

Project Completion Report
on
Promotion of Aquaculture and Nutrition Sensitive Interventions (PANSI)



Submitted to



Bangladesh Aquaculture and Nutrition Activities (BANA)
World Fish, House 2/B, Road, Banani, Dhaka, Bangladesh

Submitted by

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Abbreviation

FDMN	Forcibly Displaced Myanmar Nationals
BANA	Bangladesh Aquaculture and Nutrition Activity
PANSI	Promotion of Aquaculture and Nutrition Sensitive Intervention
DP	Director Program
NAC	Nutrition and Aquaculture Coordinator
UNAO	Upazila Nutrition and Aquaculture Officer
FAO	Finance and Admin Officer
UNF	Union Nutrition Facilitator
MEL	Monitoring, Evaluation and Learning
DCOP	Deputy Chief of Party
ZOR	Zone of Resilience
TOT	Training of Trainers
DOF	Department of Fisheries
OSP	Orange Sweet Potato
NGO	Non Government Organixation
UNO	Upazila Nirbahi Officer
INGO	International Non Government Organization
OC	Officer in-Charge of Police

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Executive Summary

The semi-intensive carp-mola polyculture, vegetable cultivation on dyke and homestead, Kuchia farming, model mini nursery and mola gill net business entrepreneurs systems have been introduced in three Upazilas i.e., Ukhiya, Ramu and Chakaria under Cox's Bazar district "the zone of resilience" through the "Promotion of Aquaculture and Nutrition Sensitive Interventions (PANSI)" project implemented from 15th May, 2019 to 14th July, 2020 under Bangladesh Aquaculture and Nutrition Activity (BANA) program funded by USAID and WorldFish with a budget of 226,913 USD. A total of 2083 beneficiaries have been selected from these communities and provided with the aquaculture and nutrition sensitive supports. The interventions in the project will lead the communities to adapt with the aquaculture production system and through this way, aquaculture production system will yield higher productivity at the household level. The higher productivity ultimately impacted on the nutrient status of the households positively through higher fish consumption and nutrient intake. Apart from this, the surplus of the fish can be supplied to the market that can be regarded as a value chain to the existing market. Thus, aquaculture market systems will be strengthened through community involvement. This community involvement will create a space for the women and youth to be empowered through actively participating in its components. Through the awareness programs in the community, behavior of the community people especially women and youth has been changed positively towards nutrition-related habits along with the habits on sanitation and hygiene. An average pond size was 12 decimal while 90% of the farmers had ponds of single ownership and 10% of them had ponds of multiple-ownership. Among the total beneficiaries, 70% were female. Cultivation of Indian major carps, exotic carp and tilapia has been practiced through mixed culture with nutrient rich mola and vegetables and orange sweet potato in the pond dyke and in the home stead. 90% of the selected ponds were perennial. Fish fingerlings were stocked from August to September, 2019 and the average stocking density was 60 /decimal. The annual fish production was 4000 kg/ha. Fish production cost in mixed culture was Tk.123, 500 / ha, of which 50% was spent for fingerlings, 40% for arranging supplementary fish feed and 20% for pond preparation. The gross income and net income in mixed culture were Tk.450/ha and 775/ha respectively. Women were mostly involved in cleaning the pond, application of lime, fertilizers and supplementary feed. But none of them were involved in purchasing & selling activities (such as lime, inorganic fertilizer, fingerlings, supplementary feed purchase and harvesting & selling of fishes).

The constraints for sustainable fish farming in the project areas were lack of technical knowledge of the farmers, insufficient water in dry season, higher production cost (mainly fingerlings and feed), insufficient supply of fry and fingerlings, lack of money and credit facilities and inadequate extension services. Moreover, the working three upazilas i.e., Ukhiya, Ramu and Chakaria are a region of exploitation due to the heavy load of Rohingya people who came from Myarmer due to the ethnic cleansing operation by the military force of Myanmar since August 2017. This influx has occupied

resources of the local people and created a pressure in the local market which limits the availability of daily necessary food and nutrition for the local people. This circumstance increases the price of fish in the local market and many local people cannot afford fish from local market at increased price.

Poor households which have been suffering from the financial and nutritional dearth due to the sudden pressure created by the settlement of Forcibly Displaced Myanmar Nationals (FDMNs) in Ukhiya, Ramu and Chakaria sub-districts of Cox's Bazar district, the project has been set to provide livelihood and nutrition support through capacity building and awareness raising interventions among the people of the households. The households have been provided with training on aquaculture especially mola-carp polyculture with tilapia and on dyke cropping practices through which they can fulfill their needs of fish and vegetables. The project also provides training and input supports to the beneficiaries for comprehensive homestead development. Besides, the project has developed the entrepreneurs through forming model mini nurseries and through facilitating training on mola gill net business entrepreneurs. The project has also been increasing awareness of the beneficiaries on basic nutrition, hygiene, gender etc. through arranging different awareness programs and installed tippy tap handwashing station in the households to encourage them to maintain hygiene practices. Women especially pregnant and lactating mother, youth and adolescents were the primary target of the project to incorporate into the nutrition sensitive interventions.

The project also developed kuchia farms with the interested beneficiaries. Kuchia is a promising medicinal fish all over the world. There is a local market and wide export market over there in Cox's Bazar district. Training and input supports have been provided to the selected beneficiaries' household for Kuchia farming. Freshwater mud eel, locally known as kuchia, has been taken up culture as it is nutritionally rich and medicinally valuable fish with high export demands, which can play a unique role for socio-economic welfare of this area. Vermicomposts production has also been established over there as it can be used as fertilizer for dyke cropping and homestead gardening as well as feed for kuchia. Total 19 kuchia farming and 19 Vermicompost units have been well established in the project locations.

Total 2000 selected farmers on carp-mola poly-culture with tilapia and dike cropping have received a total of 8 training sessions (mola-carp polyculture-3, homestead gardening and dyke cropping-1, basic nutrition and gender-3, Hygiene-1) of 2.5 hours. They also received some input supports from the project. Furthermore, the project had other 83 beneficiaries among which 19 beneficiaries were on model mini fish nursery, 19 beneficiaries were on kuchia farming and 45 beneficiaries were on mola gill net business. They have received skill development training and input support to develop their enterprises. All the beneficiaries have been provided with technical support on developing their enterprises through door to door household visits by the project staffs. Special care for the beneficiaries have been given as 70% of the total beneficiaries were female under the project. The households have broadly improved their food consumption, increased protein intake from fish, their

standard of living is gradually increasing by selling fish, and also increased choice level and financial status through fish farming.

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1.0 Project Background

Demand for natural fish in the local market has been increasing with the growing population in Bangladesh as it is one of the most important sources of protein in our country. Due to the increased population, more areas have been being occupied by the construction of houses and other uses which have been shrinking areas for fish cultivation. It is one of the major challenges currently in the cultivation of adequate fish against the demand. Moreover, Ukhiya, Chakaria and Ramu Upazila have become a region of exploitation recently due to the heavy load of rohingya people who came from Myanmar due to the ethnic cleansing operated by the military force of Myanmar since August 2017. This influx has occupied resources of the local people and created a pressure in the local market which limits the availability of daily necessary food and nutritious products for the local people. This circumstance increases price of fish in the local market and many local people could not afford fish from local market at increased price.

Situation of fish cultivation in the Ukhiya, Chakaria and Ramu Upazila can be presented from a recently conducted survey in these Upazila on the prevalence of fish cultivation. The survey showed that 52 among 63 surveyed participants in Ukhiya, 341 among 352 participants in Chakaria and 50 among 59 surveyed participants in Ramu have involvement with fish cultivation that indicates a high interest of the community people towards fish cultivation. All the participants have showed their interest to adopt the fish cultivation in their pond where most of them have single ownership of the ponds. So, this scenario has pictured a positive background for the promotion of aquaculture in these Upazila.

1.1 Rational of the intervention/model/business idea what will potentially fit the need of constraints

To meet up the demand of situation, modern and innovative approaches should be introduced in the local market system and context so that a limited resource can produce a significant output and make the market more affordable for the people of all classes. An efficient approach in this regard might be the use of local ponds with scientific fish production to produce maximum amount of fish. Households will be able to afford their fish demand from these ponds and supply the surplus fishes into the local market. This increased supply of fish in the local market will create an abundance of fish that can reduce the price of fish at an affordable value for poor people. Supply of Quality fish feeds that are free of harmful and toxic substances can be ensured through connecting the farmers with local quality fish feed supplier and introducing them with the fish feed production technique at the household level. This practice will reduce health risk among the fish consumer. The inclusion of harmful and toxic substances in the fish feed can be controlled through the launching of natural fish feed mechanism at the household level. At the same time, use of toxic chemical-free fish feed would reduce health risk among the consumers. The supply of fresh fish from the pond would prevent the

chances of preservation with formalin or other toxic chemical substances. These fish production and nutrition sensitive cropping practices will help the households to meet nutrition requirement of the potentially vulnerable members such as children, adolescents, pregnant and lactating women. Direct supply of fish from the ponds to the local market will prevent the involvement of local syndicate and ensure full profit for the households. The situation raised due to the influx of rohingya population can be mollified through the household level fish production mechanism that can make the households self-sufficient to afford their fish requirement. People specially women, youth and adolescent with household level fish cultivation thus can create a mean of income and be self-reliant to some extent.

1.2 Project objectives (specific)

Goal & Objective of the project:

The goal of the proposed project is to promoting aquaculture activities in Cox's Bazar district that reflecting in household level aquaculture growth and increased safe fish consumption that complementing to fill up the nutritional gap for poor.

The objectives of the project are to:

- To extend inclusive aquaculture technologies over geographically and socially challenged and financially insolvent rural areas of the country.
- To enhance availability of fresh water fish among the rural people and fulfill nutrition gap of the poor people.
- To create an opportunity for the rural people especially women, youth and adolescent to raise their income and promote livelihood with better sanitation practices.

1.3 Geographical coverage (a graph would be great)

The project has been implemented in all the 15 unions of Ukhiya, Chakaria and Ramu Upazila of Cox's Bazar district. 5 unions of Ukhiya, 5 unions of Chakaria and 5 unions of Ramu with 2083 direct beneficiaries.

1.4 Key matrices achieved



- **Carp-mola poly-culture:**

Total 2083 households have been introduced with carp-mola polyculture in the targeted Ukhiya, Ramu and Chakaria upazilas under Cox's Bazar district through skill development training on aquaculture practices and input supports. Almost all the households have been practicing mola-carp polyculture in their ponds and fulfilling household fish requirement from their own arrangement.

Average mola-carp production has increased by 6 kg/decimal which is now 16 kg/decimal. The households are consuming 80% of their produced fish and 60% of their produced vegetables that has been increasing their nutritional status.

- **Model mini nursery establishment:**

19 model mini nurseries have been established within ponds of total area of 389 decimals through technical training and cost sharing basis input support. In the mini nurseries, 6,439 kgs of fingerling at a size of 10-12 pcs/kg have been produced during the project period. These fingerlings have been sold within the project beneficiaries at reasonable price through which culture beneficiaries and nurseries both have benefitted.

- **Kuchia farming:**

19 kuchia cultures have been developed in the targeted upazilas through technical training and cost sharing basis input support to the selected beneficiaries. As a result of intensive nurturing, most of the kuchia has breed in the ditches of the farmers. Farmers have been producing vermicompost in their households and they have been using such vermicompost to cultivate vegetables and in the kuchia culture. Average weight of the kuchia has been 500g/pc and the farmers are selling the produced kuchia in local market at 250 BDT/kg

- **Publications:**

Within the project period, three publications have been published and printed on issues of aquaculture practices such as leaflet on Family Nutrition with carp-mola polyculture and orange sweet potato cultivation, folder on Kuchia farming and fish nursery guide book of 5000, 2500 and 2500 copies respectively. Publications have been distributed among DOF offices, WorldFish office, local fish farmers and project beneficiaries.



Three publications

- **Mola gill net business entrepreneurs:**

45 female entrepreneurs on mola gill net business have been developed in the project upazilas through technical training and input support. Beneficiaries generally use such net for harvesting fish and to sell in the local market. As a new intervention, it has created positive impact on the livelihoods of the selected beneficiaries.

- **Courtyard Session:**

To aware people on the issues of maintaining balanced nutrition with the limited resources, 81 courtyard sessions have been arranged in the community involving the genral people. Issues of nutrition for the special members of the household such as children, pregnant women and lactating mother has been emphasized in this sessions along with the maintenance of such requirement within limited resources.

- **Handwashing sessions and stations for family hygiene:**

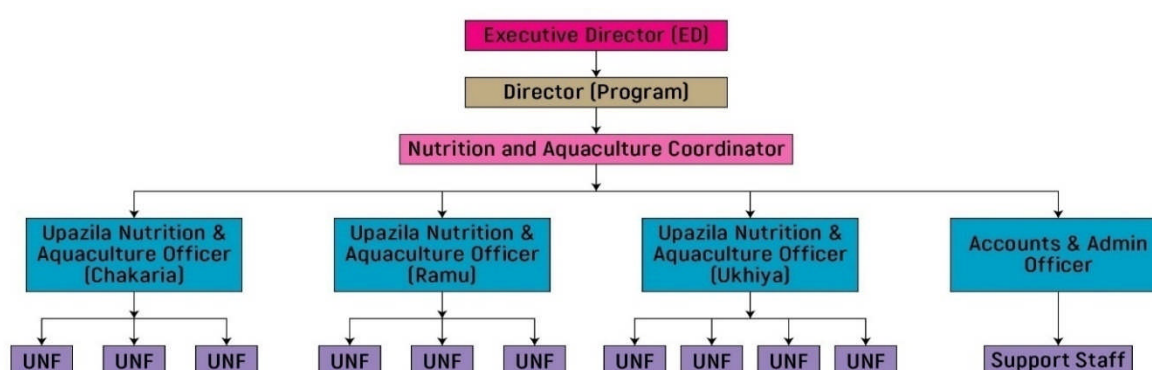
81 hand washing sessions have been facilitated by the union nutrition facilitators in the project period. Participants have been taught on the importance of handwashing along with the process of effectively washing hands practically in the sessions. They have also been taught on preparing tippy tap handwashing station in the household with easily available resources with distributing handwashing soap and bottle

- A bit about the subgrantee (their core business, company strength)

Prottiyashi as a woman-led social development organization, has been working for the development of disadvantaged people of the society since its establishment in 1983 in several development sectors like education, livelihood, youth development, women empowerment, financial inclusion, nutrition, health, sanitation, renewable energy, agriculture, aquaculture etc. through the funding and partnership with national and international development pioneers. Currently the organization has its operation in 7 districts of Chattogram division such as Chattogram, Cox's Bazar, Feni, Cumilla, Noakhali, Chandpur and Lakshmipur with 108 local level offices and more than 1500 staffs. The organization has current portfolio of more than 3913.5 million BDT with fixed asset of 152.6 BDT. Budget for the current year (2020-2021) is 8662.3 million BDT while income of the organization in the 2019-2020 was 772.1 million BDT and expenditure for that year was 563.5 BDT. Current asset of the organization is of 269.1 million BDT and Equity of the organization is 1487.3 million BDT. Prottiyashi has long-term presence in the targeted project locations and has good rapport with the different stakeholders including community people of these areas and for which the organization has planned to implement the interventions in the targeted locations.

- Field implementation team

The organogram of the field implementation team for the project was as follows:



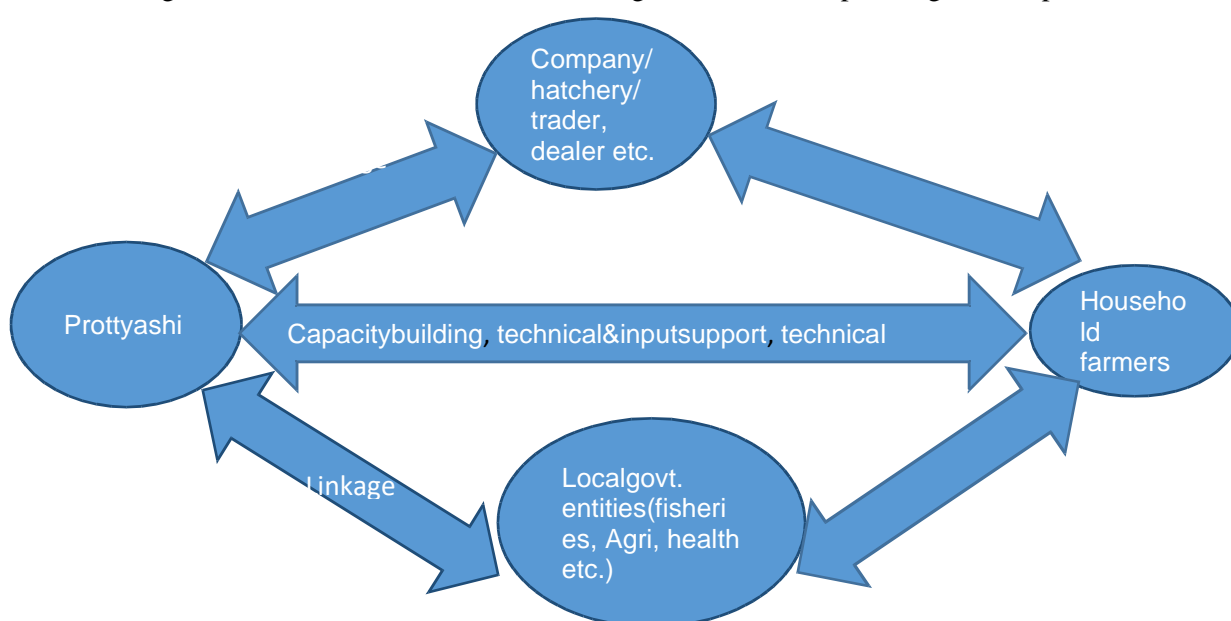
1.5 Brief budget summary

SL No	Position of Project Staffs	Total Cost in BDT	FtF BANA Contribution in BDT	Grantee Contribution in BDT
1	Direct Labor (Personnel)	8896171	7882073	1014098
2	Supplies, Equipment's/Assets and Operating Expenses	1292160	1292160	0
3	Travel and Perdiem	272965	272965	0
4	Others Direct Cost (Rent, Communication)	591376	281273	310103
5	Activity/Program Costs-Services, Training, Workshops, products etc.	7617763	7593763	24000
	Grand Total	18670435	17322234	1348201

2.0 Project Implementation

2.1 A brief about the pictorial business model/activity model/ intervention model and its description

The proposed interventions created relationship among different value chain actors in the local market system through transactional activities and respective dependencies. Relationship was developed among farmers and the entrepreneurs on mini nurseries and fish feed manufacturing companies, feed traders within the project through trading of fish seed and fish feed that was regarded as promotion of value chain in the market. Besides, involvement of dealer/retailer of the vegetable seeds through training sessions created linkages among them with beneficiaries and the beneficiaries were able to buy quality seeds from them after the project period. Farmers have been selling their fish in the local market through retailers/arotdars which created a long-term relationship among local depots.



Prottiyashi established linkage with companies/hatchery, traders, dealers, govt. entities etc. through meeting, workshops etc. to widen service availability for household fish farmers. Household fish farmers did seek and get technical and input support from the local level govt. and private service providers and provided feedbacks as appropriate which helped the service providers to improve the quality of their service. Prottiyashi also provided technical training and input support to household fish farmers on aquaculture, nutrition, gender etc. through a social behavior change communication approach. Thus, a relationship among Prottiyashi, govt. entities, service providers and household level fish farmers has been established.

2.2 Approved Gantt chart for the intervention

#	CATEGORY	May' 19	Jun '19	Jul' 19	Aug '19	Sep' 19	Oct '19	Nov' 19	Dec' 19	Jan '20	Feb '20	Mar' 20	Apr '20	May' 20	Jun '20
	Activity/ Program costs- services, training, workshops, products etc														
5.1	Staff recruitment and office set up														
5.2	Project Orientation, Meeting and Workshop														
5.3	Quarterly all staff meeting at PIU level														
5.4	Monthly cluster meeting at Upazila level														
5.5	Project inception meeting (Upazila level)														
5.6	Farmers/ entrepreneurs selection,														

#	CATEGORY	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20
	Community profiling and database														
	Training/ Capacity development														
5.7	TOT on Capacity development of project staff (Aquaculture and nutrition including nursery formation and Kuchia farming-5 days)														
5.8	TOT on capacity development for project staff on leadership development, life skill, entrepreneurship development and gender-3 days)														
5.9	Capacity development training for staff in Dhaka														
5.9.1	Travel, per diem, food, transport and accommodation for attending training on MEL at Dhaka														
5.9.2	Travel, per diem, food, transport and accommodation for attending training on Environmental issue at Dhaka														
5.9.3	Travel, per diem, food, transport and accommodation for attending training on Grants Orientation at Dhaka														
5.9.4	Travel, per diem,														

#	CATEGORY	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20
	food, transport and accommodation for attending training on Gender and Development at Dhaka														
	Information dissemination and awareness building														
5.11	Information, education and communication materials														
5.12	Information dissemination and awareness building through signboards and display boards														
	Capacity development of fish farmer														
5.13	Training of farmer on poly-culture (mola-carp, vegetables), basic nutrition and gender														
5.14	Capacity building training on kuchia farming for farmers.														
5.15	Capacity building training on model mini nursery														
5.16	Training support for mola gill-net business entrepreneurs 45 entrepreneurs (2 from each union of Ukhia and Ramu, 1 from each of 17 unions of Chakaria Upazila) (Day long) with 1 UNF/UNAO														
	Social behavior														

#	CATEGORY	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20
	change communication (SBCC) Program														
5.17	Hand washing station and awareness campaign														
5.18	Courtyard meeting with local people (specially pregnant and lactating mother) for community awareness on nutrition														
5.19	School sessions for adolescent/children e.g. Debate, quiz etc. (20 sessions, 2 session per UNF)														
5.19.4	Budget for special program /event (extra support for 6 of the existing 20 programs targeting international women's day/ national nutrition week/ hand washing day/National fish week etc.)														
5.21	Meeting with Department of Fisheries, Agriculture, Health, Women affairs officer for networking opportunities and advisory services														
5.22	Day observation 5 days (National nutrition week, National Fish week, Global														

#	CATEGORY	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20
	Hand washing week, International Women's Day and Environment day)														
5.23	Farmers Field Day (FFD) observation /Nursery and Kuchia farm Demo Visit														
5.24	Women, girls and youth focused special training														
5.25	Cost sharing Basis Input Support for demonstration														
5.25.1	Fish Seed (300 carp/tilapia/both fingerling x 3 BDT) + Mola (1 kg per household)														
5.25.2	Vegetables seed (1 lemon seedling, Orange Sweet potato, other vegetables seeds)														
5.25.3	Input support of gill-net business entrepreneurs, 45 entrepreneurs*20 00tk yarns. (2 from each union of Ukhia and Ramu, 1 from each of 17 unions of Chakaria Upazila)														
5.25.4	Establish demonstration model mini nurseries, 5 in Chakaria, 9 in Ramu and 5 in Ukhia Upazila) 5400 Tk@ 6 Hapa formation, 9000tk@seed, 5600@others=20														

#	CATEGORY	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20
	000tk/mini nursery														
5.25.5	Kuchia farming as demonstration plot in 3 Upazila (5 in Chakaria, 9 in Ramu, 5 in Ukhia) @ bamboo 1500tk, kuchia seed 6000tk, net 1000tk, vermicompost/feed 6000tk, tripal 500tk														
5.26	Reporting and monitoring, Program review and Study														
5.26.1	Monthly/Quarterly reporting														
5.26.2	Yearly/Project endline reporting														
5.26.3	MEL (training monitoring/data entry etc.)														
5.26.4	Supervision and internal coordination														
5.26.5	Midterm evaluation (Evaluation of the running activities under the project)														
5.26.6	Gender study (will be done by WorldFish BANA gender team)														
5.26.7	Case Study														
5.27	Miscellaneous														
5.27.1	Equipment purchase														
5.27.2	Office Sign Board														

2.3 List of activities conducted

- Staff recruitment
- Staff orientation
- Union selection

- Beneficiaries pre-selection meeting
- Project inception meeting
- Beneficiaries selection
- A 7 day-long staff TOT
- Group formation
- MIS training
- Farmers training
- Establishment of 2000 carp-mola poly-culture and vegetables on dyke and homestead.
- Input distribution
- Establishment of 19 model mini fish nursery
- Establishment of Kuchia Farming
- Installation of signboard and billboard.
- Establishment of 45 gila gill net business entrepreneurs
- Linkage meeting with government officials
- National and international day observation
- Courtyard meeting
- Hand wasing session
- School session
- TOT on leadership, lifeskill and Gender
- Field level training on leadership, lifeskill and Gender
- Publish three publications.

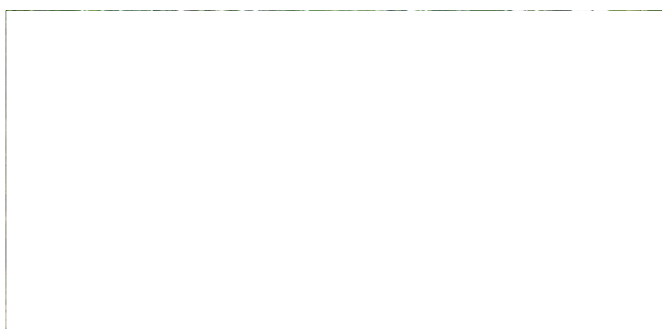
2.4 Activity wise implementation details with pictures (*small pictures alongside the right margin of the documents*)

- **Pre-Selection Meeting:**

Upazila Aquaculture and Nutrition Officers (UNAOs) and Union Nutrition Facilitators (UNFs) went door to door to introduce themselves and project as well and to invite the villagers and farmers' in pre-selection meeting. They have arranged farmers' pre-selection meeting in the community to brief the project activity among them and to identify the project target beneficiaries. Farmers' pre-selection forms were filled up in the meetings and the participants showed interest on the activities of the project. A total of 100 pre-selection were organized in different villages of three upazilas involving 2162 male and 1627 female.

- **Farmers' profiling through KOBO software:**

After the selection of ponds and the MEL training, data on selected ponds were put in the online data management system of WorldFish through KOBO software. Data of the ponds include the GPS location of the ponds, introduction of the households etc. which were recorded with respective



Door to Door Household data Collection

pictures. GPS locations of ponds with the addresses of the direct beneficiaries were put in the online data management system of WorldFish through KOBO software. UNAOs and UNFs visited every selected pond and talked with the owners of the ponds.

- **Group Formation:**

According to the forms filled up in the pre-selection meetings, UNFs and UNAOs visited the ponds to gather some In situ information and on the basis of the collected information, they have selected ponds/farmers for the aquaculture activities. After selecting ponds, groups were formed in the community considering the households situated within common village and ward. Each group was formed with 20 to 30 members highlighting the women in aquaculture including 70% female and 30% male members to support on nutrition sensitive aquaculture. 84 groups has been formed with 2083 direct beneficiaries as follows:-

Name of group	Male	Female	Total
Carp-mola poly-culture & vegetables on dyke and homestead	595	1405	2000
Kuchia farming	18	1	19
Model mini fish nursery	18	1	19
Mola gill net business entrepreneurs	0	45	45
Grand Total	631	1452	2083

- **Monthly Cluster Meeting:**

Monthly cluster meeting held on 1st week of every month with the participation of Nutrition and Aquaculture Coordinator (NAC), Finance and Admin Officer (FAO) and the team of the respective Upazila Nutrition and Aquaculture Officers and Union Nutrition facilitators. Prottiyashi Branch Managers (BMs) were also present in the meetings. Activities of the month were reviewed in the meeting and assessed with the predetermined work plan. Work plan for the next month used to be fixed in the meeting. Different challenges in the field were discussed in the meeting and the possible solutions were sorted through open discussion. 33 monthly cluster meetings have been arranged in three upazilas accordingly.



Monthly Cluster Meeting.

- **National Fish week Observation:**

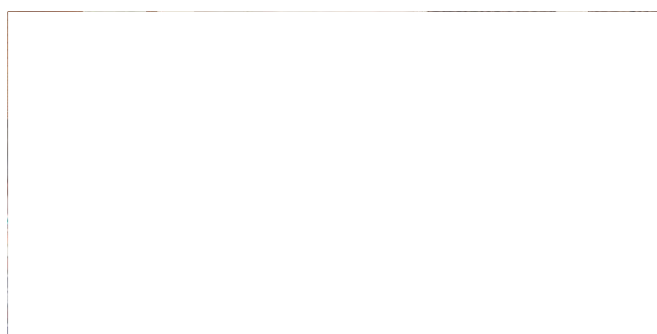
National Fish Week was celebrated in all the three upazila e.g Ukhiya, Ramu and Chakaria within 18th June 2019 to 23rd June 2019. The fish week was celebrated with the collaboration of local government. Personnel from Upazila parishad, upazila fisheries department and upazila agriculture extension department. Rallies were arranged on the fisheries week and the government officials presented their opinion in the seminar held in upazilas. Mobile court was missioned to take action against use of formalin in fish. Seminars

Discussion session on National Fish Week

were also held in the schools and local markets to aware children and people on the consumption of fish. The week was closed through arranging prize giving ceremony for the successful fishermen.

- **Quarterly all staff meeting**

Quarterly all staff meeting held in every three month interval with the participation of all the staffs of PANSI project, Director Program of Prottiyashi and WorldFish officials. The guests learned the activities done within this period and the challenges faced by the staffs of the PANSI project

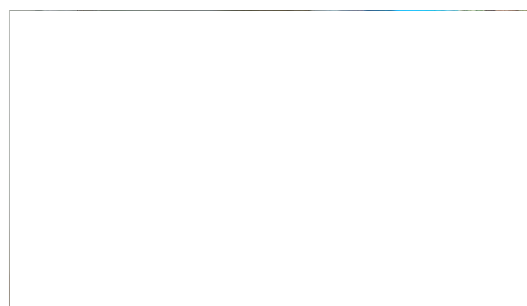


DCOP of WF in the Quarterly All Staffs Coordination Meeting

during the implementation of project activities. Some times DCOP and Team Leader of ZOR attended the meeting and appreciated the achievement done. Presentations from three units were presented highlighting activities done within the three months and activities to be implemented in next three months were discussed in the meeting. Four quarterly coordination meeting has been conducted during the project period.

- **Training on Management Information System (MEL):**

Monitoring, Evaluation and Learning (MEL) Training has been conducted within 30th July-1st August, 2019 which was facilitated by Mr Bappy Shahriar, Md Zakaria Alam and S.M Zakaria Shamsul from WorldFish Centre. The training was arranged to provide knowledge of farmers profiling and data management for the project staffs through using digital technologies. The training facilitators have conducted sessions on the process of collection of information from the field and managing such information through the online platforms.



MEL Training

- **Training for Training (TOT) for the project staffs:**

Capacity building TOT on aquaculture and nutrition and was held from 22nd August to 26th August at Cox's Bazar which was facilitated by the Nutrition and Aquaculture Coordinator (NAC) of PANSI project and the personnel from WorldFish. Zone of Resilience Coordinator, Aquaculture specialist and Nutrition specialist of WorldFish facilitated the training sessions. Main agendas of the training sessions were training facilitation, pond preparation with lime application, water suitability test, fingerling estimation per pond according to the size of pond, fingerling identification, fish feed application in pond, cost-income analysis, annual calendar of aquaculture, dike cropping, cultivation of orange sweat potato, kuchia culture, nursery **COP of BANA in the Training Session** management, food and nutrition management, nutrition management of adolescent girls, pregnant women and lactating mother, child nutrition management, tippy-tap hand wash tool making and its use etc. This training prepared the project staffs specially the union nutrition facilitators to conduct training at the village level. Chief of Party (COP) of WorldFish attended in a training session and expressed some way forward to improve the household nutrition and livelihood of the beneficiaries.

- **Project Inception Meeting:**

Three Project inception meeting at upazila level was held in Chakaria, Ramu and Ukhyia upazila with the presence of different stakeholders of that area such as Upazila Nirbahi Officer (UNO), Agriculture officer from Upazila Department of Agriculture Extension (DAE), Upazila Fisheries Officer and some the selected beneficiaries and other stakeholders. Mr. Emdad Hossain, Coordinator, Zone of Resilience of WorldFish and Aquaculture Specialist of WorldFish were also **Project Inception Meeting at Chakaria**

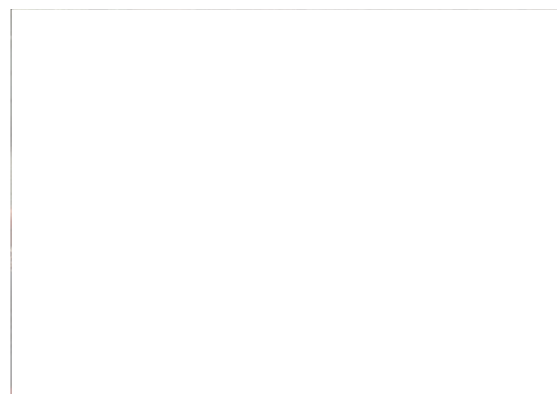
present in the meeting to share idea of the project to the guests. Nutrition and Aquaculture Coordinator (NAC) of PANSI project delivered a short presentation on the project interventions in the meeting. UNO of Chakaria and Ramu upazila has discussed about the potentiality of the promotion of aquaculture interventions to eradicate poverty from the upazila and they expressed their full support assurance to assist in implementing project activities. Officers from DOF and DAE have assured to provide technical support to the project implementation unit whenever necessary and wished for the successful implementation of the project. Area and Branch Managers of Cox's Bazar district and Chakaria, Ukhyia and Ramu upazila of Prottiyashi were also present in the meeting. Project beneficiaries expressed their gratitude to the USAID, WorldFish and Prottiyashi for arranging such support for them.

ZOR Coordinator in the Closing Session

Practical Session of the Training

- **Farmers' training on mola-carp poly-culture:**

Union Nutrition Facilitators (UNFs) have conducted training sessions among the selected group members of the carp-mola poly-culture beneficiaries on the issues of pre-stock management, Stocking Management, post-stock management and feeding and dyke cropping management in different Upazilas of Chakaria, Ukhiya and Ramu. Farmers at the community received the training sessions with high interest as this type of project is very new to



Farmers Training In Chakaria

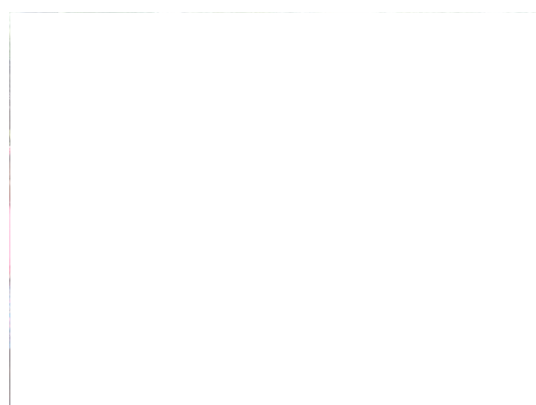
them. At most 70% of our selected group members were female as we encouraged women in aquaculture and prioritized lactating mother, pregnant women and adolescent girls for the training. The training sessions were participatory from both ends of facilitators and participants.

Number of beneficiaries participated in the Training session during the reporting period:

Sl. #	Number of training sessions	Participants (#) according to sex			Participants (#) according to age		
		Male	Female	Total	15-29=Y	30 and above=A	Total
01	648	4745	10272	15017	3203	11814	15017

- **Fingerling distribution:**

After the basic training on pond preparation and stocking management, fish fingerlings were distributed in different unions of Ukhiya, Chakaria and Ramu Upazila. Distributed fingerlings among the selected and trained beneficiaries were Rhui-50 pcs, Silver carp-100 pcs, Grass carp-4 pcs, cattle-2 pcs, mrigel-125 pcs and tilapia-100 pcs while Sizes of the fingerlings were 3-4 inches, 2.5-3 inches, 3-4 inches, 2.5-3 inches, 3-4 inches and 2 inches respectively. The fingerlings were transported with oxygenated poly-bag and Vendor himself reached the places of fingerling distribution and handed over the fingerling to the selected beneficiaries. UNFs,



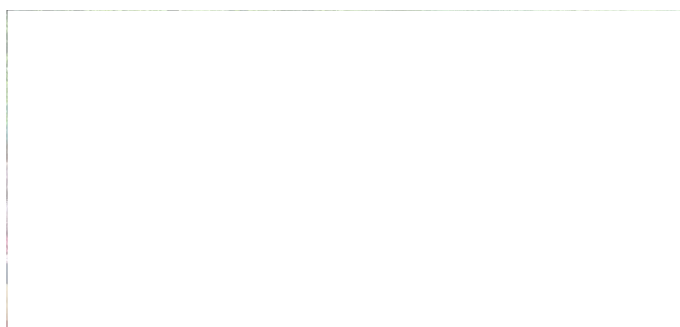
Fingerling Distribution In Chakaria

UNAOs, NAC, Program Director of PROTTYASHI and WorldFish Aquaculture Specialist and ZOR coordinator were also present at some of the distribution points. Our field staffs assisted some farmers

to release fingerlings in their ponds. Fingerling distribution was completed among 2000 beneficiaries during the month of October-2019.

- **Courtyard Meeting:**

Courtyard Meetings with local people (including pregnant and lactating women) have been conducted in different unions of Ukhyia, Chakaria and Ramu Upazila for increasing community awareness on nutrition and hygiene. The project beneficiaries brought their relatives and neighbors (specially



ZOR team leader of WorldFish in the Ukhyia Courtyard Meeting

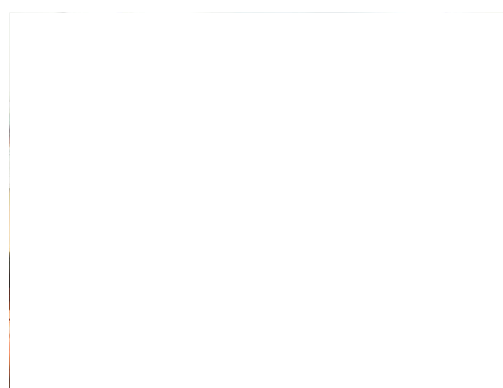
pregnant and lactating mother) in the courtyard meeting and learnt about the basic nutrient management of the households. More or less, each courtyard meeting had about 75 participants. The meeting place was near the homestead and sound box had been arranged to make it festive. UNFs delivered the key messages on hygiene, care practices for pregnant women, lactating mother and children to community people through courtyard meeting. WorldFish officials and NAC were also present in the Courtyard Meetings for many times.

Number of beneficiaries participated in the Courtyard session during the project period:

Sl. #	Training topic	Number of Batches	Participants (#) according to sex			Participants (#) according to age		
			Male	Female	Total	15-29=Y	30 and above=A	Total
01	Courtyard meeting	81	1447	4246	5735	2292	3443	5735

- **Meeting with government stakeholders (Linkage meeting):**

Quarterly Meeting with Department of Fisheries, Agriculture, Health, Women affairs officer for networking opportunities and advisory services had been arranged throughout the project period. Three networking and sharing meeting with the Government stakeholders were held in each of Ukhiya, Chakaria and Ramu Upazila. Upazila Fisheries Officer, Upazila Agricultural Officer and Upazila Women and Child Affairs Officer were present in the meetings. Progress of the project and the challenges



Meeting with Government Stakeholders

being faced by the project were presented to the government Officers in the meetings. They have

assured of any necessary support for the project and suggested some strategies to overcome the presented challenges.

- **Capacity Building Training on model mini nursery:**

One of the major project activities was establishment of model mini fish nursery to fulfill the demand of the quality fish seed and to increase availability of them in project areas. 19 farmers were given training on the preparation and maintenance on the model mini carp nursery in three Upazilas at Cox's Bazar. The participants

Capacity building training on model mini nursery

were selected from each of three sub-districts e.g Ukhiya, Ramu and Chakaria. The training was facilitated by the Mr S.A.M Munir, Nutrition Coordinator, PANSI Project, Mr. Emdad Hossain, Coordinator (ZOR), WorldFish-BANA Program and Mr Shahidul Islam, Aquaculture Specialist, WorldFish-BANA Program.

- **Visitor faced:**

A visitor from Bangladesh Monitoring Evaluation and Learning Activity (BMEL) of USAID, Mr Md Imran Khan, GIS Specialist, visited the training session in the Ukhiya upazila. He observed the training session held in the community and spoke with the training facilitators and the participants about the potentials of aquaculture activities in this upazila.

Visit by USAID BMEL Activity

- **TOT on capacity development for project staff on leadership development, lifeskill development, entrepreneurship development and gender:**

Capacity building training of trainers (TOT) on leadership development, lifeskill development, entrepreneurship development and gender for the project staffs was arranged in Cox's Bazar from

Leadership & lifeskill training

21st -23rd October 2019. Training sessions had been facilitated by the respective experts of WorldFish Bangladesh. During the course of the training, Zinat Hasiba, Gender and Youth Specialist, Bangladesh Aquaculture and Nutrition Activity delivered sessions on gender issues like gender equity, gender equality, gender influence etc. Md Salim, Assistant Director (Training) and Subarna Salim, Stakeholder Relationship Officer of Prottiyashi along with Syed Shahid Uddin, Director (Program) had conducted sessions on leadership development, lifeskill and entrepreneurship development. After the TOT sessions, facilitators conducted training sessions for the project beneficiaries on the respective subject matters.

- **Refreshers training:**

Day long refreshers training was conducted on 24th October, 2019 to evaluate the learning of the project staffs from the field after the completion of 1st TOT. Mrs. Monowara Begum, Executive Director of Prottiyashi joined the session with the participants to experience the opinions of the project staffs. Officials from the WorldFish also attended the sessions and discussed on the challenges and critical issues being faced during the implementation of project activities.

- **Vegetable seed and lemon tree distribution:**

Farmers have been distributed with seeds of Bottle gourd, sweet gourd, bitter melon, red amaranth, Malabar spinach and water spinach after the completion of the training session for dike cropping and homestead gardening. Farmers cultivated such vegetables in the dikes of their ponds and homestead through which they fulfilled their vegetable requirement. It ensured nutrition security for the households as the distributed vegetables are nutrient and vitamin rich. All the 2000 farmers were distributed with such vegetable seeds in three Upazilas during the project period.



Vegetables seed & lemon tree distribution

- **School session on basic nutrition and Hygiene:**

Awareness and discussion sessions were held in all the three Upazilas of Ramu, Ukhyia and Chakaria to increase knowledge on the maintaining hygiene lifestyle and consuming nutritious food among the students. Messages on the hygiene practices and its importance were given to the students so that they could

convey it to their family and neighbors. Students were suggested to complement their nutrition requirement through consuming vegetables and fish which constitute protein, vitamin and minerals required for the well-being of health. Upazila Nutrition and Aquaculture Officer of respective upazilas along with Union Nutrition Facilitators facilitated the session where students participated with interest. After the each session, a quiz competition used to be arranged on the nutrition issues where 1st three positions were awarded.

Total participants attended in the Training Session are as follows:

Name of Session	Number of Session	Male	Female	Total
School Session	20	907	1493	2400

- **Mola Brood distribution:**

2000 beneficiaries were distributed with mola brood to practice carp-mola poly-culture in the ponds in Ukhiya, Ramu and Chakaria upazila. Mola was distributed considering its nutritive value which is the single indigenous species containing highest quantity of vitamin A, B and iron, zinc and calcium. Mola usually breed in the stagnant water and in the pond thrice a year. So it is an important source of nutrition for the poor people, villagers and the targeted beneficiaries. These farmers were provided with the brood through the direct transportation service by respective brood provider so that the farmers could get well and healthy brood for culture.

Distribution mola brood

- **Orange Sweet Potato (OSP) Vine distribution:**

To ensure nutrition of the households through v vine were distributed among the beneficiaries. E with 25 vines of orange sweet potato and guided t



- **Display board set up:**

Prottiyashi with technical assistance of WorldFish team set up 3 display boards in three Upazilas of Ukhyia, Ramu and Chakaria to aware mass people on different issues of aquaculture, nutrition, importance of mola as nutritional aspect, OSP vine production, importance of orange sweet potato etc in the project area. All the display boards were setup in the visible places of these Upazilas.



Display board at Ukhyia

• Training on leadership development:

Selected women from the different farmers' group were provided with training on leadership development issues so that they could contribute to the decision making for the wellbeing of family members. Women were motivated to maintain nutritional status for the children and women through bold decision making power. They have been taught on the rights, roles and responsibilities of women in the household decision making process. They have also been taught to live with male members of the household with dignity and sharing of responsibilities in various important issues regarding the betterment of household members. Involvement of women in aquaculture has also been discussed in the session. Six leadership development training were facilitated during the project period in the Ukhiya, Chakaria and Ramu upazila. UNF's, UNAO's and NAC conducted the training sessions while 100% of the participants were female.



Leadership development training

Beneficiaries participated in the Training on leadership development during the reporting period:

Sl. #	Training topic	Number of Batches	Participants (#) according to sex			Participants (#) according to age		
			Male	Female	Total	15-29=Y	30 and above=A	Total
01	Leadership Training	7	0	157	157	19	138	157

- **Training on lifeskill development:**

To improve the inherent power of the youth especially from the targeted households, lifeskill training was facilitated in Ukhiya, Chakaria and Ramu upazila by the Union Nutrition Facilitators (UNFs), UNAOs and NAC. Participants were given idea on the different components of the lifeskills through which they can contribute to the betterment of family and the



Lifeskill training at Ukhiya

society. Union nutrition facilitators emphasized on increasing strength of the voice among youths so that they can stand for the deprived and disadvantaged group of people in the society especially in the maintenance of nutrient. Six lifeskill training sessions were facilitated during the project period. Both male and female youth participated in the training.

Number of beneficiaries participated in the Training on lifeskill development during the reporting period:

Sl. #	Training topic	Number of Batches	Participants (#) according to sex			Participants (#) according to age		
			Male	Female	Total	15-29=Y	30 and above=A	Total
01	Lifeskill training	7	62	95	157	157	0	157

3.0 Project performance and milestones (not more than 3 pages)

Activity	Planned	Achieved	Remarks
Monthly Cluster Coordination Meeting	36	33	3 left due to COVID-19
Project Inception Meeting	3	3	
Quarterly all staff meeting at PIU level	4	4	
MIS training (batch)	3	3	
Farmers Profiling (# Farmer)	2083	2083	
Linkage meeting (# Batch)	9	9	
Group formation (#)	84	84	

TOT on capacity development of project staffs (Batch)	2	2	
Farmers training (Batch)	648	648	
Courtyard Meeting	81	81	
Fingerling distribution (# Farmer)	2000	2000	
School session (#)	20	20	
Hand washing Awareness campaign (#)	81	81	
Day observation (#)	5	3	late start & COVID-19 lockdown.
Distribution of Vegetable seeds, lemon tree (# Farmer)	2000	2000	
Fish spawn distribution for fish nursery development (# Farmer)	19	19	
OSP vine distribution (# Farmer)	2000	2000	
Pond signboard	81	81	
Model mini nursery training (# Batch)	1	1	
Kuchia farming training (# Batch)	1	1	
P ^H meter, Amonia kit (#)	10	10	
Bill board distribution (#)	3	3	
Mola brood distribution (# Farmer)	2000	2000	
Nursery pond signboaed (#)	19	19	
Leadership development Training (# Batch)	7	7	
Lifeskill Training (# Batch)	7	7	
Mola gill net business Entrepreneurs Training (# Batch)	1	1	
Established model mini Nursery (# Farmer)	19	19	
Established Kuchia farming as demonatration (# Farmer)	19	19	
Leaflets on carp-mola poly-culture and Orabge Sweet Potato culture for family nutrition (#)	1	1	
Kuchia farming folder and model mini nursery Guide book (#)	2	2	
Farmers field day (# Batch)	19	0	Due to COVID -19

4.0 Key Innovation of the project

Empowering women through engaging them in income generating aquaculture interventions has been a new idea in the targeted locations as previously they did not have such scope to contribute to the family nutrition. Women are affording household fish requirement from the aquaculture practices and along with contributing to the family income. Practicing mola culture is a new intervention in the project locations as mola has been moving away from the local market which is highly nutritious fish species. Introduction of orange sweet potato (OSP) in the project locations through incorporating in dike cropping has been an innovation in the context of project locations. It may significantly fulfill the nutrition requirement of the households. Moreover, promoting kuchia (eel) culture in the project locations has been an opportunity for augmented income generation for the people which is a kind of new intervention in these areas. Furthermore, developing entrepreneurs on producing mola gill-net has been a sustainable income generation opportunity for women that may also be considered as an innovation from the project.

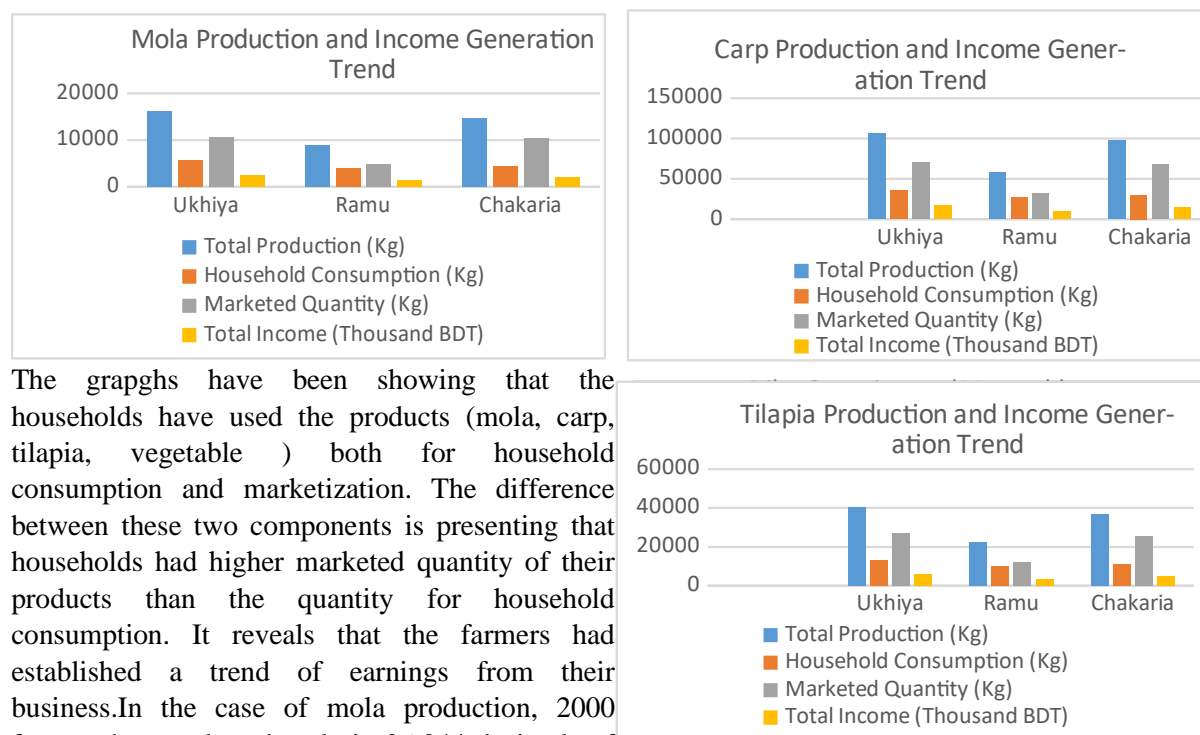
5.0 Sustainability of the business/ intervention model

The project has enabled smallholder farmers to cultivate fish in pond and vegetables at the pod dikes and homesteads through which they are affording household requirement as well as earning money to buy necessary food items. Total 2000 smallholder farmers are practicing the interventions and many other households are trying to adopt the interventions within their own arrangement. As the project has created linkages farmers with different dealers, retailers, suppliers and other market actors, they will be able to get the necessary raw materials (fish seeds, vegetable seeds, fish feed, medicines etc.) from these market actors and sell their products (fish, vegetables) at the market. Through which practices of the farmers will sustain. kuchia is a very promising export item in many countries, kuchia (eel) has great demand as a tasty and medicinal fish. As a tasty fish, eel has a great demand in China, Vietnam, Philippines and Singapore. There is possibility of meeting the demand of Kuchia in international market and earn foreign currency. Linkages developed between farmers on kuchia culture and the market dealers will help the farmers to introduce their product (Kuchia) in the export market. It will create a regular demand of kuchia and farmers will be able to earn regularly. Kuchia is not only renowned for its export value but also for its great domestic value among tribal and buddhist community as a delicious and medicated fish that will also ensure regular demand of Kuchia in the project locations. Mola gill-net business developed by women entrepreneurs will be sustained through dealings with the local farmers that will ultimately be a source of sustainable income for the participants. The successful implementation of the interventions and the scenario of outcome generation shows that the interventions can be replicated in the other areas of the country with similar socioeconomic status which may ultimately contribute to the achievement of sustainable development goals.

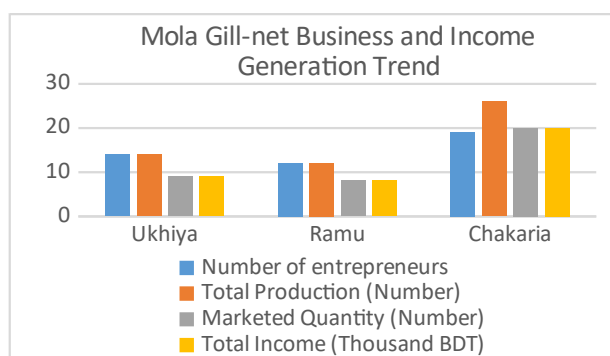
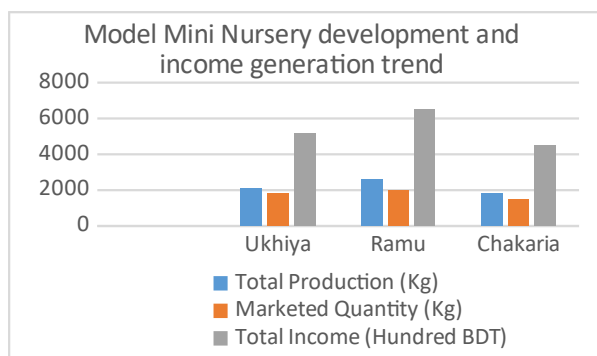
6.0 Impact of the business/intervention model on the overall business in the intervention period

6.1 sales figures| sales trend over the intervention period (quarter on quarter sales)

The implemented interventions have enabled beneficiaries to earn income through selling fish species and vegetables in the local market from their own farms. Over the project period, beneficiaries have consumed a portion of their production (fish, vegetables) and lifted the rest of the production at the market. Through these approaches, they earned significant income that have improved their household food security. Especially, women entrepreneurs under these interventions have achieved a way of earning and contributing to the family income.



The graphs have been showing that the households have used the products (mola, carp, tilapia, vegetable) both for household consumption and marketization. The difference between these two components is presenting that households had higher marketed quantity of their products than the quantity for household consumption. It reveals that the farmers had established a trend of earnings from their business. In the case of mola production, 2000 farmers have cultured mola in 26,344 decimals of pond area that produced 39,722.63 kgs of consumable mola from which 14,034.93 kgs have been consumed by the households and 25687.7 Kgs have been marketed by the farmers that generated 5812287 BDT income for the farmers. Average earning by the household by selling mola was 2,906 BDT apart from the consumption. Similarly, average income for each household by selling carp, tilapia and vegetables is 20,330 BDT, 6,768 BDT and 4,502 BDT respectively. 19 farmers on kuchia cultures have produced 627 kgs of big sized kuchia and 6,650 pcs of kuchia fingerlings to sell and earned 221,350 BDT. Entrepreneurs on development of model mini nurseries have set income generation from the business through selling fingerlings to the project aquaculture farmers and in the local market. 19 entrepreneurs have developed nurseries in total 389 decimals of pond area and produced fingerlings of 6,439 kgs among which 5,300 kgs have been sold and each of them earned an average of 84,723 BDT. 45 entrepreneurs on mola gill-net business have produced 52 gill-net within this period and marketed 37 of them and earned total 37,000 BDT.



6.2 Customer outreach trend over the intervention period (quarter on quarter reach)

Community people have been the main customers of the farmers as the products have been marketed at the nearby markets from the ponds of the farmers. Farmers have sometimes sold their products to their neighbours. For the entrepreneurs on model mini nurseries, project beneficiaries on mola-carp polyculture had been a regular customer. Besides, entrepreneurs on mola gill-net business have been selling gill-nets within their community. Through this approach, the project has created value chain within the community with sustainable business development.

6.3 Dealer, retailer, distributor trend over the intervention period (quarter on quarter)

The project has created linkages beneficiaries with dealers, retailers and distributors on fish fingerling supply, fish feed supply and vegetable seed supply. Throughout the project, one local supplier of fingerling has been attached with the beneficiaries directly through distributing fingerlings among community people. 1 distributor of vegetable seeds has been engaged with the project from which seed packages for 2000 households have been accommodated. The beneficiaries have been introduced with supplier of orange sweet potato through building community level communication pathway from which beneficiaries can manage orange sweet stems for further cultivation. The project has reached to the local market actors who are engaged in exporting kuchia and crated linkages them with the beneficiaries under Kuchia culture. These suppliers and distributors have benefitted from trading with the project beneficiaries and a mutual relation has been developed among the beneficiaries and market actors which contributed to develop value chain system in the targeted project locations.

6.4 geographical reach (quarter on quarter)

The project has reached beneficiaries and market actors established in the project locations like Ukhiya, Ramu and Chakaria upazila under Cox's Bazar district and for some essential products, it has reached beyond the project locations through using relevant channels. In the case of fingerling supply, a supplier from Chattogram has provided the fingerlings to the beneficiaries from their hatcheries and nurseries developed in greater Chattogram and Cox's Bazar district. The distributor on vegetable seeds has been selected from Chattogram who provided necessary seeds to the project. In the case of managing stems of orange sweet potato, the project has reached supplier established in the Sylhet as it is only readily available in that region.

7.0 Business Risk and Intervention Strategy (max. 1 page)

The project has faced several risks and the risks have been mitigated through following approaches:

Risks	Mitigation Strategy
Lack of local suppliers of fish of fingerling	Fingerling supplier has been managed from Chattogram who has hatcheries and nurseries near to the project locations.
No supplier or distributor of stems of Orange	Stems of Organge Sweet Potato have been

Sweet Potato in in place in Cox's Bazar and Chattogram.	collected from producers in Sylhet through using external communications.
Community people have opposed the project activities in some places to be implemented.	The situation has been resolved with the help of local government and community leaders.
As the beneficiaries had been from the vulnerable part of the community, they did not have enough engagement with the market to manage their business.	All the vendors, suppliers and distributors engaged with project has been introduced with the beneficiaries so that they can promote their business even beyond the project period.
Some ponds possessed salinity and oxidity in the water which might create problem in the growth of fish.	In such cases, fishes have been harvested prior to the dry season.
As the project locations are in the disaster prone areas, sudden floods and stroms were common to affect their business.	In some cases, beneficiaries have raised the banks of the ponds to alleviate the impact of sudden floods and storms on their business.
Outbreak of COVID 19 pandemic had been an unavoidable challenge to accomplish the planned activities of the project within project timeline.	Amid the COVID 19 pandemic situation, implemented project interventions have been followed up through virtual communication and generation of profit for the beneficiaries had been ensured through maintaining communication with market buyers and other actors.

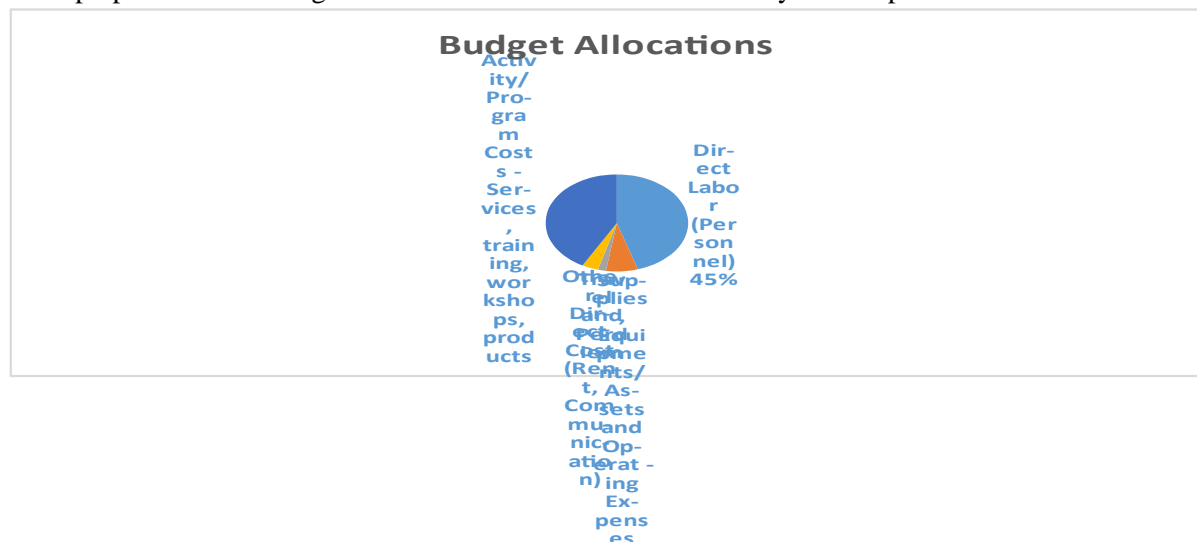
8.0 Project budget and financial management (max. 2 page)

Contains types of financial reporting, frequency, a bit detailed budget analysis

The project has been implemented with a budget of 18,941,732 BDT while every activitiy has been accompolished through cost effective approach following the Accounts and Finance module of the organization. All the inancial transactions and issues had been closely monitored from the central finance team of the organization while there was a dedicated Finance and Admin Officer of the project. The budgeted amonts have been spent from a separate bank account in the name of the project which was operated from Ukhiya. The project maintained financial reporting in every month including all the expenses during the reporting period. Total 14 monthly financial reports have been

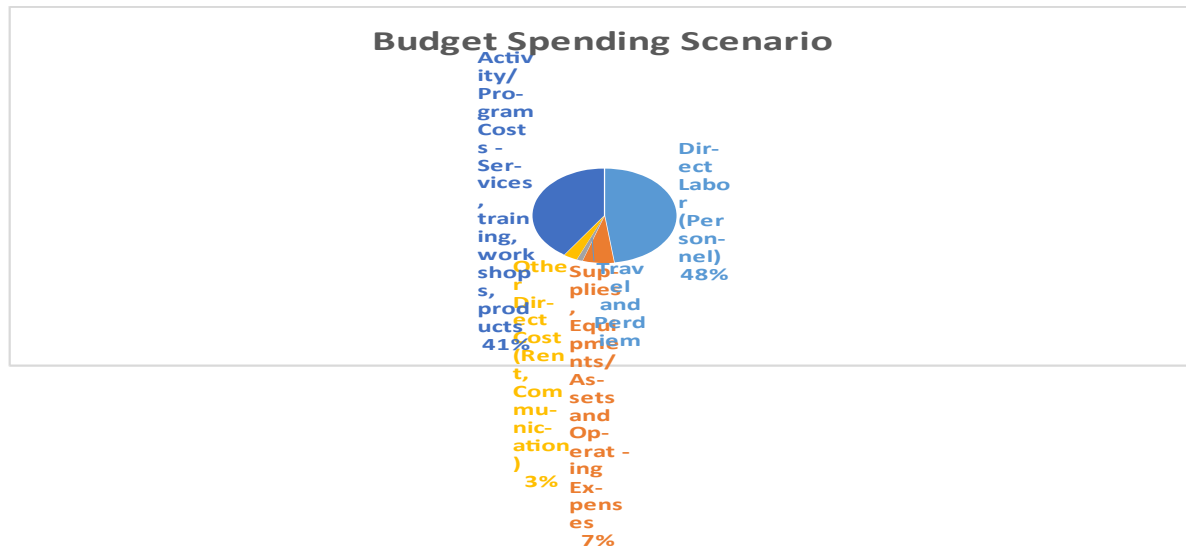
submitted under the project since June 2019 to July 2020 while 12 reports were submitted under regular project period and 2 reports were submitted under no-cost extension period.

The project had 5 master heads in allocating its costs like Activity/Program costs, Supplies/Equipment, Travel and per diem, Other Direct Cost and Direct labor (Personnel) Costs while budget allocation for each of the heads were 42%, 7%, 2%, 4% and 45% respectively. The budget has been prepared considering the local context to ensure feasibility of the planned interventions. The



budget is comprised

of 17,538,908 BDT ftf BANA contribution and 1,403,824 BDT own contribution. Own contribution consists of both cash and in-kind contribution in the different master heads. Direct labor cost included



salaries and other benefits for the staffs while Activity/program costs included the costs required to provide support directly to the beneficiaries.

The project has accomplished almost all the planned activities and achieved a burn rate of 96% at the end of the project. Due to the sudden nationwide shutdown in the midst of COVID 19 outbreak, some field activities have been postponed. Considering the situation, the project has been allowed for no-cost extension for more 2 months beyond the proposed 12 months with the unspent budgets. During the project period, burned budget percentages under the master heads like Direct labor (personnel), Supplies/Equipment, Travel and per diem, other Direct Costs and activity costs are 48%, 7%, 1%, 3% and 41% respectively. 97% of the ftf BANA contribution has been burned while 88% of the own

contribution has been burned during the project period. For additional analysis, 2,306,272 BDT has been spent to facilitate different skill development and awareness training for the beneficiaries while 3,865,940 BDT has been spent as input support for the beneficiaries to develop aquaculture business in their own settings. Through all these supports including other relevant costs, 8,728 BDT has been spent against each of the beneficiaries.

The programmatic expenses have been audited by the central audit team of Prottiyashi which ensured proper channeling of the expenses and cost effectiveness of the interventions. The audit department has regularly monitored the processes such as authorization of purchased orders, timely recording of purchase orders, processing and reporting of all the purchased orders, recording receipts of all materials and supplies, processing and reporting of all material/ supply receipt transactions, regular flow of information to the employees and management to control the process of obtaining materials and supplies, operational effectiveness and efficiency, checking the compliance of obtaining materials with laws and regulations etc. The finance department of the organization regularly monitored the financial issues through visiting project office. Finance team had role in the financial management of project expenditures through applying preventive control, detective control, ensuring segregation of duties, documentation, authorization and approvals, reconciliation and review and financial monitoring.

9.0 Monitoring and reporting

Monitoring, Evaluation and Learning (MEL) team of WorldFish/BANA has accomplished the monitoring of the project through online data management system. MEL team of WorldFish has collected data from the field through KoBo toolbox on such as farmers' profiling, locations of the ponds, training, training information etc. and analysed it from World Fish center. Upon the findings, they have frequently visited the field to find out any gap. From Prottiyashi, a focal person has been designated to monitor and manage the project through close supervision. Director (Program) of Prottiyashi has monitored the project through regular visits in the field and discussing on the findings with the project team. Aquaculture Specialist of WorldFish has regularly monitored the project activities through visiting intervention areas. The regular monitoring process included the observation of the achievement of activity against the target. Different challenges at the field have been sorted out through monitoring and different things we set to overcome such challenges on the basis of monitoring findings.

Reporting on the project progress has been maintained weekly monthly and quarterly. Project progress has been submitted weekly through describing all the activities accomplished in the week. The weekly progress reports have been compiled to produce monthly progress report that included description of the activities with pictures. Alongside programmatic progress report, financial reports used to be submitted every month incorporating all the financial transactions and issues. Several event reports were developed occasionally on the special events like observation of international women's day, national fish week, world environment day, national nutrition week etc. As a compilation of all the activities of the project, project completion report has been developed describing the overall project activities and implementation issues.

10.0 Challenges/ Lesson learned

10.1 Project design and implementation challenges

- The project faced challenges in maintaining the workplan rather it has implemented some activities earlier than the planned timeline. Fish fingerlings have to be collected and disseminated within a certain period of the year considering the seasonal factors. So, such further planning should incorporate this issue.
- As the project did not have dedicated M&E personal, maintaining monitoring of the activities were challenging for the project.
- Maintaining people in Ukhiya has been a challenge as they are overly supported by NGOs and INGOs that has increased their expectations.

10.2 Partnership Challenges (including grants, finance, M&E, and MSD)

No such challenges

10.3 Any external Challenge

- Seasonal floods have damaged some ponds and agricultural land of the beneficiaries that have reduced production by some farmers.
- People with political background sometimes created complicated situations to influence the project interventions to get some benefits but the project managed the situations through coordinating with local government.
- COVID-19 pandemic has been the biggest challenge for the project to accomplish the activities within proposed timeframe. Due to the nationwide shutdown as a preventive measure against COVID-19 pandemic, all the project activities have been paused immediately. To accomplish the incomplete activities, no cost extension for 2 months have been requested from WorldFish.
- In some cases, ponds had been in remote and distant areas where communication was not good at all. Supervising the activities in these fields was challenging.
- Initially farmers did not comply to adopt Kuchia culture at the household level but close motivation has encouraged them to practice Kuchia culture in their own settings.

11.0 Areas of Improvement/Recommendation

Bangladesh, though rich in having around 1.5 million of ponds of different sizes covering an area of about 146,955 hectares of land, only about 52% of the ponds are, at present (source DoF report), being utilized for fish production through semi extensive method. Production of fish per unit area is

about 3800 kg/ha/year (statistical year book of Fisheries-2013) but in Cox's Bazar it is around 2470 kg/ha/year which is very poor compared to that of other adjoining countries having similar climatic conditions. Inadequate extension service coupled with improper management and production techniques viz. high or low stocking, imbalanced stocking ratio of fingerlings, inadequate maturing and feeding etc. have been considered responsible factors for low production of fish. As most of the farmers are poor and living in rural area, it is not possible for them to follow the intensive technology of fish production which needs proper water quality and higher inputs supply. An appropriate intermediate technology for the farmers thus should be the semi-intensive culture technique which requires moderate inputs and production management based mainly on proper stocking rate and ratio and adequate maturing on a regular basis with proper supplementary feeding. Production of fish through integrated fish farming by using animal or agricultural by-products in fish pond as manure and feed has appeared to be the most appropriate technique for rural farmers. Traditionally, typical farmers grow food grains, fruits and vegetables in their land. The farmers also keep cattle and poultry birds and raise fish in their ponds. But all these are scattered, there is no inter-linkage between the farming components. The only thing to do now is to integrate the possible agricultural activities of farmers together in a mutually supportive manner. In this regards, partner should conduct training activities in a one bundle (fish, poultry and nutrition) through 10 sessions. There are two types of ponds in the project area namely perennial pond and seasonal pond. In perennial pond, water is available round the year with an average depth of 4-6 ft which is appropriate for mix culture like Rui, Catla, Silver carp, Mrigel, Grass carp, Tilapia and Golda species. In seasonal ponds, water is available about 3-4 ft depth for 5-6 months which is appropriate for single species (mono culture) of fish culture. Rajputi, Sing, Koi and Magur fish are also better for culture in seasonal ponds and some pond are also appropriate for fry/fingerling culture. Percentage of seasonal pond is only around 10%. Whether mono-culture or mix culture, it is dependent on pond condition, depth of water, pond size, and also opinion of the pond owner. Considering the physical condition of ponds, 2 types of managements (mixed and mono culture) might be conducted in future. In this regards, a technical note will be prepared for mono culture and mixed culture in pond for semi intensive management system to conduct the beneficiary's activities.

Another thing to be mentioned is that marketing system should be improved in future. In traditional system, harvesting cost is around 10% of the total harvested cost. Farmers harvested their fish using cast net and seine net locally known as ber jal. Harvested fish were kept in aluminum containers or plastic drum. In marketing systems, there found to be a number of middlemen such as local agents, whole sellers, local fish traders and retailers. Market communication is normally being made through middlemen. The field observation indicated that a few pond fish farmer directly would sell their fish to local paikers or local agents at the bank of the ponds. Majority of the farmers will take their fish in local markets and sell directly to local paikers/aratders or consumers. Only few women were involved

in harvesting of fish for their family consumption but they are fully dependent on male members for harvesting of fish, and selling of fish due to social barrier. Existing marketing system needs to be re-constructed and a new harvesting and marketing system has to be deployed where fishers, fish farmer and consumer will be benefited. It is important to remove the middle men from the fish marketing system. Harvesting should be done in a cluster basis and fish should be sold through sale centers.

12.0 Conclusion

Engaging the vulnerable households with income generating initiatives through aquaculture interventions has been an effective approach to improve nutrition and livelihood of the poor households. In this case, proper pond preparation and management is very important for ensuring maximum fish production. Quality fingerling is major concern to grow more fish in the existing pond set-up. Further programs should have plan to ensure quality fingerlings at the farmers' level. Large sized fingerling (above 5 inch) is essential for better production as well as help to increase the survival rate of fish. New species of fish being genetically improved should be introduced at the farmers' level so that they can achieve a higher level of income. Farmers should be introduced with household level production of supplementary fish feed using rice bran, wheat bran and sunflower oil cake so that they can afford feed requirement of their ponds which may reduce their cost against production. The farmers should be more closely linked with the market reducing the involvement of middlemen so that their profit is increased. Through such approaches, socioeconomic status of farmers will be developed and they will be able recover the shocks created by sudden settlement of large number of Rohingya population in the Cox's Bazar region. It will also promote the objectives of the Bangladesh Aquaculture and Nutrition Activity through extended practices of aquaculture over the region and improving nutrition status of the rural households.

13. Appendix – if requires (any business documents like detailed implementation plan, quarterly review, tables, graph and the like)

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