

ENDLINE IMPACT ASSESSMENT FOR MEASURING SYSTEMIC CHANGES IN THE AQUACULTURE ACTIVITY



Prepared for



**Feed the Future Bangladesh
Aquaculture and Nutrition Activity**

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Abbreviation

AAER	Adopt, Adapt, Expand, Respond
A2F	Access to Finance
ABC	Aquaculture Business Centers
AMP	Aqua Medicine Products
B2B	Business-to-Business Sales
B2C	Business-to-Consumer Sales
BAA	Bangladesh Aquaculture Activity
BDT	Bangladesh Taka
BMP	Better Management Practices
CFC	Community Feed Center
CLA	Collaborating, Learning, and Adapting
CPG	Carp Pituitary Gland
DF	Dried Fish
DoF	Department of Fisheries
FGD	Focus Group Discussion
FtF	Feed the Future
GIS	Geographical Information System
GoB	Government of Bangladesh
ICT	Information, Communications Technology
IDI	In-Depth Interview
IP	Implementing Partner
IPRS	In-Pond Raceway System
JUST	Jashore University of Science and Technology
KAU	Khulna Agriculture University
Kg	Kilogram
KII	key informant interview
KMSS	Khulna Mukti Seba Sangstha
KU	Khulna University
LSP	Local Service Provider
MA	Market Actors
MCB	Mukti Cox's Bazar
MF	Microfinance
MT	Metric Ton
NGO	Non-Governmental Organization
OSSC	One Stop Service Center
PG	Pituitary Gland
RTC	Ready to Cook
RTE	Ready to Eat
SBCC	Social and Behavior Change Communication
USAID	United States Agency for International Development
WMF	women micro franchisees
YDD	Youth Development Department
ZOI	Zone of Influence
ZOR	Zone of Resilience

Executive Summary

About Bangladesh Aquaculture Activity (BAA)

This is a five-year assistance activity awarded by the United States Agency for International Development (USAID) to WorldFish. BAA works in the Bangladesh Feed the Future Zone of Influence (ZOI, consisting of 21 south-western districts) and the Zone of Resilience (Cox's Bazar and Bandarban districts under Chattogram Division) through an inclusive market system approach. The Feed the Future Bangladesh Aquaculture and Nutrition Activity aims to sustain positive aquaculture sector growth through an inclusive market system approach.

The objective of this Assignment

The objectives of the assessment include measuring systemic changes, impact assessment of access to finance (A2F) models, capturing evidence of systemic changes, scale-up and market resilience of various business models, providing ranks and scores of the different interventions based on their impacts in the aquaculture sector at depth and breadth, identifying challenges in the project implementation and behavior change of the market actors, and providing recommendations for future programs.

Methodology of this Assignment

This project focused on a few thematic areas like Access to input (feed, seed, and AMP), access to finance, innovation of technology, access to forward market, access to information and support services, nutrition outcome, gender and youth participation, which were based to develop an aquaculture market system. Therefore, this study intended to measure the changes brought to the beneficiaries of aquaculture activity and the systemic change of the aquaculture market system based on the thematic areas. This study adopted a qualitative approach approaching FGD, KII, and IDI. This study conducted 165 KIIs with market actors like sales points, agents, dealers, sub-dealer, LSPs, *Patiwala*, *Botiwala* while 51 FGDs with small holder fish farmers, and women-led groups, feed, seed, and AMP users. Finally, this study also collected important information through 26 IDIs approached by the project's implementing partners.

Access to Input (Seed, Feed and Aqua Medicine Product)

This project took many interventions to manage access to quality seeds for the aqua farmers. Therefore, this project developed a marketing and distribution channel to ensure this access. Along with this, the fish quality has been improved by introducing natural Pituitary Gland (PG) which is better than synthetic hormone in terms of breeding performance and fingerlings. As a result of this, more fish farmers are interested in using natural PG-induced spawn and fry rather than synthetic PG-induced spawn and fry. As per the given information of the market actors, the demand for such quality fish seeds has already increased. Additionally, as per our findings, the main reasons for using such quality fish seeds are higher productivity rate, low mortality rate, higher growth rate, availability in the market, and comparatively low price. The quality fish seed market is sustainable as the demand has increased already. The fish seed agents, hatcheries, and nurseries have already invested independently and have already started generating more revenue. The implementing partners have already expanded their business area and increased their production to the fish farmers as per the demand. However, a few private actors from Cox's Bazar and Bandarban districts were interested in adopting this business model in their areas and they were in process. The implementing partners think that the interested private actors need more time to establish a new business.

Access to Feed

This project developed and promoted an app-based feed supply chain and feeding management system which was a platform for the fish farmers to collect feed. The IPs were connected to the dealers, sub-dealers, and other local service providers from where the aqua farmers lastly collected

the feed. There is also a One-Stop Service Center considered a platform where a bunch of services are available for different market actors, especially for smallholder farmers at the community level. As per the information of implementing partners, their feed demand and sales have already increased. And now, all of the fish farmers are conscious about using quality fish feed. The fish farmers have identified many reasons for using quality fish feeds like high fish growth rate, an opportunity to get market information, Available feed supply, Quick feed delivery, Capacity development for feed mixing fish feed, Knowledge about the right feed, feeding practice adoption, and Scope for Disease diagnosis. After the end of the project period, all the IPs have invested independently considering the demand of the feeds in the market. As a result of this, they have increased their feed production to supply the additional demand in the market. The study revealed that their profit is medium because of the sudden price hike of fish feed. They are also hopeful to generate more revenue in the coming months. Many market actors contacted Aftab Feed Products Limited to be commission agents (Local service providers) taking training from them. Additionally, many actors communicated with the Padma Feed to adopt the One Stop Service Center (OSSC) model in their locality and these actors received training on this model.

Access to Aqua Medicine

The collection of raw pituitary glands from the retail market for producing quality fish seed was an innovative model of this project. The implementing partners processed this raw PG as hormonal medicine. The implementing partners collect this PG from the retail market. But, the collection process is critical. For this reason, the implementing partner provided capacity training to the PG harvester on PG collection, preservation, and transportation. After processing the raw PG, the implementing partners supply the processed dry PG and wet PG in the national market as well as the international market. This is an innovative business model. All the IPs expanded their PG collection areas and produced more processed PGs. They have also invested more in PG collection and processing as the demand for processed PG is increasing in the national market and international markets.

Another business type was the establishment of Aquaculture Business Centers (ABC) based on women micro franchisees (WMF). Aquaculture Business Centers (ABC) are acting as points of all aqua services like feed, seed, aqua medicine, and information about fish cultivation. As per all the implementing partners, all the business models are highly effective and play vital roles in changing the market. Recently, a few market actors communicated with them and tried to understand the PG processing plant and the investment they need for this. As per their reporting, necessary funds and technical knowledge are the main constraints for those market actors to establish such plants.

Access to Finance

Bangladesh Aquaculture Activity (BAA) has successfully brought about significant positive changes in the aquaculture sector in Bangladesh by focusing on enhancing access to finance, capacity development, and collaboration among market actors. Through strategic partnerships with organizations like Bank Asia Limited, The City Bank Limited, Mukti Cox's Bazar, and SHUSHILAN (A2F), BAA introduced innovative financial models and improved access to financial services for aquaculture stakeholders. The project's key interventions, including customized loan packages, financial literacy programs, and micro-merchant banking services, have empowered fish farmers and input retailers. This initiative has not only increased financial inclusion but also led to improved farming practices, expanded market access, and enhanced livelihoods for women and youth engaged in the aquaculture sector. The BAA project has brought about sustainable changes that benefit both individual participants and the aquaculture industry as a whole.

It is worth mentioning that a few marketers mainly BRAC, City Bank and United Commercial Bank Ltd. have already adopted this business model. City Bank has replicated the model of Bank Asia.

Additionally, the City Bank is planning to scale up this model all over Bangladesh being inspired by the success of this model. BRAC has already started providing microloans to the aqua farmers.

Access to Forward Market

The activities executed under “access to forward market” aimed to develop and introduce a commercially produced “Ready to Eat and Ready to Cook” fish food in the market under any new brand and labeling. This project helped the implementing partners to conduct an advertising campaign through YouTube, Facebook, display shows, and cooking event arrangements to popularize and introduce “Ready to Eat and Ready to Cook” fish food in the market. All the implementing partners are highly satisfied with these activities because they are supplying their ready-to-eat and ready-to-cook fish foods. After the end of the project, the demand for fish foods increased in the market and they invested more. They have increased their outlets in more grocery shops and super shops.

Still, there are no market actors who developed the business of the “RTC and RTE” fish foods products. But, as per the reporting of the implementing partners, a few actors showed interest in developing a business but investment and process are the main constraints for them.

Access to Information and Support Service

With the financial and technical help of this project, many dry fish entrepreneurs are producing organic and safe dry fish products. However, these entrepreneurs failed to popularize their products in the market because most of the people were not aware of these products. As a result of this, they decided to conduct a promotional campaign for their products by adopting a marketing strategy. For this purpose, this project partnered with an online marketing company named CoxBazarShop.com which had extensive experience in advertising and publicity using social media to maximize sales and revenue. Under this project, the implementing partners provided capacity training on organic and safe dry fish production to young women and men entrepreneurs. Our FGD findings indicate that after receiving training, many women entrepreneurs are producing dry fish and supplying these products to the shops and some of them are selling by online advertising. Additionally, these trained women have also provided training to the new young women who are currently running a small business of dry fish products.

Innovation of Improved Technology (BMP and Machineries)

This project partnered with Afil Aqua Fish Ltd to introduce an in-pond raceway system (IPRS) for increasing fish production to get the maximum yields of limited time and space. This implementing partner provided capacity training to more than 200 fish farmers to disseminate knowledge about IPRS. Now, they are researching to provide low-cost IPRS technology to marginal fish farmers.

Recommendations

- Farmers should get the flexibility to determine the loan amount they require based on their individual business needs.
- This approach would empower farmers to access financial resources that align more closely with the specific requirements of their aquaculture enterprises, fostering a more effective and responsive financial support system.
- Organizations should prioritize a more substantial and strategic allocation of resources toward employing more workforce. This strategic focus on human capital can contribute significantly to enhancing overall business performance and sustainability.
- The recommendation is to encourage the banks and other loan lending organizations to continue with their business model even after the conclusion of the BAA project as these organizations generated higher revenue than initially anticipated.

- The success achieved by BAA should be widely shared with national and international entities involved in similar sectors. This sharing of success stories can generate interest and support from larger projects, ultimately benefiting the aquaculture sector.
- Considering the remaining potential for success cases, it is recommended that the BAA project consider extending its duration for at least an additional five years. This extension will provide ongoing support to those cases that are yet to reach their full potential, allowing them to flourish with continued assistance.
- However, it is worth noting that monitoring and ensuring adherence to ethical guidelines can be resource-intensive and costly. This consideration highlights the importance of a well-designed project framework that balances the benefits of low-cost loan solutions with the need for oversight to maintain ethical practices and prevent exploitation.
- Provide intensive training and mentoring to build the capacity of agents to deliver support to farmers with them; as well as there should be enough training on aquaculture technology to field officers to deliver appropriate support to farmers via Agents/Lead farmers.
- WorldFish should execute advocacy activities to build awareness about the thematic business models at the district and divisional levels. At this level, they should present and describe the strength, opportunity, and applicability of those business models for the new market actors.
- The WordFish should identify the potential market actors for the specific business model and they should be included in the advocacy activities. Here, it would be better to introduce the new areas of the other districts and divisions.
- WorldFish should help its implementing partners to develop a sustainability plan.
- WorldFish should formulate a guideline on the developed thematic business models detailing the business model, how to replicate these models, the necessary investment required technical knowledge, and how to get help for adopting this business model.
- WorldFish should develop a guideline for all implementing partners on how to replicate this business model in other areas. Additionally, the guideline should include how the implementing partners should help any interested market actors in the future to replicate this model.