5 | Training on improve aquaculture & nutrition for farmers | # of training | 300 | **1546000** | **98** |
| 5.6.1 | Fingerling supports to selected farmers | # of members | 600 | **300000** | **90** |
| 5.6.2 | Summer vegetables seeds supports to all farmers | # of members | 6000 | **600000** | **98** |
| 5.6.3 | Signboard installation at pond site | # of signboard | 600 | **240000** | **39** |
| 5.7 | Establish Mola brood bank | # brood bank | 16 | **112000** | **96** |
| 5.8.1 | IEC materials-Leaflet distribution to members | # of leaflets | 10000 | **120000** | **90** |
| 5.8.2 | IEC materials-Festoon for farmer's & LSP training | # of festoon | 18 | **18000** | **101** |
| 5.8.3 | Awareness building events | # of events | 30 | **60000** | **97** |
| 5.9 | Cooking demonstration at community level | # of events | 6 | **150000** | **93** |
| 5.10 | Day observation-NFW-23, IWD & YD | # of event | 3 | **72000** | **56** |
| 5.12 | Quarterly project meeting | # of meeting | 2 | **16600** | **86** |
| 5.13 | Learning & sharing meeting | # of meeting | 1 | **118800** | **94** |
| | | | **Project's total activity related cost** | **3607800** | **92** |

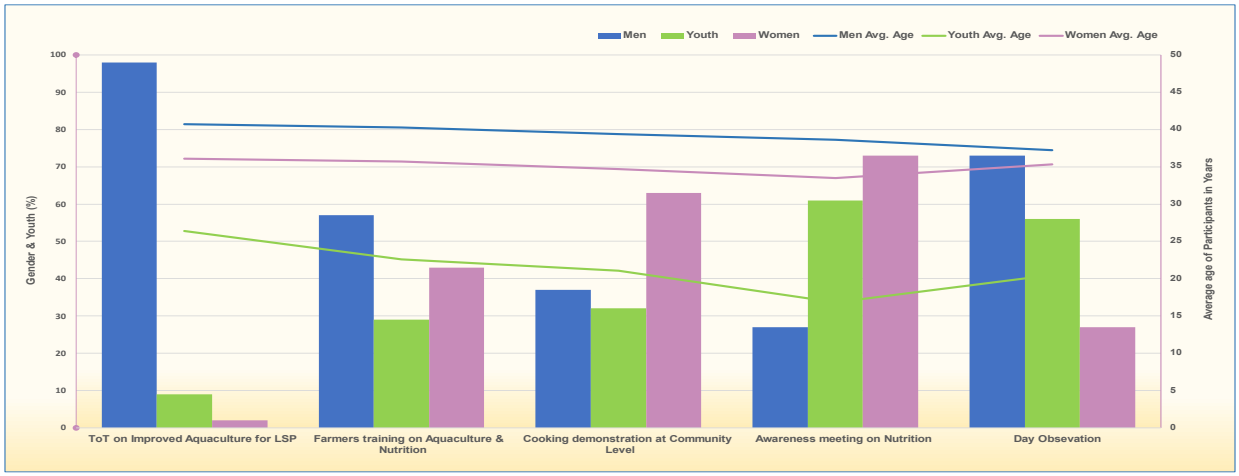
## 3. Project Performance

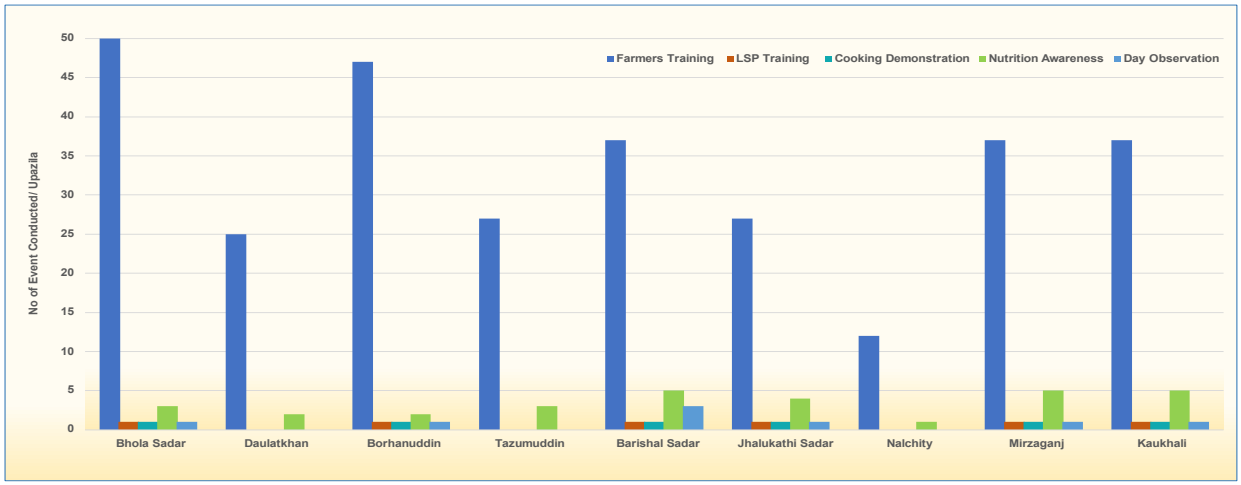
### 3.1 Outreach Summary

Through the activities outlined in the diagram below, diverse participants were involved in the endeavor. In addition to men, the initiative also focused on women and young people. Utilizing graphs, information regarding gender, average age of participants, and number of events held in implemented upazila are presented.

| Types of | Reached No. | Activities done for reaching. |
|---|---|---|
| Aquaculture LSP | **121** | Through 6 batches improved aquaculture training |
| Pond Farmers | **6000** | Through 300 batches aquaculture & nutrition training |
| People | **814** | Through 6 events on cooking demonstration |
| | **962** | Through 30 batches meeting on nutritional awareness |
| | **345** | Through day observation-NFW, IWD & IYD of 2023 |

| Total Participants Reached | 8242 |
|---|---|




## 3.2. Key Performance Indicators

| # | Activity | Means | Target | Achievement | % |
|---|---|---|---|---|---|
| 5.1 | Project orientation meeting & workshop | # of meeting | 1 | **1** | 101 |
| 5.2 | Training/capacity development of Project Staffs | # of training | 1 | **1** | 100 |
| 5.3 | Coordination meeting with micro-credit team | # of meeting | 2 | **2** | 100 |
| 5.4 | ToT on improve aquaculture for LSP | # of training | 6 | **6** | 100 |
| | | # of participants | 120 | **121** | 109 |
| 5.5 | Training on improve aquaculture and nutrition with refresher for farmers | # of training | 300 | **299** | 99.67 |
| | | | 6000 | **6000** | 100 |
| 5.6.1 | Fingerling supports to selected farmers | # of members | 600 | **600** | 100 |
| 5.6.2 | Summer vegetables seeds supports to all farmers | # of members | 6000 | **6000** | 100 |
| 5.6.3 | Signboard installation at pond site | # of signboard | 600 | **600** | 100 |

| | | | | | |
|---|---|---|---|---|---|
| 5.7 | Establish Mola brood bank | # of brood bank | 16 | **16** | 100 |
| 5.8.1 | IEC materials-Leaflet distribution to members | # of leaflets | 10000 | **10000** | 100 |
| 5.8.2 | IEC materials-Festoon for farmer's training | # of festoon | 18 | **18** | 100 |
| 5.8.3 | Awareness building events | # of events | 30 | **30** | 100 |
| 5.9 | Cooking demonstration at community level | # of events | 6 | **6** | 100 |
| | | # of participants | 500 | **814** | 162.9 |
| 5.10 | Day observation-NFW-23, IWD & IYD | # of event | 9 | **9** | 100 |
| 5.12 | Quarterly project meeting | # of meeting | 2 | **2** | 100 |
| 5.13 | Learning & sharing meeting | # of meeting | 1 | **1** | 100 |

## 3.3. Activity Performance

a) **Name of the activity:** Coordination meeting with micro-credit team (5.03)

b) **Purpose of the activity:** Inform the field-level Micro-credit team of the project's objectives and solicit their assistance in selecting eligible LSPs and homestead pond farmers in their respective jurisdictions.

c) **Methodology of the activity:** The staffs participated in a brief discussion regarding the project's objectives and improved aquaculture technology. Participants were requested to compile an inventory of potential aquaculture villages and unions. The events are anchored by PC, COAST, while PO, WorldFish, delivers key messages.

d) **Timeline and place:** 2 micro-credit team coordination meetings were conducted in Bhola and Barishal. In Bhola, 4 upazilas were assembled: Bhola Sadar, Daulatkhan, Borhanuddin, and Tazumuddin. In Barishal, 4 upazilas were assembled: Barishal Sadar, Jhalukathi Sadar, Kaukhali, and Mirzaganj. The completed events by March.

e) **Number of participants:** 50 in total.

f) **Immediate results:** A brief inventory of excessive homestead pond villages and unions was compiled by the micro-credit team.

a) **Name of the activity:** Capacity development/ToT on improve aquaculture for LSP (5.04)

b) **Purpose of the activity:** Establish technically competent local aquaculture market actors who are willing to exchange their knowledge and inputs, such as fingerlings, feed, and aquatic medical products, with small-scale pond producers at a reasonable cost. Additionally, to ensure a long-lasting and business-focused forward and backward market links between LSP and homestead pond farmers.

c) **Methodology of the activity:** Upazila Aquaculture officer along with Project Coordinator, and Aquaculture Specialist met respective Upazila level department of fisheries officials and gathered data on homestead ponds dense Unions and their approximate quantities under targeted Upazila. For each proposed Union, a primary list of fish feed and aquatic medicine vendors, nursery pond owners, mobile fish fry traders, local extension agents for fisheries (LEAFs), experienced commercial fish farmer, and hatchery operator was

compiled. Physically contracted with all LSPs and Individual profiles were created for all listed LSPs, including their complete address, type and quality of the products, years of experience in aquaculture business, nature of transaction or area of coverage, willingness to work for homestead pond owner, consumer reputation, previous experiences to work with development organization and availability of time. In consideration of the local circumstance, a final list of 120 LSPs, excluding those on standby, was compiled from 9 Upazilas implementing the program. approximately 20 LSPs in Mirzaganj, Kaukhali, Barishal Sadar, and Jhalukathi Sadar Upazilas respectively. whereas there are 20 LSPs in Bhola Sadar Daulatkhan Upazila and 20 LSPs in Borhanuddin and Tazumuddin. All categories of LSPs for a given Upazila were maintained consciously. The duration of the ToT was 4 hours including participants registration. All the trainings were facilitated by Program Officer, WorldFish and assisted by Aquaculture Specialist, Project Coordinator, and respective Upazila Aquaculture Officer from COAST Foundation.

**d)** **Timeline and place:** From February to April, 6 ToTs on improve aquaculture for LSP were designed, but all objectives were met by March. Five ToTs were organized at the Upazila level office of the COAST Foundation, and 1 at the Upazila Parishad complex in Borhanuddin of Bhola

**e)** **Number of participants:** 121 LSPs received this training in total.

**f)** **Immediate results:** Increased LSPs' focus on small-scale aquaculture. enhanced access to LSP in the homestead pond for business purposes. LSPs gained a sense of the number of homestead ponds in their area during the listed-up process, allowing them to estimate how many fingerlings and other inputs will be required by farmers. The ToT discussed alternatives to conventional inorganic and organic fertilizers for the pond's natural food production. For longer-distance transportation, mobile fish fingerling traders began to use coal in the carrying drum. For the eradication of predatory fishes, many nursery pond owners use Rotenone instead of Aluminum phosphide substance. Emphasis on SIS, particularly Mola, in a carp-mixed culture pond. Many LSPs stocked Mola in their cultured enclosure. LSP believed that fish disease management would be simplified using inexpensive, locally accessible ingredients that learnt from the training. Several LSP installed coal bag to remove harmful gases and toxins from their pond. The project acknowledged the services and achievements of each LSP in each training.

---

**a)** **Name of the activity:** Capacity development training on improve aquaculture and nutrition with refresher (5.05)

**b)** **Purpose of the activity:** To develop the knowledge, attitudes, and abilities of homestead pond owners regarding small-scale, nutrition sensitive low-cost aquaculture technology by providing training on aquaculture and nutrition. In addition, to expand the scope of homestead pond aquaculture in order to increase area coverage, family nutrition, and additional income by establishing sustainable linkage with local service providers.

**c)** **Methodology of the activity:** The demand of LSPs to trade aquaculture inputs to pond owners on a large scale, while the expectation of pond owners to receive high-quality inputs at a fair price. LSPs and pond proprietors share a common commercial objective. LSP performed a crucial supporting role in the training of homestead pond farmers. Several criteria were established to accomplish the activity's objectives. "One pond, one participant" is a significant requirement. The LSPs were asked to enumerate homestead pond

details such as size in decimal, ownership, dike condition, the purpose of fish culture, the owner's year of experience with fish culture, and their attitude toward learning. The inventory of farmers provided by respective LSP was physically and thoroughly cross-checked by project-assigned personnel. On purpose, commercial ponds are omitted from the list. On the basis of the data, a batch was formed for every 20 pond proprietors. Household women and youths were encouraged to participate in the training. The training lasted approximately three and a half hours, including participant registration. At the training location, colorful IEC materials (festoon) containing pond management steps and nutrition were displayed. All participants provided a specialized brochure based on the title of the training. Participants were given hands-on experience with the unconventional ingredients discussed in the training. The training sessions were designed to address the most important issues and the expansion of aquaculture in homestead ponds. The training was administered by and LSPs. Using the IEC materials as a guide, the courses were delivered in chronological order. Participants were educated on the nutritional significance of a few indigenous species, predominantly Mola fish. Included was a description of the seasonality of vegetable varieties, the optimal bed, planting, the process of fertilization and disease control. In every training, respective LSP must be participated and briefed farmers about the sources of high-quality fish fry, feed ingredients, and other inputs.

**d)** **Timeline and place:** From March to July, 299 training sessions on improving aquaculture and nutrition for homestead pond farmers were planned; all objectives were met on time. The majority of trainings were conducted at trainees' homes and yards, as previously agreed upon by all participants. A significant amount of training is also provided at local school cum cyclone centers and the Union parishad complex.

**e)** **Number of participants:** 6000 members were trained in 26 Unions, 9 Upazila, and 5 districts.

**f)** **Immediate results:** The majority of homestead ponds have been excavated in order to renovate or build dwelling house. Large timber and fruit trees, and unwanted vegetation that covered the pond's dike prevented sunlight from penetrating the pond. First, the farmers removed undesirable bushes and trimmed the dike of large tree branches. They repaired the dike or used blue net with a fine mesh to secure their cultivated species. the ability improves to use the correct dose of lime during pond preparation. Farmers are now demanded large size quality fry (>5 inch) considering the niche and area of pond. By understanding their nutrient value and cultivation techniques, attitudes toward SIS in the pond were improved. Farmers who are unable to provide supplemental feed have emphasized environmentally favorable natural food production in the pond by utilizing training knowledge. Farmers are now aware of the sources of high-quality aquaculture inputs. Enhanced interaction with local service providers.

---

**a)** **Name of the activity:** Fingerlings supports to selected farmers (5.06.01)

**b)** **Purpose of the activity:** As an incentive, to encourage homestead pond farmers to engage in fish cultivation.

**c)** **Methodology of the activity**: 600 farmers were furnished with either Indian major carps or Mola offspring. The varieties of fish depended on the interests of the farmer. For fingerling support, homestead ponds with optimal physicochemical and biological conditions and relatively convenient locations were chosen. Two reputable hatchery merchants from Bhola and Barishal supplied all the necessary fingerlings. 540 and 60 farmers each received 1.5 kg of Indian major carp's fries and 1 kg of Mola offspring, respectively**.**

d) **Timeline and place:** Fingerling support was scheduled for April and May. Due to the shallow water profundity of the chosen pond, the supports accomplished in June.

e) **Number of participants:** 600 members

f) **Immediate results:** The fish fries were served in proportional proportions. Farmers with large ponds purchased or contracted with LSPs for additional Indian major carps and Mola seed. Farmers who were not chosen were also motivated to stock fingerlings in their pond.

---

a) **Name of the activity:** Summer vegetables seeds support to all members (5.06.02)

b) **Purpose of the activity:** As an incentive to encourage homestead pond farmers to cultivate vegetables on the pond dike and in their backyards.

c) **Methodology of the activity**: The selection of vegetable seeds was based on seasonality, ease of cultivation, and per-member budget. 5 leafy and non-leafy vegetable seeds, including bottle gourd, stem amaranth, Indian spinach, pumpkin, and okra, were chosen with a total unit weight of 120 grams.

d) **Timeline and place:** Summer vegetables seeds support was scheduled for April and May. Due to complexity in procurement the task accomplished in early July.

e) **Number of participants:** All members (6000) members

f) **Immediate results:** Majority of the farmers sow their seeds prior to prepare their land. women interest found much higher in this regard.

---

a) **Name of the activity:** Signboard installation at fingerling supported pond site (5.06.03)

b) **Purpose of the activity:** To recognize farmers' efforts, increase non project farmers' visibility, and brand the project.

c) **Methodology of the activity**: At the farmer's pond, a 1.5 x 2-foot signboard with the farmer's complete address and the name of the technology was affixed. Respective producers were responsible for maintaining the signboard.

d) **Timeline and place:** Installation of signboard was scheduled for April and May. Mid-July, the assignment was completed.

e) **Number of participants:** 600 members

f) **Immediate results:** The signboard gave the farmers an air of respect. Non-project producers demonstrated a keen interest in the signboard.

---

a) **Name of the activity:** Establish Mola brood bank (5.07)

b) **Purpose of the activity:** To promote Mola fish culture and ensure the local supply of Mola seed.

c) **Methodology of the activity**: Mola brood banks were established evenly across eight implemented upazila. For the Mola Brood bank, experienced producers with optimal pond physicochemical and biological conditions were chosen. In order to establish a Mola reproductive bank, the importance of the homestead pond's location was emphasized. The proprietors of the brood bank were supplied with Mola brood (1-2

kilograms), nursery feed (25 kilograms), lime (10 kilograms), zeolite (10 kilograms), and a signboard with the complete address and technology.

**d)** **Timeline and place:** May to June was the timeframe for the establishment of the Mola reproductive bank. Due to insufficient water depth, the task was finished in July.

**e)** **Number of participants:** 16

**f)** **Immediate results:** The pond producers have demonstrated a keen interest in the activities, and many have verbally agreed to purchase Mola seed.

---

**a)** **Name of the activity:** Awareness building event (5.08.03)

**b)** **Purpose of the activity:** To raise awareness of the nutritional needs of all age groups, particularly infants, pregnant women, and nursing mothers.

**c)** **Methodology of the activity**: Farmers' yards and educational institutions will host nutrition-themed events for rural residents, particularly women and school-aged children, with a focus on nutrition education. The participants were provided with live samples of six broad categories of extremely nutrient-dense, locally accessible cuisines. In contrast, rural residents have greater access to fresh, nutrient-dense foods at reasonable market prices. The program provided participants with practical examples of how to cut and prepare leafy and non-leafy vegetables, prepare fish before cooking, choose a daily food plan that considers six key nutrient elements, practice good hygiene, understand the importance of safe water and daily consumption rates, and use salt when cooking. In the case of students, nutrition-focused competitions such as impromptu speech, paragraph writing, and drawing were organized, with prizes including toothpaste and toothbrush, hand sanitizer, and local fruits, among others.

**d)** **Timeline and place:** February was scheduled for the nutrition awareness event. Due to a delay in personnel recruitment and a greater emphasized on LSP and farmer training, the events were rescheduled in late July.

**e)** **Number of participants:** 962

**f)** **Immediate results:** Positive response to SIS culture and cuisine observed. In addition, there existed among farmers folk a body of knowledge regarding hygiene and sanitation.

---

**a)** **Name of the activity:** Cooking demonstration at community level (5.09)

**b)** **Purpose of the activity:** To sensitize community people about the cuisine of small indigenous fish species, as well as their pre-cooking procedure, while preserving all nutritional components.

**c)** **Methodology of the activity:** Students from the nutrition program at Patuakhali Science and Technology University signed an agreement to facilitate all events. Participants were chosen by the respective Upazila Aquaculture officers and the LSP. On purpose, the majority of those invited to the event were non-trained (enhanced aquaculture & nutrition) households. Emphasis was placed on students' participation alongside their teacher at the events. Participants were given detailed instructions on how to prepare Mola fish cuisine. Methods for properly gutting and washing uncooked mola fish. When preparing Mola fish, the six essential food components, nutrient composition of whole Mola fish, chopping and cooking techniques for foliage

and non-leafy vegetables, and hygiene and sanitation were discussed. The event gave participants the opportunity to taste the nutrient rich, cooked Mola fish.

d) **Timeline and place:** A total of 6 cooking demonstration events were scheduled to be conducted evenly between the months of April and July. All specified events were successfully completed by the month of July at local school cum cyclone center at Bhola Sadar, Borhanuddin, Barishal Sadar, Jhalukathi Sadar, Mirzaganj & Kaukhali Upazila.

e) **Number of participants:** 814 members participated under 6 events.

f) **Immediate results:** The knowledge acquired during a cooking demonstration is disseminated to those who were not directly engaged in the activity. Based on the post-event interviews conducted with participants, it was observed that there was a notable rise in the consumption of SIS (Supplemental Iron Sources) in their daily food intake, particularly among youngsters, pregnant women, and breastfeeding mothers. To ensure a continuous availability of Mola fish throughout the year, it was determined imperative to engage in the cultivation of these fish species within specifically designated ponds. The individuals get at the understanding of the probable diminishment of nutritional content in Mola fish as a result of the cooking procedure. The individual who possesses a pond but lacks Mola fish is actively searching for Mola seed in order to introduce this species into their existing population.

a) **Name of the activity:** Day observation-NFW, IWD & IYD-2023 (5.10)

b) **Purpose of the activity:** To notify people about and incorporate the day's theme into practices.

c) **Methodology of the activity**: Local residents, including women and youth, gather to celebrate the occasion with activities such as a foot rally, discussion, and drawing contest.

d) **Timeline and place:** Specific day within the project duration

e) **Number of participants:** 345

f) **Immediate results:** People are privileged to participate in these events. They hope to receive the day's positive thoughts.

## 4. Lessons Learnt

### 4.1. Key Lessons Learnt

The project has yielded some valuable insights, which are outlined here.

- The project mainly concentrated on the connections between local service providers and homestead pond owners. The business concept of effectively balancing small-scale aquaculture operations has been aptly shown, resulting in an expanded geographical reach and enhanced business opportunities for LSPs. The discretionary selection of suitable LSPs may ensure need-based technical assistance and high-quality inputs like fish fry and aquatic medicinal products for domestic pond farmers. Furthermore, establishing more robust connections between LSPs and pond farmers will likely yield positive outcomes in small-scale aquaculture.
- The homestead ponds are commonly utilized for domestic reasons, wherein wild fish naturally populate during floods and subsequently thrive, allowing for a substantial harvest to meet household consumption needs during the dry season. The limited technical expertise and suboptimal physio-chemical conditions of

the average household pond contribute to lower productivity when compared to commercial ponds. The primary breadwinner of his family shown a preference for alternative sources of revenue over the utilization of a homestead pond. In this scenario, the inclusion of technologically proficient women and young individuals, in addition to males, in small-scale aquaculture might have potentially improved both family nutrition and provided an alternative source of income.

- The nutritional significance of small indigenous species, specifically the Mola, for human health has been recognized over an extended period. Various species of small indigenous fish were a crucial component of the daily dietary intake in Bengali culture. Individuals placed a higher value on the sensory appeal of SIS rather than its nutritious composition. The nutritional composition of a fish's body varies across different anatomical regions. Although the act of ingesting a whole SIS may be uncomplicated for one individual, the consumption of an entire sizable fish poses significant difficulties for impoverished households. The cost of these particular categories of items experiences an increase due to the insufficiency of SIS in aquatic environments. The primary factors that have led to the decrease in the sustainability of SIS in Bangladesh include the commercialization of aquaculture, which results in the exclusion of SIS, the introduction of exotic carp species into aquaculture practices, habitat degradation, the indiscriminate killing of brood and juvenile SIS, limited awareness among stakeholders, and the improper application of chemicals in agricultural fields. The present carp polyculture approach enables the organic growth of SIS, specifically Mola (*Amblypharyngodon mola*), in the pond due to its inherent self-recruiting characteristics. In the given context, the spread of low-cost aquaculture technology with a concentrate on SIS could increase both SIS production and biodiversity. The establishment of a Mola brood bank at the community level has effectively facilitated a reliable provision of Mola fish production in farmhouse ponds.
- The training program on enhancing aquaculture and nutrition was specifically intended to be conducted in small groups, often consisting of approximately 20 participants, at the farmers' yards. This approach has been found to be more effective in ensuring that all participants are able to get the training in a comprehensive manner.
- Rural residents, in comparison, have better access to fresh, nutrient-rich foods at reasonable market costs. A greater proportion of rural people, especially children, are affected by undernutrition, malnutrition, and growth-stunting problems due to a lack of nutrition education, erroneous culinary practices, and misbelief on nutrient. Furthermore, a high rate of maternal and neonatal death was noted. The program gave participants practical examples of how to cut and prepare leafy and non-leafy vegetables, prepare fish before cooking, choose a daily food plan that considers six key nutrient elements, practice good hygiene, comprehend the importance of safe water and daily consumption rates, and use salt when cooking.
- Most of the country's vital necessities are becoming more expensive, while the marginalized population is hardly affected. Growing vegetables in pond dikes and fallow ground may shift the cost to other conditions. Working together to sustain their families through vegetable gardening may include women, young members, and men. Small quantities of vegetable seeds could promote interest among beneficiaries in consuming freshly grown veggies and sustaining the practises year after year.

## 4.2. Challenges

- LSPs seeking reimbursement or monetary benefits from the initiative and absence of relevant LSPs in the target locations.
- LSPs are reluctant to provide time for project-based interventions and persuasion for the selection of non-eligible members as beneficiaries.
- Instances of training participation by non-pond and repeat-pond owners. Boys, girls, and people who are too elderly to be home representatives participated in the training.
- A large audience (about 150 participants) at a culinary demonstration event impedes the event's goals. All participants heard the messages, but only those in the front row were able to observe each phase of the Mola fish pre-cooking and cooking procedure properly.
- Very hard to enhance farmers' KAS through a single training session.
- It is hard to maintain farmers' concentration for 3 to 4 hours during training. Information is less important than monetary compensation for trainees.
- On an equitable basis, only a handful of small-scale pond farmers (10%) received minimum aquaculture inputs such as fish fingerlings (1.5 kg per beneficiary).
- Small-scale aquaculture is hampered by shady ponds, multi-ownership, low investment capacity, a lack of knowledge, and the pond's multipurpose use.
- Between March & July, most of the events were set up. Heat, humidity, and rain made things hard for the trainees.. during those months. Because of the adverse weather, many events had to be moved in compressed room of participants.

## 4.3. Key Innovation of the Project:

**a. Technological Innovation:** By providing training on improved aquaculture, the project disseminated low-cost and environmentally favorable technology as follows:

- Using a mixture of MOC, wheat flour, jaggery, egg, and yeast as opposed to cow-dung, poultry waste, and inorganic fertilizer is an innovation in pond's natural food production. The mixture promotes the development of natural food sources in the pond and improves the fish's muscle quality and color.
- The initiative encourages homestead pond farmers to use homemade supplementary feed at a lower cost than commercial pellet feed. A ratio of locally available plant and animal sources ingredients that is distributed to producers in order to promote the optimal growth of fish. To prevent the waste of supplementary feed, producers are advised to use plastic sheet feeding rings in pond.
- In fish health management, producers were informed of LEK-based treatments for all types of fish diseases. Utilizing garlic paste, zeolite, and bleaching powder in a pond could prevent the spread of fish diseases. Additionally, zeolite eliminated pond-bottom gases and garlic paste to control phytoplankton proliferation.
- Coal used in a pond prevents poisoning and removes ammonia gases. Mobile fish traders or hatchery owner could use coal in fish carrying pots to prevent mortality during short or long-distance transport. Using mustard oil to eliminate bubbles from a fish carrying pot.

**b. Innovation in SIS Promotion:** The project's primary objective was to promote high valued SIS production in homestead ponds by the following interventions:

- To increase farmers' interest in SIS, the nutritional and financial benefits of SIS cultivation in ponds were explained throughout each aquaculture training session.
- Provided Mola Brood to 10% of the homestead pond. Additionally, 16 Mola Brood institutions were established in eight implementing upazilas so that farmers have affordable access to Mola brood.
- Cooking of Mola fish with a nutritional focus was demonstrated to the people of all ages.

**c. Sustainable connection between homestead pond farmers and LSP:** Small-scale aquaculture may have been fostered by creating a business-focused connection between LSP and homestead pond producers. LSPs were purposefully chosen and involved in the project from the start. Directly aided LSPs in the process of selecting homestead pond farmers in their region and giving them the chance to organize and facilitate each farmer's training. The initiatives aid LSP in comprehending the scope of the collaboration with homestead pond farmers and developing a business plan. LSPs were provided with opportunities to explore more about their services, while homestead pond farmers were informed about high-quality aquaculture inputs and promised regular technical support.

### 4.4. Impact and Sustainability of the Intervention

**a.** The project's seven-month-long activities had significant effects. Forward and reverse market linkages with pond producers are essential for aquaculture's profitability and sustainable development. In its implemented areas, the initiative selected and trained 121 LSPs and 6,000 homestead pond owners. The engagement of LSPs with homestead pond producers would be investigated in terms of LSPs' business opportunities. In a brief period of time, a remarkable number of trained farmers repaired their pond dikes, erected fencing around the pond, used lime, implemented initiatives for the pond's natural food production, promoted SIS, and stocked their ponds with large-sized fish fingerlings in proportion to the pond's size as per training instructions. Incorporating young people and women into small-scale aquaculture accelerated project goals. On the other hand, LSP access to the homestead ponds were improved. Apparently, the demand for fingerlings and other aquaculture inputs increased. Nursery and Mobile fish traders LSP increased their sales by 20 to 30% Nutritional messages and cooking demonstrations assist individuals in transforming unfavorable opinions into positive ones. SIS are now emphasized in both fish culture and the regular diet.

**b.** The objective of the initiative was to establish a link between LSP and homestead pond farmers. Better fish production from a farm pond could cultivate a relationship of trust between producers and market participants, resulting in mutually beneficial outcomes. The following initiatives were implemented to ensure the project's viability.

- **The COAST Micro-finance team acts as a catalytic agent on the local level:** The COAST Foundation has effectively executed development initiatives supported by donors, in addition to providing micro-credit services to marginalized individuals on regular basis. Approximately 1.6 Lacs individuals residing in the coastal area get benefits from the COAST Foundation via its provision of micro-credit services. A proficient staff specializing in micro-credit at the field level is being overseen by prudent management at the top level, with the objective of efficiently carrying out credit operations. The project held two coordination meetings with microfinance officials in the districts of Bhola and Barishal in order to communicate the project's goals and gain support for identifying appropriate homestead pond producers. A complete inventory of trained homestead pond farmers, including address, pond size, the current status of fish culture, and information

on the relevant LSPs and DoF officials will be provided to the local office branch manager of COAST. The Manager will provide direction to subordinates. The field personnel acted as a conduit between the farmer and the LSP and processed the loan for fish culture as necessary.

- **Shared "Mola brood bank" facilities with stakeholders:** By establishing 16 brood banks for Mola (*Amblypharyngodon mola*) in 8 upazilas, the initiative focuses on enhancing the biodiversity of small indigenous species, particularly Mola. Disseminated the address and services of the Mola brood banks to key homestead farmers, LSPs, the relevant DoF office, and COAST Foundation local micro-finance office.
- **Information exchanged between LSP and Lead Farmers:** Shared an exhaustive compilation of lead farmers and LSPs exchanged each other. The task of reaching all 6000 trained homestead pond farmers is challenging due to their substantial number. Lead farmers in the local community will disseminate information to the general farmers.
- **Shared project outcomes with DoF:** As a primary stakeholder, the respective Upazila DoF Office received an index of union based-trained homestead farmers from the project, including their comprehensive addresses, pond sizes, cultured species, along with the LSPs and their types of services they provide. In addition, a concise report on the project's activities and imminent outcomes will be provided. The information will assist DoF officials in recommending future opportunities for beneficiaries.

## 4.5. Recommendations / Future Directions

- The project offered 3 hours of one-time, intensive training on improved aquaculture and nutrition to the eligible homestead pond producers. Based on the available data, it may be inferred that a relatively small proportion of trainees, ranging from 3 to 5%, have undergone comparable training in the past. Based on subsequent observations, a reduced proportion of learners demonstrated the ability to recall the essential instructions provided during the training session. It is recommended that a comprehensive and periodic training program be implemented for all trainees in the future, encompassing both foundational and refresher components. The duration between two training sessions may range from one to two months. The trainings will be received by the same individual in order to enhance their comprehension.
- Various anthropogenic activities and environmental conditions have been identified as contributing to the decrease in the population of SIS, particularly Mola, in ponds. The project successfully established a total of 16 Mola brood banks, distributing them equitably throughout 8 implemented upazilas. In addition, it should be noted that a total of 60 homestead ponds were stocked with Mola brood, with each pond receiving a stocking density of 1 kg. Notwithstanding the implemented activities, there is an unfulfilled need for Mola seed among owners of domestic ponds. Transporting Mola over large distances poses significant challenges due to its susceptibility. Many owners of mola brood banks lack access to the necessary facilities for transporting mola broods. It is recommended that, Mola brood bank or Mola demo pond should be established, either at the village level or within a trainee group. Each brood bank owner will be provided with a tiny signboard and inputs like as Mola seed, feed, and AMP, all within a budget of BDT 5000.
- A total of 6000 homestead pond farmers were provided with improved aquaculture and nutrition training, while cooking demonstrations were attended by around 850 individuals over 6 events held in 6 upazilas. The event's significance and acceptance among the participants were notable. The presence of a substantial number of attendees at these events is impeding the achievement of the intended goals. While it is true

that all 6000 members were provided with nutritional knowledge, there is a need for a practical demonstration of healthful cooking methods for all members. It is recommended to arrange cooking demonstrations in conjunction with aquaculture training sessions, preferably in small groups, at the farmer's location.

- Improved aquaculture training was provided to 121 LSP, who worked to complete project goals in the following six categories: Feed & AMP Seller, Hatchery Owner, Fish Nursery Owner, Commercial Aquaculturists, Patilwala, and LEAF, where fish markets related LSPs were lacking. There is a need to augment the quantity of LSP, while also transitioning towards a union-based framework. Minimize the redundancy of similar LSP within a union. A set of selection criteria for LSP may be established and furnished alongside Project DIP.
- Only 10% of the project's members received support for fingerlings on an equal quantity basis. The issue of support allocation has resulted in conflict arising in a specific area, where a minority has received support while a majority has been deprived of fingerlings support. In the future, it is recommended that the project be strategically designed to provide support to a minimum of 40-50% of beneficiaries, ensuring equitable distribution. It is recommended that a village or group-based model pond be built, with a focus on enhancing the allocated budget for this purpose. It is necessary to establish a set of criteria for the selection of model ponds in a village or group.

## 5. Project Budget and Financial Management

The total budget of the project was BDT 8,451,228, which is comparable to USD 82,154. Approximately 42.69% of the overall budget was dedicated towards program-related expenses, while the remaining 57.31% was designated for general costs such as employee salaries, local travel, logistics, and operational expenses. The implementation of planned activities accounted for a substantial share, 92 %, of the total programmatic expenditure. In addition, it is noteworthy that the burn rate of general costs shown a similarity of approximately 88% when compared to program costs.

| # | Approved Budget Line Items (as per MoU) | Total Budget (BDT) | FtF BANA Contribution | COAST Contribution | Burn rate (%) |
|---|---|---|---|---|---|
| **General Cost** | | | | | |
| 1 | Personal Cost (staff salary) | **3625028** | **100** | **0.0** | **98** |
| 2 | Equipment's, Supplies and Operational cost | **548100** | **100** | **0.0** | **96** |
| 3 | Travel | **670300** | **100** | **0.0** | **56** |
| **Program Cost** | | | | | |
| 5.1 | Project orientation meeting & workshop | **9800** | **100** | **0.0** | **101** |
| 5.2 | Training/capacity development of Project Staffs | **9800** | **100** | **0.0** | **84** |
| 5.3 | Coordination meeting with micro-credit team | **56000** | **100** | **0.0** | **100** |
| 5.4 | ToT on improve aquaculture for LSP | **178800** | **100** | **0.0** | **93** |
| 5.5 | Training on improve aquaculture & nutrition for farmers | **1546000** | **100** | **0.0** | **98** |
| 5.6.1 | Fingerling supports to selected farmers | **300000** | **100** | **0.0** | **90** |
| 5.6.2 | Summer vegetables seeds supports to all farmers | **600000** | **100** | **0.0** | **98** |

| | | | | | |
|---|---|---|---|---|---|
| 5.6.3 | Signboard installation at pond site | **240000** | **100** | **0.0** | **39** |
| 5.7 | Establish Mola brood bank | **112000** | **100** | **0.0** | **96** |
| 5.8.1 | IEC materials-Leaflet distribution to members | **120000** | **100** | **0.0** | **90** |
| 5.8.2 | IEC materials-Festoon for farmer's & LSP training | **18000** | **100** | **0.0** | **101** |
| 5.8.3 | Awareness building events | **60000** | **100** | **0.0** | **97** |
| 5.9 | Cooking demonstration at community level | **150000** | **100** | **0.0** | **93** |
| 5.10 | Day observation-NFW-23, IWD & YD | **72000** | **100** | **0.0** | **56** |
| 5.12 | Quarterly project meeting | **16600** | **100** | **0.0** | **86** |
| 5.13 | Learning & sharing meeting | **118800** | **100** | **0.0** | **94** |

The allocation of funds for signboards displayed a significant divergence of 39%. The COAST Foundation has implemented distinct procurement committees. The signboard price quotations exhibited a broader spectrum of price fluctuations. Based on the established policy, the contract was granted to the bidder with the lowest offer, leading to a deviation in the depletion rate of the signboard budget from the originally projected budget. As a result, there was a variation in the depletion rate of the signboard budget compared to the initially predicted budget. The COAST Foundation possesses a substantial quantity of local offices that are furnished with dine and lodging amenities. The implemented project sites were predominantly located in close proximity to the office. Under these conditions, the percent of travel budget burned only 54%.

# 6. Annexure

## 6.1. Annex 2: Case Story-1

**Lilima Rani Majhi; A portrait of an enthusiastic LSP**

Lilima Rani Majhi, a 37-year-old female individual residing in Gupta Munshi village within the Ilisha union of Bhola Sadar Upazila, located in the Bhola district, is actively involved in the domain of aquaculture as a local service provider (LSP). Between the years 2017 and 2022, the individual in question occupied the role of the LEAF as part of the national agricultural technology program phase-II under the purview of the Department of Fisheries. Through her employment as a LEAF, Lilima Rani Majhi became well-known in her local community. She was equipped with a water quality equipment to provide technical assistance to pond producers. Acceptance of working women was exceedingly challenging in the local context. She overcame all obstacles through her skill and commitment to her profession. Upazila DoF officials favored her for the position of LSP under the promotion of small-scale aquaculture and high-value SIS species in Ilisha union based on her past performance. Lilima Rani Majhi received a hands-on training on enhanced aquaculture that emphasized low cost and environmental consideration. Lilima Rani Majhi helped organize 11 batches of enhanced aquaculture training for homestead ponds. Her improvised facilitation gave the

participants the confidence to pursue pond aquaculture. For the development of small-scale aquaculture, the most important prerequisites are high-quality inputs, technical knowledge, and frequent communication. LSPs are always able to expand their aqua business with homestead pond producers by providing quality inputs and technical support as embedded services. Lilima Rani Majhi resided in a location where an extraordinary number of homestead pond existed. The ponds were typically utilized for domestic purposes, where fish cultivation was not a top priority. Frequent communication between homestead pond producers and LSP could have improved their aquaculture knowledge, attitude, and skills. Locally, aquaculture technical assistance consultation fees are not as developed, making it difficult to earn a living solely through technical support. Using the project's recommendations, Lilima Rani Majhi transformed her homestead pond into a nursery for Indian major carps. She compiled a list of quality inputs, including supplementary feed, ingredients for homemade feed, and aquatic medicines. In her capacity as an intermediary between the feed & aqua medicine dealer, she persuaded homestead pond owners to provide quality input and verbally agreed to a commission from the feed dealer. Lilima Rani Majhi's household consists of six members, and her spouse is the only source of income. She hoped that her two children would receive a prestigious education and secure careers in the future. Only with additional income could her dream come true. I have always hoped to contribute financially to my family, and the COAST Foundation's Aquaculture project afforded me the opportunity to do something. There are a large number of homestead ponds in my neighborhood, and the proprietors of these ponds are typically underprivileged by government and non-government development initiatives. I genuinely chose homestead pond owners for enhanced aquaculture instruction. Women in the households were encouraged by me to participate in the trainings and did so. Approximately 220 members received training through my initiative. I believe I am now technically competent in aquaculture, and a surprising number of pond owners are motivated to raise fish in their homestead ponds for family nutrition and income. Currently, I am operating a nursery pond for Indian major carps; if successful, I plan to increase the number of my nursery ponds. I will continue to provide technical assistance to homestead owners, as their success in aquaculture has benefited me and allowed me to realize my goal.

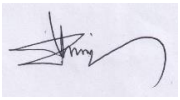
## 6.2. Annex 3: Case Story-2

**Mr. Abu Bakkar Siddique, A shifting perspective on aquaculture.**

Mr. Abu Bakkar Siddique is a resident of Madhobkhali village, which is located in the Madhobkhali commune of the Mirzaganj upazila in the Patuakhali district. Crop farming and vegetable cultivation are his family's primary sources of income. Abu Bakkar Siddique is a 32-year-old, class VIII-educated individual who inherited a pond containing

approximately 22 decimals in 2020. Typically, the ponds serve domestic purposes. In the past three years, he has stocked a diversity of fish, including carps, tilapia, and pangas, without regard to pond size and niche. Unspecified number of wild fish increased his stock during the rainy season. He only incurred expenses for fish fry. His pond is a permanent in nature. He harvested a portion of the fish for family consumption. Small and few fish are captured in his cast net, which is inadequate for his family's needs. Abu Bakkar Siddique was invited to improved aquaculture training during the selection of homestead pond producers by respective LSP. The facilitator was aware of his curiosity and attentiveness throughout the training. He personally communicates with the UAO and exchanges mobile phone numbers. Abu Bakkar Siddique requested that UAO return to his pond. Excessive stocking density, the presence of predatory fishes, the pond's shady, unfavorable watercolor, and the presence of ammonia gases at the bottom were identified as the pond's main issues. First, he repaired his pond's dyke, removed unwanted shrubs and tree branches from the dyke, and used rotenone and frequent netting to eliminate all previously stocked predatory fish. After applying lime, training was provided for natural food enhancer. From the endeavor, he obtained fish fingerlings. In addition, he stocked large-sized carp fingerlings from LSP-Patilwala. I rarely thought about my homestead pond, and it never occurred to me that aquaculture would be profitable. I had no experience with fish farming. Like other residents of my homestead pond, I attended training for free input supports. The training taught me something previously unheard of. I purchased fingerlings from unknown mobile fish vendors, never caring about the quantity or size, and discovered dead fingerlings immediately after stocking and the following morning. I was pleased with the fish I harvested from my pond, but I neglected to recognize the pond's potential. I have limited sources of income, and fish require supplementary feed for fast growth, so the expense of supplementary feed is enormous for me. I rely solely on natural foods. The nutritional value of Mola fish intrigued me enough to stock my reservoir with them. Using my own cast net, I sampled the stocked fish, and the results within a brief time period inspired me. On the pond dyke, I installed the signboard with pride and sowed the provided vegetable seeds. The training enhanced my understanding of aquaculture. As the cost of daily necessities climbed, I aimed to satisfy my family's demand for fish and hoped to generate income from my pond in the near future.

Prepared by



Md. Jahirul Islam

Project Coordinator