

Report

Measuring Changes in the Market System: A Qualitative Assessment

Feed the Future Bangladesh Aquaculture and Nutrition Activity



January-February, 2022

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Contents

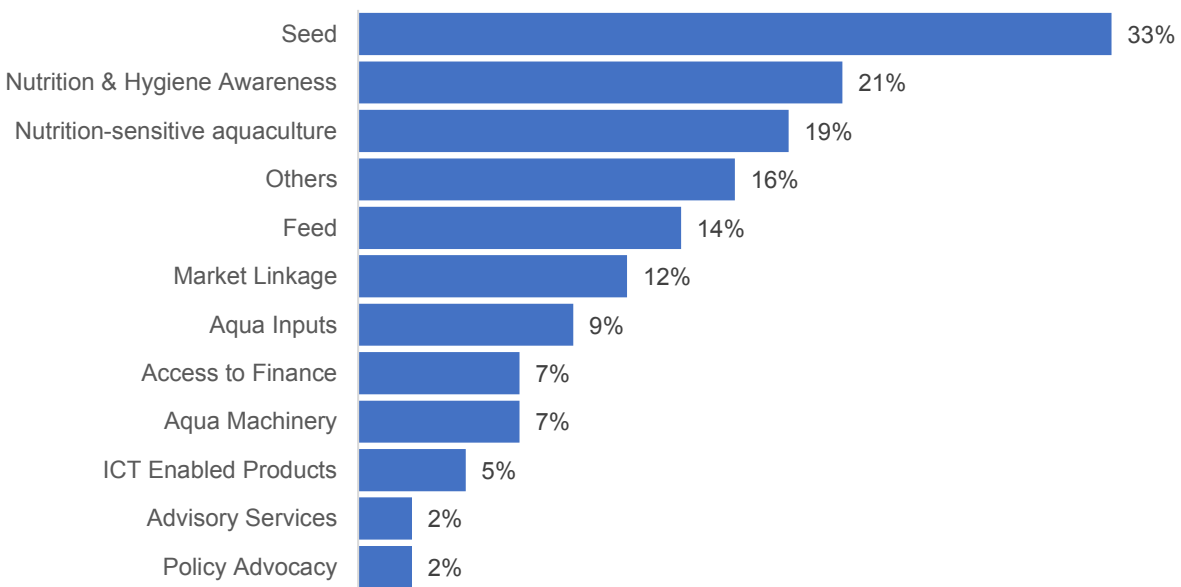
Tier-1 Findings	2
General Information	2
Evidence of Change/Impact	3
Innovation to enhance business effectiveness, efficiency and sustainability	5
Sustainability	7
Replication/Crowding-in/Scale	9
Response	11
Summary	13
Tier-2 Findings	14
General Information	14
Evidence of Change/Impact	16
Innovation	20
Sustainability	23
Additional information	25
Summary	27
Tier-3 Findings	28
General Information	28
Evidence of Change/Impact	31
Innovation	33
Replication/Secondary Adoption.....	36
Access to Finance.....	37
Summary	42

Tier-1 Findings

General Information

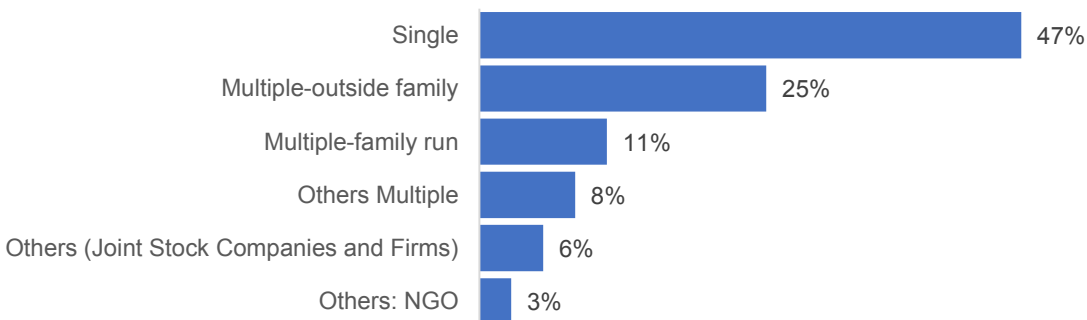
Type of partner by sector

Tier-1 comprises of BAA's Implementing Partners (IPs), which includes hatcheries, private sector partners, Banks/MFIs, prime facilitators/service providers and partner NGOs. A total of 43 IPs were interviewed as part of Tier-1. Many of them are involved in more than one value chain/sector. 33% of those interviewed were involved in seed production, followed by nutrition & hygiene awareness at 21% and nutrition-sensitive aquaculture at 19%. This is represented in Figure 1 below:



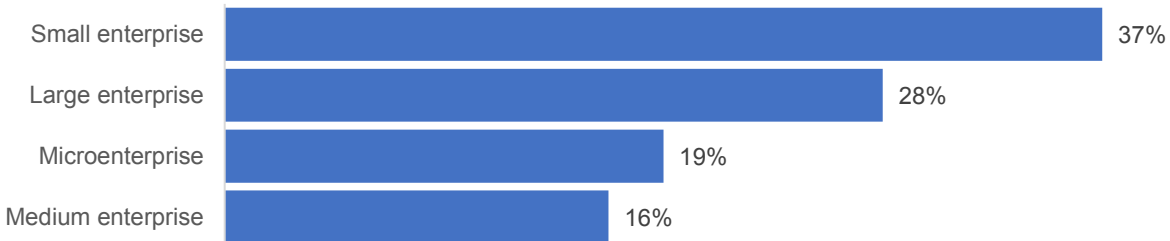
Ownership type

Most of these IPs (48%) have single ownership of their business; 27% had multiple ownership outside the family while 12% of businesses were family run. This is depicted in Figure 2 below.



Firm/Enterprise size

In terms of size, 37% of IPs classified themselves as small enterprises, 28% as large enterprises, 19% as microenterprises and 16% as medium enterprises. In other words, 72% of the partners that BAA is working with are micro, small and medium enterprises (MSMEs).



Sex of owner(s)

Most of these businesses are owned by men (85%), with only one business being owned by a woman. This shows that there is a clear gender imbalance when it comes to ownership of the businesses that BAA has partnered with. Perhaps, this is one area that BAA can improve on as women-led businesses improve the participation and involvement of women along the value chain.



Evidence of Change/Impact

Level of satisfaction

When asked about the level of satisfaction of their business performance, 63% said they were satisfied, 30% were highly satisfied and only 9% were moderately satisfied. None of the partners said they were dissatisfied with the performance of the intervention which is a good indicator of BAA's overall performance with respect to its partners.



And, when asked about customer experience and their level of satisfaction, 54% said they were satisfied and 41% were highly satisfied and 2% said they were moderately satisfied; only one of the partners (2%) said their customers were not satisfied.



The partners explained that the primary reasons for this satisfaction level were due to providing quality seed/fry (41%), providing quality service (39%), capacity building training (22%), providing quality products (17%) and creating formal distribution channels (10%). A few of the respondents also cited getting access on time (7%) and getting after sales service (5%) as reasons behind the customer satisfaction.

Protyashi said,

“For the first time farmers got capacity building training on nutrition sensitive aquaculture and got quality extension inputs support. They also received advocacy services through household visit by skilled staff.”

M-World said,

“Farmers are happy to have the revival of the original rohu from our native riverine system and the growth performance of our rohu is more than 20%-30% faster compared to the existing one in the market. Other than this, the taste of the G3 rohu is comparatively better than the existing ones. Farmers demanded more G3 fingerlings but as the source of G3 rohu was somewhat limited, it wasn't available to everyone.”

iSocial said,

“Micro-franchisees are happy as they are professionally trained and deployed in a formal distribution channel. This gives them the ability to earn a living and support their family. Farmers are also getting products embedded with necessary information from them. However, as farmers mostly rely on purchase on credit, they are still reluctant to purchase from this newly introduced distribution channel.”

Business performance and efficiency

Many of the partners have seen an improvement in business performance and efficiency since the interventions started. The City Bank said that their loan disbursement has increased from BDT 3 crore per annum to BDT 30 crore per annum, a ten-fold increase. Partners such as the Chittagong Meridian Agro Industries Ltd., BRAC and Bhola Monosex Tilapia Hatchery have increased their area coverage and thus increased their customer base.

Many of the IPs have seen an increase in sales revenue. This includes the likes of Parmeeda, iSocial, Rupali Fish Hatchery and United Agro Fisheries. FISHTECH BD has seen an increase in sales of nearly 14% from 27.6 crore in 2020 to 31.4 crore in 2021. KNB Agro Industries has seen their feed sales increase from 275 MT/month to 454 MT/month in the project area – a 65% improvement. Harun Mathsya Hatchery said that their sales went down in 2021 because of Covid-19.

Other benefits cited by the partners include infrastructure development, capacity building of staff, improvement in product quality and improvements in hygiene/bio-security. Bithi Scientific Hatchery and Fisheries said that where they never maintained hygiene before, they now have a zero tolerance on poor hygiene. South Bay Private Limited also said that they now have “sufficient foot bath in the hatchery compound and highly appreciable bio-security”. Modhumoti Carp Hatchery and Suraia Nur Mathsya Hatchery both said that they will continue to train hatchery staff on new ideas as this leads to increased performance and efficiency.

Women and youth participation

A number of partners reported increased participation and involvement of women and youth as a result of the intervention. FISHTECH BD said that they have 30 youth who are working as local service providers (LSPs), 10 women who are working with the laboratory and 447 women are getting special discount for their farm services. Previously, they had zero participation of either women or youth. Similarly, M-World said that they have engaged 323 women and 647 youth in G3 rohu culture in the Zone of Influence (ZOI) areas.

South Bay Private Limited remarked that before the intervention, women had limited interest in aquaculture. They have been trained on aquaculture and now they can contribute to their family by doing fish farming in the ponds nearer to home. There was also limited scope for the youth to get involved except for some government initiatives. But now the youth are getting interested in fish cultivation.

According to Parmeeda, the youth are more interested to work as agents than get directly involved in fish production. They have also found some female fish farmers who are either directly involved in pond culture or help their husbands. KNB Agro Industries said they now have a significant number of women who are involved in farmer training and demo establishment where previously they had none.

Innovation to enhance business effectiveness, efficiency and sustainability

Innovation

All the partners confirmed that the interventions they were involved in have introduced some kind of innovation/transformation to their business. The ones most commonly cited were: providing quality aquaculture services (69%), knowledge/technology transfer (36%) and establishing good distribution channels and access points (24%). A few also mentioned the introduction of web-based data collection system which has come in quite handy for them.

KNB Agro Industries Ltd. noted,

“Yes, we have introduced new 0.5mm micro feed formulation using local ingredients and production & marketing which minimizes import dependency. In Bangladesh, KNB is producing 0.5mm micro feed using local ingredients which enhances its business network and market acceptance by stakeholders”

Green Dale Bangladesh Ltd. said,

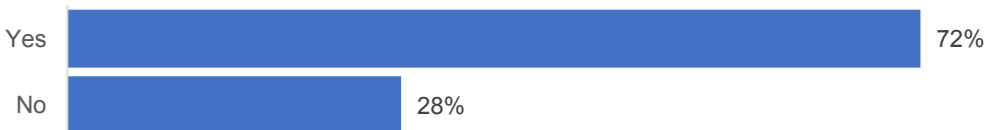
“The most innovative part of the business model of Green Dale was the establishment of a one-stop service center named GreenDale Service Center (GSC) and introduction of soil & water parameter testing facilities at the GSC”.

Alim Industries Ltd. said,

“Yes, the intervention has improved the aeration facility which helps to improve pond water quality. It helps our business too as it gives good results, so people want to buy more of these devices.”

Autonomous changes

Over 70% of the partners said that they have made autonomous changes to their business model since it was piloted with BAA’s assistance.



Parmeeda noted that,

“Upgradation and maintenance of the app is a continuous process and we are continuously investing on this to keep this functional and beneficial.”

iSocial remarked that,

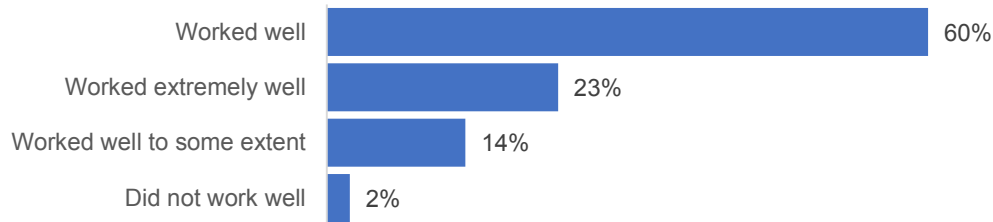
“We have talked with financial institutions to introduce trade credit for the micro-franchisees/farmers.”

Another partner, Rabeya Mathsya Uthpadan Kendra, said,

“We have developed dedicated packaging with tagging and logo for seed transportation.”

It is fair to say that some of these partners have taken real ownership of these interventions and are continuing to invest in them which is a good indication of sustainability.

When asked to rate these innovations at the service provider and/or recipient level, majority of the partners replied in the affirmative, saying that the innovations have worked well (64%) or extremely well (21%). Only one individual said that the innovation did not work well.



Replicability/scalability potential

The partners were asked which aspects of their intervention they felt had the potential for being replicated/scaled up. Twenty-six percent of the respondents (26%) said that they could not say; 16% mentioned the hatchery management system while 12% said pond preparation. Other notable mentions were biosecurity and knowledge transfer/capacity building training.

One of the partners, The City Bank, remarked,

“We want to expand the loan size of this market segment to BDT 300cr in next three years.”

Another partner, Fishtech BD said,

“The farmers of the south belt are getting services of the laboratory. After ensuring the lab services to all the farmers and ensuring their productivity, we will setup more laboratories in Mymensingh and Cumilla. Already the firms which have gotten services from us are claiming that their production has increased by 2-3 times compared to previous years. As part of lab expansion, we have a plan to set up 3 substations at Khulna, Satkhira and Bagerhat by next year.”

Sustainability

Increased revenue/profit for the business

Nearly 75% of the partners noted that their profit/revenue has increased as a result of the intervention piloted with BAA. Nine percent (9%) were unsure if the intervention made a difference while another 9% said that their profit/revenue did not increase.



One of the partners, Community Development Centre (CODEC), noted that their brand value has increased as a result of the pilot intervention:

“The organization managed to receive a new project, the USAID-funded Nature and Life project. In addition, CODEC received more familiarity, popularity, and goodwill in the working areas. As a result, its brand value has increased.”

Scaling up the intervention

When asked about their scale-up plans, 40% of the partners said that they had already scaled up while another 33% said that they were planning to. Twenty-six percent (26%) of the respondents said they had scaled up by offering services in new locations, while 12% had arranged training sessions for farmers. The other common responses include increasing distribution channels, establishing hatcheries, adding new services, and increasing human resources.

United Agro Fisheries said,

“We are planning to scale-up by June 2022. The trained PG harvesters and commission agents will train the other fish cutters. Meanwhile, relationship and contract will be established with the local fish Market Management Committee (MMC), so that they can supervise the PG harvesting activities, appoint a person for collecting and delivering PG to UAF on regular basis.”

ByteAlly Software Solutions said,

“We are on a process of scaling up our process. We are planning for the second phase where we will work with farmers having good interest in using technology and having a minimum understanding of smartphone handling. It would be followed by the less interested/ knowledgeable group in the second step of this phase.”

Additional investment

Nearly 75% of the partners said that they have made additional investments into the business model since they started working with BAA or were planning to do so in the near future.



Twenty-six percent (26%) said that they invested in improved hatchery management, 12% on stocking feed and purchasing materials and 9% on introducing new technology. The other reasons cited were purchasing assets, arranging trainings and demonstrations, and implementing project activities in other places.

Chittagong Meridian Agro Industries Limited noted,

“We have made additional investments worth nearly 1 crore taka on improved aerator system, air blower, auto feeder, orchid net and brood stock import.”

Parmeeda said,

“We have invested around USD 30,000 to keep our app functional and make the supply chain smoother. This also includes marketing costs to promote safe fish.”

Continuation of intervention without further support

When asked if they planned to continue with the intervention without further support from BAA, 23% said that they had no plans. The remaining 77% said that they planned to continue in one form or another. The areas they planned to continue with are as follows: 23% said they would continue to apply the experiences they have gathered from the project, 16% said they would maintain smooth supply of inputs and provide services, 12% said they would implement activities in other places and 9% said they would strengthen market linkages.

Representatives from The City Bank noted,

“Since we have already disbursed loans, we need to recover them. So, we are going to continue with the intervention even without BAA as this is our core business.”

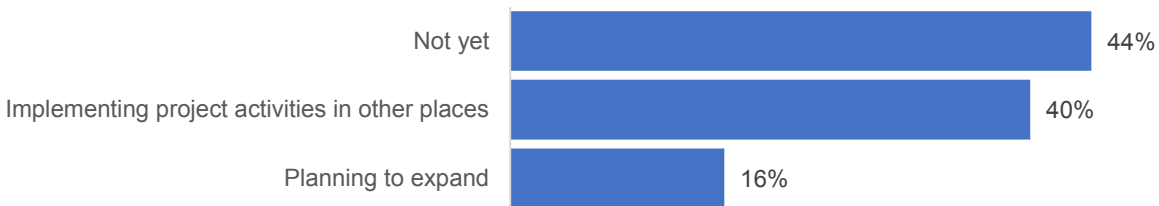
Rupali Fish Hatchery said,

“Rupali fish hatchery will continue to conduct training programs in new districts each year in order to expand their business and customer numbers. Meanwhile, they’ll focus to produce quality catfish spawn and make it a successful business in greater Jashore and Khulna.”

Replication/Crowding-in/Scale

Expansion of business model

Respondents were asked if they have expanded the business model/innovation to other areas with reduced or no support from BAA. Forty-four percent (44%) responded that they haven’t done so yet, 40% said they were already implementing project activities in other places while the remaining 16% said they were planning to expand soon.



One of the IPs, Protyashi, said,

“After our agreement with BAA came to an end, we expanded the business model in Ukhiya to Teknaf Upazila. We are also trying to replicate it in Cox’s Bazar Sadar Upazila.”

Another partner, Harun Mathsya Hatchery, remarked,

“We still have not expanded due to COVID-19 and brood unavailability, but there is a scope to expand the business model if brood and feed problems are solved.”

Symptoms of crowding-in

Most of the IPs, about 60%, said that they have seen evidence/symptoms of crowding-in. They cited other hatcheries/nurseries/companies/CBOs as copying the business model they piloted with BAA. This is an important indicator of systemic change as it shows that BAA's interventions are well-received by other market actors and gaining widespread adoption.



United Agro Fisheries (UAF) noted that,

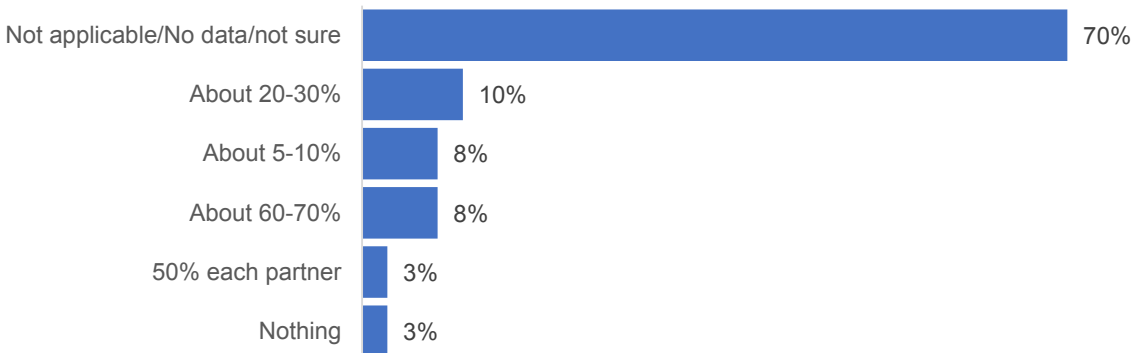
“Around 3-5 individual enterprises are now trying to adopt the same business model of UAF and they have already started their business operation following UAF’s business activities.”

Representative from BRAC said,

“Since BRAC’s Magura Tilapia Hatchery model has already been proven as a profitable venture, other commercial companies like EON, Index, Paragon can adopt the same model.”

Market share of partners and others that have crowded-in

When asked what is the combined market share of the partner(s) and others that have crowded-in, most of the respondents (70%) could not give a definite answer. They said they had insufficient data or were not sure of their market share. About 10% said they controlled between 20-30% of the market while a smaller percentage (8%) said they had between 60-70% market share. About 8% of the respondents said their share of the market was just 5 -10%.



Parmeeda said,

“This is hard to calculate. We have about 20 percent market share in fresh fish segment in Dhaka city for those delivered through e-commerce.”

Rupali Fish Hatchery said,

“The hatcheries which are following Rupali Fish Hatchery’s business model and innovation, have a combined market share of 20-30% of the total hatchery business in Jashore.”

Copying behavior

The partners were also asked if others, whom they hadn’t targeted directly, started copying the behavior change of the target group. More than half of the respondents said that they hadn’t noticed or were not aware of any copying behavior at the beneficiary level. However, it seems from the responses that many of them had not understood the question properly and failed to distinguish between crowding-in and copying behavior.

The representative from Community Development Centre (CODEC) said,

“The neighbor of the PNSASS project was found copying the handwashing practices (tippy tap, bucket basin), mola carp polyculture, and dike cropping/homestead gardening and mola gillnet.”

Rupali Fish Hatchery noted,

“Approximately 300-400 nurseries and farmers who didn’t receive any training on BMP from Rupali Fish Hatchery in the targeted areas started copying the behavior change of the target group.”

Response

Changes in policy/business enabling environment (BEE)

The respondents were asked if there has been any changes in policy/ business enabling environment that has impacted the intervention, either positively or negatively. Here too it seems that the respondents failed to understand the question properly. While the question was referring to policy changes or BEE at a macro level, most of them understood them as changes at a micro level. Many of the respondents spoke about how company management had allowed staff to work from home due to COVID-19 and instructed them to communicate with their agents/dealers through mobile phones. A few of the responses, however, were quite informative as shown below.

The representative from BRAC said,

“Yes. Previously, there was no provision of BRAC to sell mixed-sex tilapia fry to other hatcheries other than BRAC-owned tilapia hatcheries. But due to this intervention, that provision has been changed. Mixed-sex tilapia fry is now a saleable product of BRAC hatchery. From the intervention here, BRAC Magura Tilapia Hatchery has made around 16 Lacs Taka revenue by selling mixed-sex tilapia fry. So, undoubtedly this initiative has impacted the intervention as well as the business positively.”

Fishtech BD noted,

“No changes in company policy yet but it should be. Our shrimp or prawn has great demands in many countries in the world but because of compliance issues i.e. certification or testing facilities we are lagging behind from many shrimp/prawn exporting countries such

as China, India and Vietnam. If our government starts imposing the disease checking certification strictly from farms to processing centers, our national economy will be benefited.”

Response from interconnected/supporting markets

When asked if market players from interconnected/supporting markets have reacted/responded to the new business model, majority of the partners (64%) responded in the affirmative.



This question too seems to have eluded the respondents as many seem not to have grasped the meaning of interconnected/supporting markets. However, like before, some of the answers are instructive.

United Agro Fisheries remarked,

“Yes, 305 individual enterprises were collecting raw PG from the fish markets and selling them without further processing. But now, they are trying to set up a small processing lab and then sell processed PG to the hatcheries. Meanwhile, the hatcheries responded very positively receiving UAF branded dry PG due to its quality.”

BRAC said,

“Multiplier hatchery owners responded to the new business model positively. 8 multiplier hatcheries have already purchased mixed-sex tilapia fry from BRAC’s Magura-based Tilapia hatchery. Meanwhile, other 15 hatchery owners who received training from BRAC showed their interest to buy mixed-sex tilapia fry from BRAC hatchery because of its good quality and practice.”

Green Dale Bangladesh Ltd. noted,

“Aquaculture machinery companies intervened in this sector and some progressive farmers are using AQ machinery products (starting phase).”

Ability to withstand external shocks

When asked whether they have been able to withstand and cope with external shocks, especially COVID-19, majority said they have been able to do so. Some did so with the help of technology, others by taking out loans and some by extending the project duration.



Some notable responses are highlighted below.

Duronto TV said,

“Yes, the program development process was continued even during the Covid-19 pandemic. The program's broadcast was continued in the worldwide economic recession resulting from the pandemic.”

FISHTECH BD said,

“Yes, due to Covid-19, lab set up was delayed because most of the equipment, consumable and chemicals were procured from abroad. FISHTECH is a large company in the aquaculture sector of Bangladesh. Therefore, we have the ability or internal mechanisms to withstand or cope with external shocks. We took no-cost extension for 3 months and completed our activities in an effective and efficient way.”

BRAC said,

“Yes, the intervention has helped BRAC to cope with external shocks. Demand for mono-sex tilapia this year was comparatively lower. So, selling mixed-sex tilapia fry along with the mono-sex tilapia fry has helped BRAC to add some additional money to its revenue stream.”

Summary

Overall, there seems to be strong indication that systemic change is indeed taking place in the market systems that BAA has intervened in. Both the partners and end users are highly satisfied with the goods/services/information/technologies they have received from BAA. This means that they are highly likely to continue with the interventions without further support from BAA. The IPs have cited various benefits they have received from the interventions which include improvements in business performance and efficiency, increase in sales revenue, increase in area coverage, improvements in product quality and hygiene/biosecurity, infrastructure development and capacity building of staff. These benefits are compelling enough for the partners to carry on with the interventions.

Participation of women and youth seem to have increased significantly as a result of program activities. Over 70% of the partners said that they have made autonomous changes to their business model since it was piloted with BAA's assistance. This is a good indication that market actors are taking ownership over their interventions and investing in them which is a sign of sustainability.

Over 70% of the IPs responded that their profit/revenue has increased since they started working with BAA. The City Bank for instance has increased their loan disbursement by ten-fold while KNB has seen their feed sales increase by 65%. This is perhaps one of the strongest signs that most of BAA's interventions are likely to become sustainable beyond project support.

Forty percent (40%) of respondents said they have already expanded their operations to other locations while 16% said they were planning to do so in the near future. About 60% said they have seen evidence/symptoms of crowding-in where other hatcheries/nurseries/companies/CBOs are copying their business models. These show that the interventions have started to gain momentum and have the potential to reach scale over time.

Tier-2 Findings

General Information

Tier-2 consists of a wide range of market actors – nurseries, patilwalas, sales point agents, local service providers (LSPs), etc. Twelve hundred and forty (1,240) respondents were interviewed as part of Tier-3.

Sex

Most of the respondents interviewed were male, accounting for 91% of the sample, while the remaining 9% were female. With a representative sample, this would indicate that there is a gender imbalance in the composition of market actors, with female actors being grossly underrepresented within BAA's interventions.

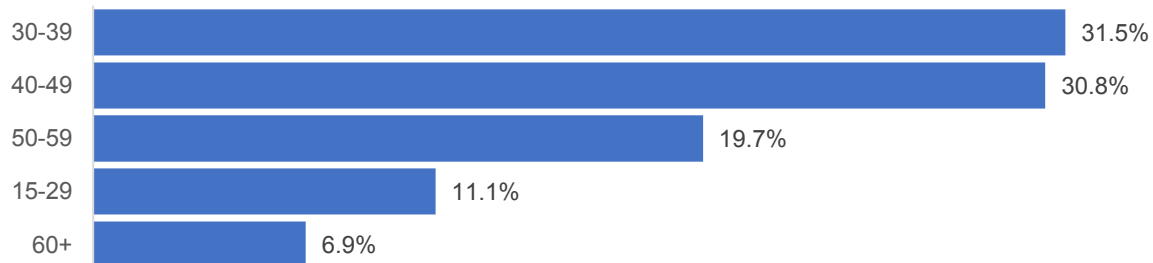


Age

The minimum recorded age of the respondents was 16 years and the maximum was 75 years. The average age of the respondents was 42 years, while the median age was just 41 years as shown in the table below.

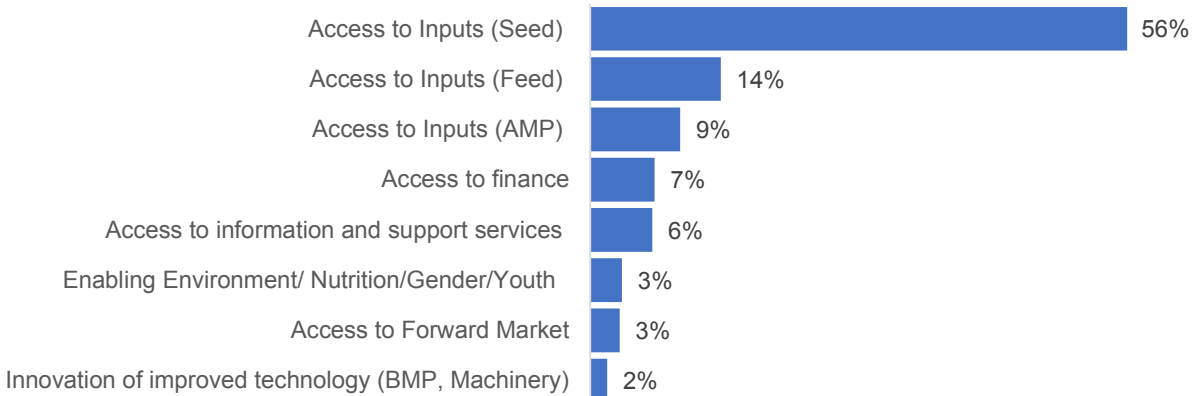
Minimum Age	16.0
Maximum Age	75.0
Average Age	42.1
Median Age	41.0

When considering the age range of the respondents, 31.5% of them fell within the 30-39 year age bracket, 30.8% fell within the 40-49 year group and 19.7% within the 50-59 year age range. Overall, 73% of the respondents were below the age of 50, showing that the market actors are part of a relatively young cohort.



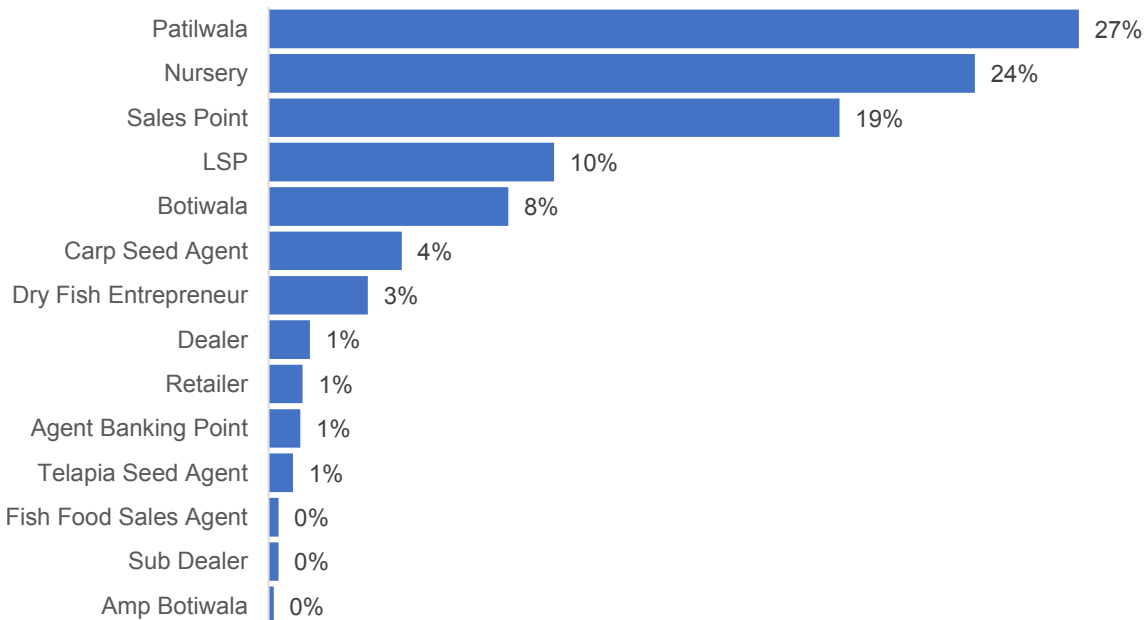
Thematic Area

The distribution of market actors by thematic area is shown below. Access to Inputs (Seed) made up the bulk of the sample at 56%. This was followed by Access to Inputs (Feed) at 14% and Access to Inputs (AMP) at 9%. Combined, the Access to Inputs portfolio made up nearly 80% of the total. The remaining 17 partners made up just 30% of the sample size. The remaining thematic areas made up the remaining 21% of the total.



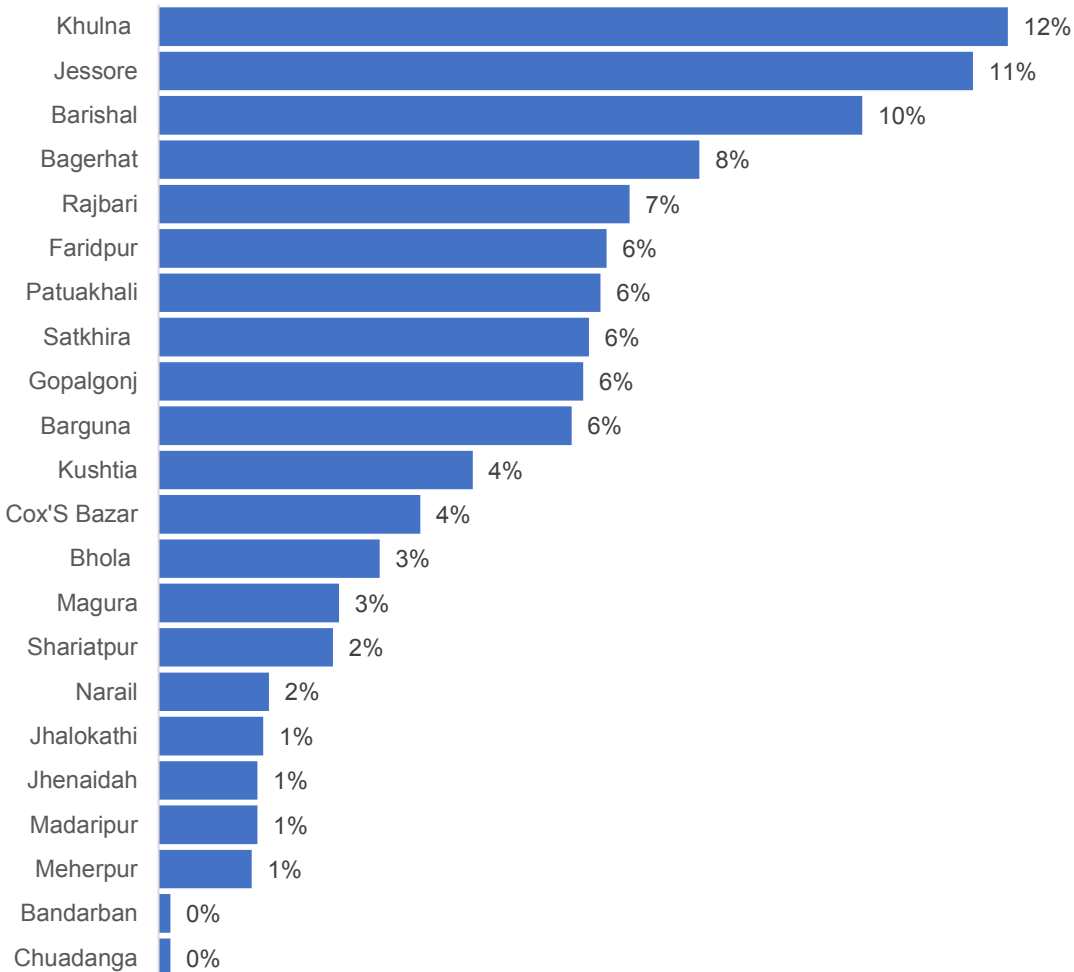
Type of Market Actor

Most of the market actors interviewed were from the Access to Inputs (Seed) portfolio, with nurseries and patilwalas making up more than half of the total sample (51%). This was followed by sales point agents at 19% and local service providers (LSPs) at 10%. Nearly a hundred botiwalas were also interviewed, making up around 8% of the total.



Geography

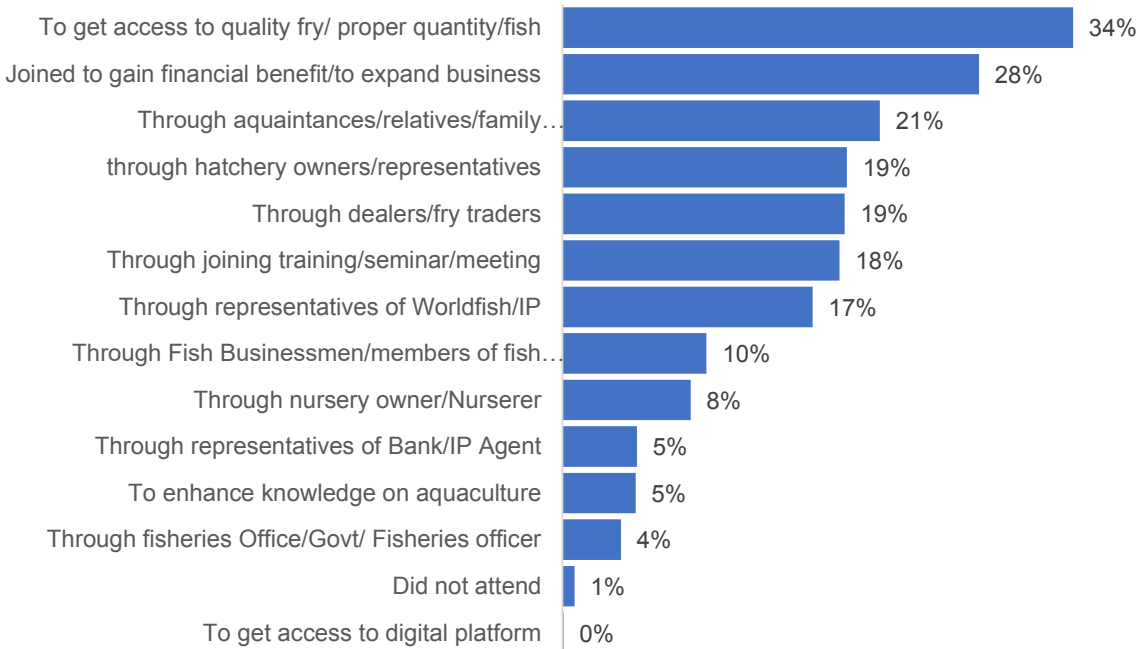
The geographic distribution of the beneficiaries is shown in the chart below. The top 5 districts – Khulna, Jessore, Barishal, Bagerhat and Rajbari– accounted for nearly half of the total sample (47%), while the next 17 districts made up the remaining 53%.



Evidence of Change/Impact

Involvement with intervention

Respondents were asked how and why they got involved with the intervention. Their responses are documented in the chart below. Most people seem to have joined to get access to better quality inputs and to avail financial opportunities to expand their business. Most people got involved through acquaintances/relatives (21%), through hatchery owners/representatives (19%), through dealers/fry traders (19%) or through joining a training/seminar/meeting (18%).

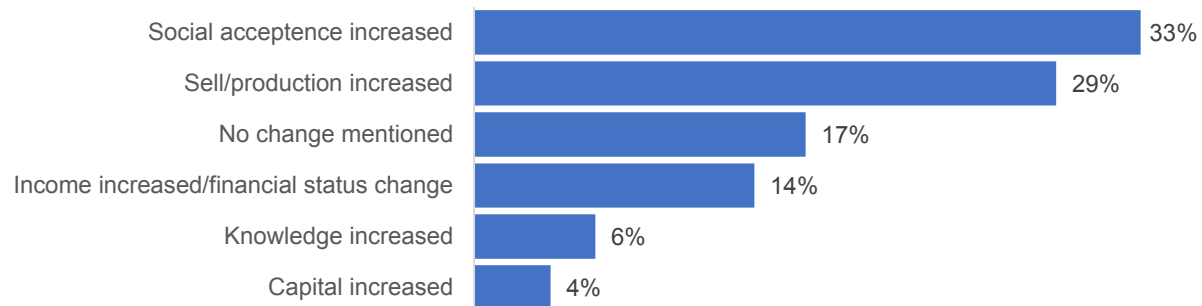


Respondents were asked if they got any new support/service/knowledge due to the intervention in terms of support (e.g., demonstration), service (e.g., advisory service, testing facility, access to finance) and knowledge (e.g., best management practice, capacity building events). The most common responses are presented in the table below in order of frequency.

Category	Response (% of total responses)
Support	<ul style="list-style-type: none"> Advisory support (14%) Testing kit (sample/soil/water) (10%) Financial support (credit purchase, cash support, etc.) (5%) PG collection (hook, acetone, bottle) (5%) Free fry/new species/seeds (5%) Merchandise/promotional materials (Bookkeeping record notepad, folders, festoons, banners, flyers, pocketbook, brochures, pen, notebook, diary, calendar, bags, t-shirt, cardholder, umbrella, etc.) (4%) Other miscellaneous support (transportation, pond management, equipment etc.) (4%)
Service	<ul style="list-style-type: none"> Advisory service – farming and inputs (38%) Advisory service on product promotion (10%) Promotional material/merchandise (books/festoon/banner/signboard) (9%) Buy input at low cost/credit purchase facility (8%) Received quality products (fry/feed etc.) (4%) Financial support to farmers (4%)
Knowledge	<ul style="list-style-type: none"> Fish/fry/egg cultivation technique/management (29%) Pond/nursery management (23%) Feed management (18%) Best practices (12%) Business management/customer service (10%) PG collection/preservation/fish cutting (7%) Fry transportation management (6%)

How the intervention benefited at an individual level

The market actors were asked how they have benefited from the intervention at a personal level. Most people (33%) felt that they have seen an increase in their reputation/social acceptance. Kamruzzaman, a nursery owner from Abhaynagar, Jashore remarked, *“Before I started selling fish fry, people didn’t used to know me, but they do know me now.”* A significant number of people (29%) said that they have seen an increase in production/sales. Fourteen percent (14%) said that they have seen an increase in income and improvement in their financial status while 6% said that their knowledge of fish farming has increased. Surprisingly, 17% of people said they have not experienced any change whatsoever.



H. M. Imran, a Nursery owner from Jhalokathi district, said:

“Farmers’ demand for good quality fry has increased because less feed is needed for them. Before I sold 220,000 pieces of fry and now this has increased to 260,000 pieces.”

Kamrul Sheikh, a Patilwala from Gopalganj, said:

“By transporting good quality fish fries, the business is expanding. Communication has developed in many ways, as well as social acceptability.”

Another Patilwala from Gopalganj, Hanif, said:

“Sales is high as the quality of the fry from the nursery is good, the profit is also high. Now my family is in a good condition. My recognition has increased in the society.”

Md. Romi Morol, a Nursery owner from Jessore said:

“Due to the training I received, I have learned many new methods of fish farming. I have sold 3,50,000 taka worth of fish this year whereas I sold only 2,00,000 taka worth of fish last year.”

Fatima, a female sales point agent from Patuakhali, said:

“Increase in trade has increased my income, which helped expand my business. Previously my income was 60,000, now it is 80,000 per year.”

Ananda Tikader, an LSP from Gopalganj, said:

“Fish farmers know me, they take advice from me for fish disease and fish culture. So, when I advise about something, they listen to me.”

Biplob Jahan, an input dealer from Jhenaidah said:

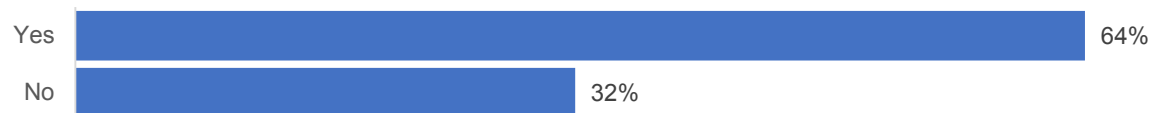
“Before selling KNB feed I had around 90 customers, and 6 retailers. Now I have 130 customers and 11 retailers roughly.”

Md. Azad Kibria, a sales point agent from Bhola, said:

“At present people's interest in aquaculture is increasing; along with the old ones, some new fish farmers are joining. This has increased demand and selling.”

Changes in women and youth participation

Of the 1,240 respondents, 64% believe that they have seen changes in women and youth participation or that there is now more interest among them to get involved in the fish value chain in some capacity. Thirty-two percent (32%) believe that they haven't seen any meaningful changes in women/youth participation or that there is little interest in them to get involved in the fish business.



This can be viewed as a positive change as there is now greater social acceptance of women getting involved in an activity that has predominantly been led by men, which may lead to economic empowerment of women. Youth showing interest in aquaculture and fish farming shows that this is a dynamic sector where young people see a future in and are willing to invest their time and energy.

Jahidur Islam Nirob, a sales point agent from Barishal District, said:

“Yes, due to this training young people have become interested in fish culture which reduces unemployment.”

Enamul Kabir Rizvi, a Nursery owner from Rajbari District, said:

“Young men's participation can be seen in aquaculture. This business requires less capital, is low risk and loans can be taken on easy terms. Around 10 people from my area have profited by engaging in this.”

Ali Ahmed Howladar, a Patilwala from Barguna District, said:

“Yes, the participation of youth has increased. Seeing the profit level in my trade, three young men have started their own businesses.”

A Patilwala from Satkhira District, Muzibor Rahman, said:

“The way I participated by seeing others, youth boys are also getting involved in this business besides studying.”

Ananda Tikader, an LSP from Gopalganj District, said:

“Many youth are interested in fish culture, they know it is a profitable business. As fish farming is increasing so is the demand of feed. When farmers find feed here in local area, they don't go the market to buy. So, youth in the area are interested to do feed business.”

Rafiq Khalifa, a Nursery owner from Patuakhali District, said:

“Women and youth participation has increased, and the majority of them see this program as a means of advancing their careers.”

Sajhan Molla, a Patilwala from Rajbari District, said:

“Due to these interventions the young men are seen in this profession, as a reason of good quality fries being available, easy transportation and profit. 3 men in our area are involved in it, but no woman.”

Sabina Yeasmin, a female Botiwala from Jessore District said:

“With the PG collection intervention a few women in the bazaar have changed and they collect PG along with cutting fish.”

Abul Hashem Khan, a Nursery owner from Madaripur District, said:

“Women distribute feed and inform whenever there is any problem in the pond. The men drive fish vans, aerate with net, and sell fishes.”

Hira, a Patilwala from Rajbari District, said:

“Women are not that much involved; they sometimes distribute feed. The men do this with interest because it has more profit, requires less capital, less time and expense.”

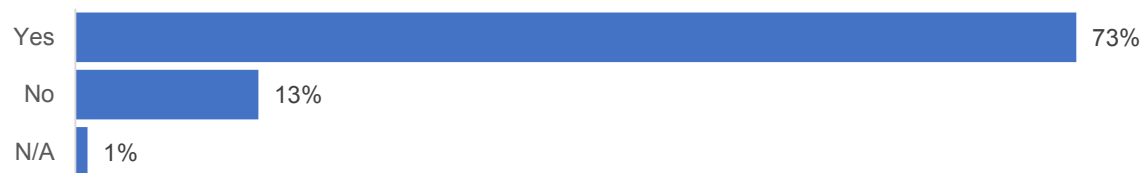
Shah Alam, a Patilwala from Madaripur District, said:

“Young men are not interested in this occupation. They are occupied with other things. Maybe they are not taking this well. And women are not interested in this.”

Innovation

Innovation in business

Respondents were asked if the intervention introduced some kind of innovation or transformation in their business and an overwhelming majority (73%) said yes. Only a handful of respondents replied in the negative believing that no innovations were introduced by BAA.

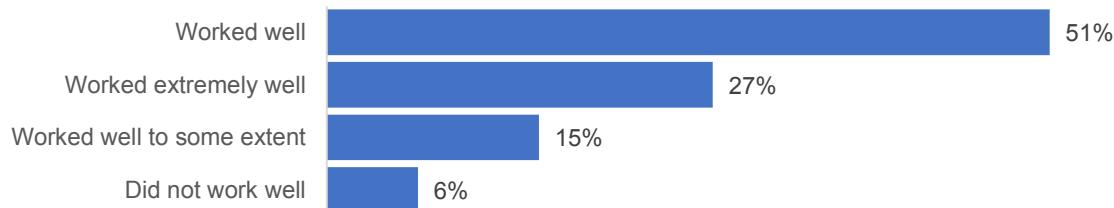


Respondents were asked about these innovations in terms of process, product and technology. The most common responses are provided in the table below in order of frequency:

Category	Response
Process	<ul style="list-style-type: none"> • Buying/selling/distribution through LSP (24%) • Sample testing kit/service (16.3%) • Knowledge enhanced (9.5%) • Fry transportation technique (oxygen cylinder/ oxygen tablet/ van/saline) (6.7%) • Loan from agent point (6.0%)
Product	<ul style="list-style-type: none"> • Changed feed brand (18%) • Added floating feed (12%) • Oil cake (9%) • Started using packet feed/high quality feed (8%) • Organic feed (7%) • New species/high quality species (5%)
Technology	<ul style="list-style-type: none"> • Trading/buying/selling via mobile (without app) (35%) • Money transaction through app/bKash/Nagad/Rocket (13%) • Advice/market information/communication via mobile (13%) • Banking information service/transaction via app (6%) • Mobile app for market information/technical support (cultivation/diseases/treatment) (6%)

Experience with the innovation

Most of the market actors affirmed that they had a positive experience with regards to adopting the innovation with 51% claiming that it worked well for them and 27% claiming that it worked extremely well for them.



Overall, over 90% of the respondents claimed that the innovation worked well for them with only a small minority (6%) saying that it didn't. This bodes quite well for the sustainability of the intervention as actors who are satisfied with the innovation are likely to continue with them.

Scalability potential of the innovation

When asked if it is possible to scale up the innovation, an overwhelming majority of market actors (91%) responded in the affirmative. Less than 5% of the respondents claimed that there is low or no possibility of scaling up the innovation.



Given that scalability is an important aspect of systemic change, it seems that these interventions have the potential for or are well on their way towards achieving systemic change.

Horichad Biswas, a Patilwala from Magura District, said:

“The possibility of market expansion in the future is high. Due to unemployment educated youths are getting interested in fish farming.”

Farhad Sheikh, a Nursery owner from Madaripur District, said:

“In my opinion, feed is rescuing farmers from big trouble. Now we do not need to waste time on preparing feed. So, there is a possibility of this business to expand. With increased number of culturer, feed demand is also increasing.”

Ali Ahmed Howladar, a Patilwala from Barguna District, said:

“If novel activities like these continue, the potential for market expansion will be high in the future.”

Another Patilwala from Gopalganj District, Hanif, said:

“Businessmen are benefiting from adopting new technologies; they are facing fewer problems now. The market will expand in future. People will become more interested in aquaculture.”

Robiul Islam, a Patilwala from Bagerhat District, said:

“Possibility of market expansion is very high. Many people are getting interested in fish culture due to growing unemployment. To meet this requirement the number of hatcheries and nurseries are also growing.”

Sumon Mallik, a Nursery owner from Jhalokathi District, said:

“Market can get twice as big as now in the future. Because farmers are farming with good quality fry and producing more fish and gaining profit. They are showing interest in buying this fry even more.”

SM Mohiussunnah, an Agent Banking Point in Jessore District, said:

“Around 40% of fish farmers are interested in getting loans. So, if loans are provided to them then this business has possibility of expansion.”

Sustainability

Expansion plan

Majority of the market actors (91%) said that they planned to expand their business while around 3% said that they did not have any plan to expand; less than one percent said that they wished to continue as is. This is depicted in the chart below.



With such a high percentage of market actors willing to expand their businesses, there is strong indication that they are satisfied with their intervention and are likely to continue with it.

When asked how they planned to expand their business, nearly 40% said they planned to do so by increasing their pond/gher/nursery/hatchery. Twenty-three percent (23%) said they planned to expand either this season or within the next two years. Around 20% said they will expand by increasing their sales/customer base/market linkages or production while 15% of the respondents said that their expansion will depend on financial stability or loan availability.

Bablu, a Patilwala from Rajbari District, said:

"I have been doing the business for a long time, so I would like to continue the business using my experiences. Along with increasing fry selling, I want to establish my own nursery within this year."

Jakir, a Nursery owner from Barishal District, said:

"I plan to increase the number of ponds to increase production by taking loan from NGO. I will make it happen soon. I will continue farming as long as possible."

Narayan, a Sales Point owner from Bhola District, said:

"Along with holding on to old customers I would like to add some new ones, and within one year, I would like to double the sales."

Another Sales Point owner from Bhola District, Md. Azad Kibria, said:

"Within 6 months I would like to repair the shop and increase the space and increase the number of customers by 50%."

Juhidul Islam, an LSP from Kushtia District, said:

"I plan to expand business by doing marketing in different villages by myself. I will soon implement that."

Md Masud Rana, a Botiwala from Jessore District, said:

"I would sell fish along with cutting it next year, I will cut a lot fish and collect PG to earn extra."

Md. Tarek, a Dry Fish Entrepreneur from Cox's Bazar District, said:

"My aspiration is to export dry fish to other countries because I don't get a reasonable price here."

Jahangir, a Tilapia Seed Agent from Bhola District, said:

"Due to Corona, demand has reduced a bit, so I am currently not planning of expanding the business."

Continue expansion without further support

Nearly 90% of the respondents said that they would go ahead with the expansion/replication without further support from the program. This is another strong indication of the sustainability of the intervention.



Md. Habibur Rahman, a Sales Point owner from Satkhira District, said:

"Even if there is no help from the project, I have to continue the business for my future and financial development."

Polash Sarkar, a Nursery owner from Rajbari District, said:

"I will surely continue it. This is a business that has gone on for generations; it is in our blood. No matter what happens, I will not shut it down. It is a family business and I am benefitted by it, so I will continue it."

Sabina Yeasmin, a female Botiwala from Jessore District, said:

"Even if there is no intervention on this I will continue my business, as this PG collection gives me extra earnings and it's demand increased in hatcheries."

Ashim Dhali, a Patilwala from Gopalganj District, said:

"If this nursery does not sell fry, then I will buy from another nursery, but I will continue my business. Now I have relationships with quite a lot of nurseries. So I don't think my business will face any problem if I don't buy from this particular nursery."

Another Patilwala, Ibrahim, from Patuakhali District said:

"I wont get the project's help for my entire life. I have to continue my business on my own. I have taken this business as my main profession."

Sayed Noor, a Dry Fish Entrepreneur from Cox's Bazar District said:

"Gaining help and support from the project is advantageous to business. But I must continue to run my business."

Not all comments were positive however. Aporna Mondol, a female LSP from Bagerhat District, said:

"I will not take part in this kind of intervention in future as it is troublesome."

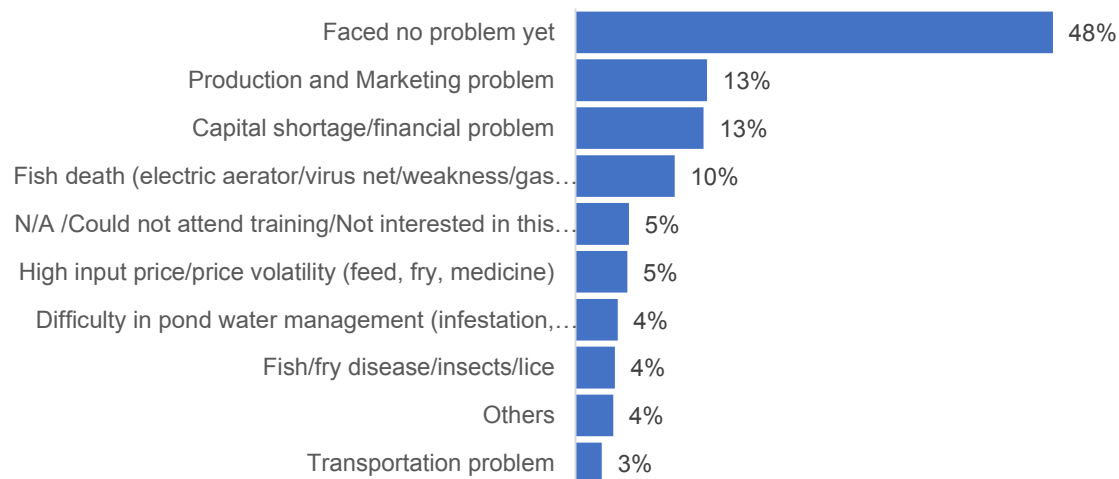
Another LSP, Juhidul Islam, from Kushtia District had similar concerns:

"It is difficult for LSPs to continue business without the help of project. I have very little capital so I do need help from the project to continue my business."

Additional information

Challenges to implementation

Nearly half of the respondents (48%) said that they have not faced any problems yet; 13% said they faced production and marketing related problems while another 13% said they faced capital shortage/financial problems. Fish mortality due to various causes (electric aerator, gas in water, infection, during transportation, etc.) was a common response with 10% of the respondents facing this problem. The other common responses are shown in the chart below.



Topon Biswas, a Patilwala from Rajbari District, said:

"The newly added transport (Nosimon) fare is high, and the fries sometimes get weak due to lack of oxygen."

Another Patilwala, Abdul Haque, from Barishal District said:

“When harvesting fish for others, sometimes there is scarcity of workers or labour is expensive. Other than that no such problem.”

Md. Junayed Ahmed, a Dealer from Shariatpur District, said:

“LSP are not available on time. There is less water testing kit, so when 2/3 farmers come together, it cannot be provided to everyone. If it is given to one, the others become sad.”

Rabeya Begum, a female Sales Point owner from Khulna District, said:

“Account receivable is the biggest problem, unavailability of feed on time is also a problem.”

Jewell Biswas, an LSP from Gopalganj District, said:

“Yes had problems. At first people ignored me and said a lot of things, didn't want to take feed as well.”

Boidanath Das, a Botiwala from Faridpur District, said:

“Customers do not let me collect PG, and some do not allow to cut fish head.”

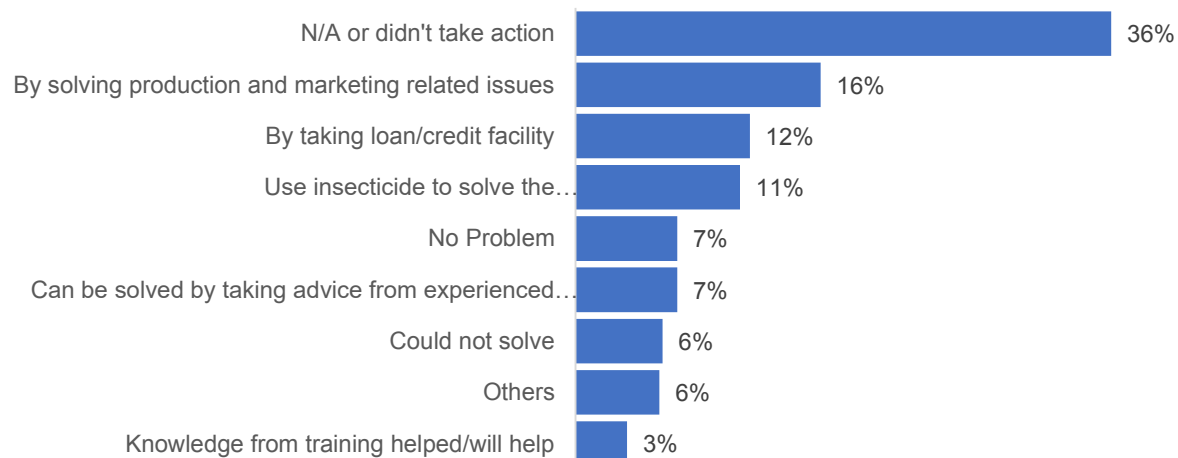
Another Botiwala, Mohon from Barishal District, faced similar problems:

“The public does not allow us to collect PG, fixed customers leave and arguments occur with them.”

Solution to problems

When asked how they addressed these challenges most of the respondents, 36%, said that they did not take any action. For addressing their financial constraints, they took out loans/credit facilities while for reducing fish mortality they applied insecticides, medicines, and saline solution.

Seven percent (7%) of the respondents said that many of their problems can be solved by taking advice from experienced people/pharmacies/fisheries officers/nurseries. Three percent (3%) said that the knowledge they gained from trainings helped them in solving these issues.



Summary

It seems that BAA's interventions have done quite well overall in helping the various market actors who are involved in the fish value chain. Over 80% of respondents said they have personally benefited from BAA's interventions in some capacity – either financially, socially or through increase in knowledge. Many of them said that they have seen an increase in participation/interest of women and youth in the fish sector which are both highly positive.

Over 90% of the respondents claimed that the innovation worked well for them; this is a strong indication of sustainability of the interventions as actors who are satisfied with the innovation are likely to continue with them. An overwhelming majority of market actors (91%) affirmed that it is possible to scale up the intervention and most of them confirmed that they would in fact do so without further support from the program. With such a high percentage of market actors willing to expand their businesses, there is strong indication that they are satisfied with their intervention and are likely to continue with it. By addressing both pillars of scalability and sustainability, it is safe to say that BAA's interventions have achieved systemic change or are well on their way towards doing so.

Tier-3 Findings

General Information

Tier-3 contains fish farmers – men, women and youth; consumers and direct participants. Nine-hundred and seventeen (917) respondents were interviewed as part of Tier-3.

Sex

Most of the respondents interviewed were male, accounting for 87% of the sample, while the remaining 13% were female. If the sample is truly representative, it means that there is a gender imbalance in the composition of beneficiaries, with female beneficiaries being grossly underrepresented.

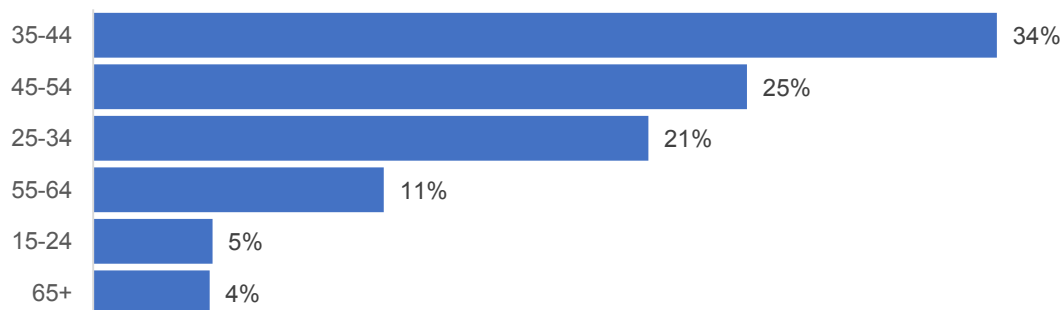


Age

The minimum recorded age of the respondents was 15 years and the maximum being 88 years. It is possible that the maximum number could be erroneous since it is quite unlikely to have an 88-year-old beneficiary who is still actively involved in aquaculture. The average age of the respondents was 42 years, and the median age was just 40 years.

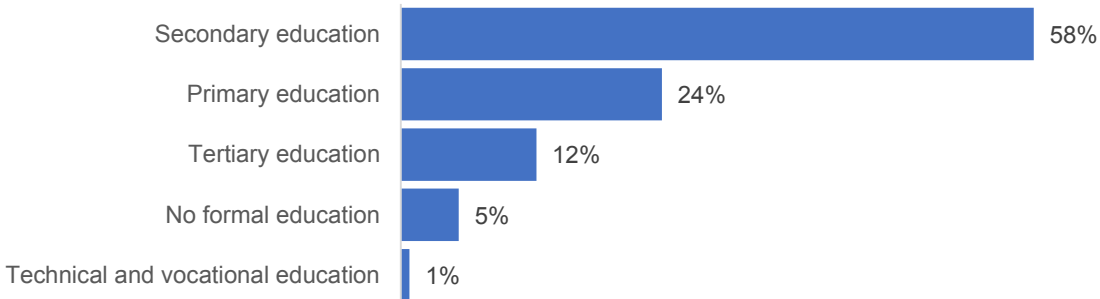
Minimum Age	15.0
Maximum Age	88.0
Average Age	42.0
Median Age	40.0

When considering the age range of the respondents, 34% of them fell within the 35-44 year age bracket, 25% fell within the 45-54 year group and 21% within the 25-34 year age range. Overall, 60% of the respondents were below the age of 50, showing that the beneficiaries are relatively young.



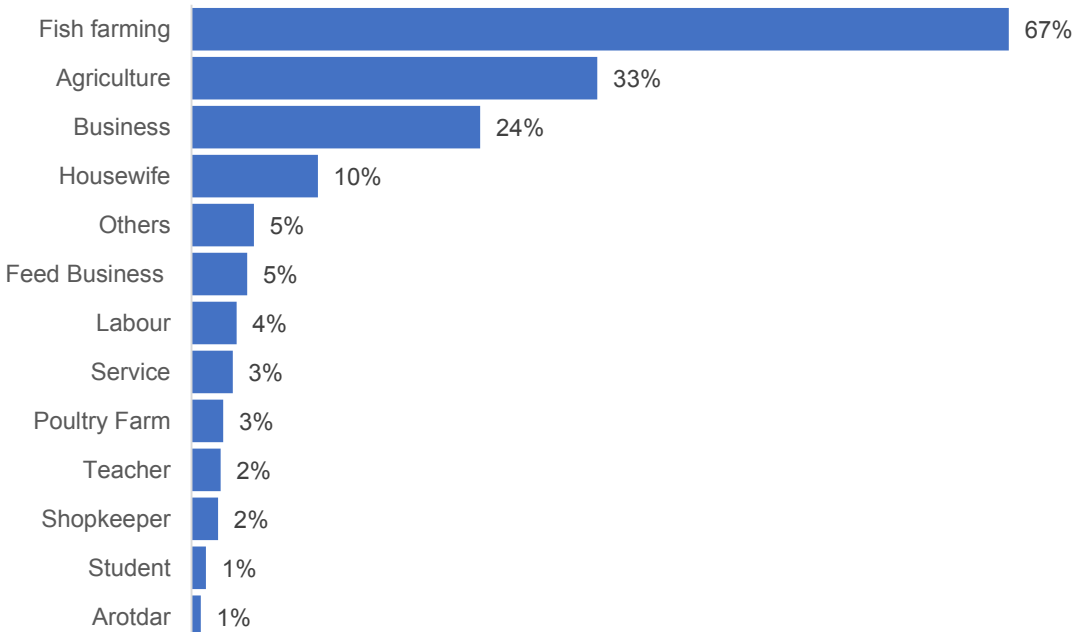
Education

Nearly 60% of the respondents said that they have completed secondary education, 24% have completed primary education and 12% have completed tertiary education. This shows that the beneficiaries are quite well-educated. Only 5% said that they did not receive any formal education or were illiterate.



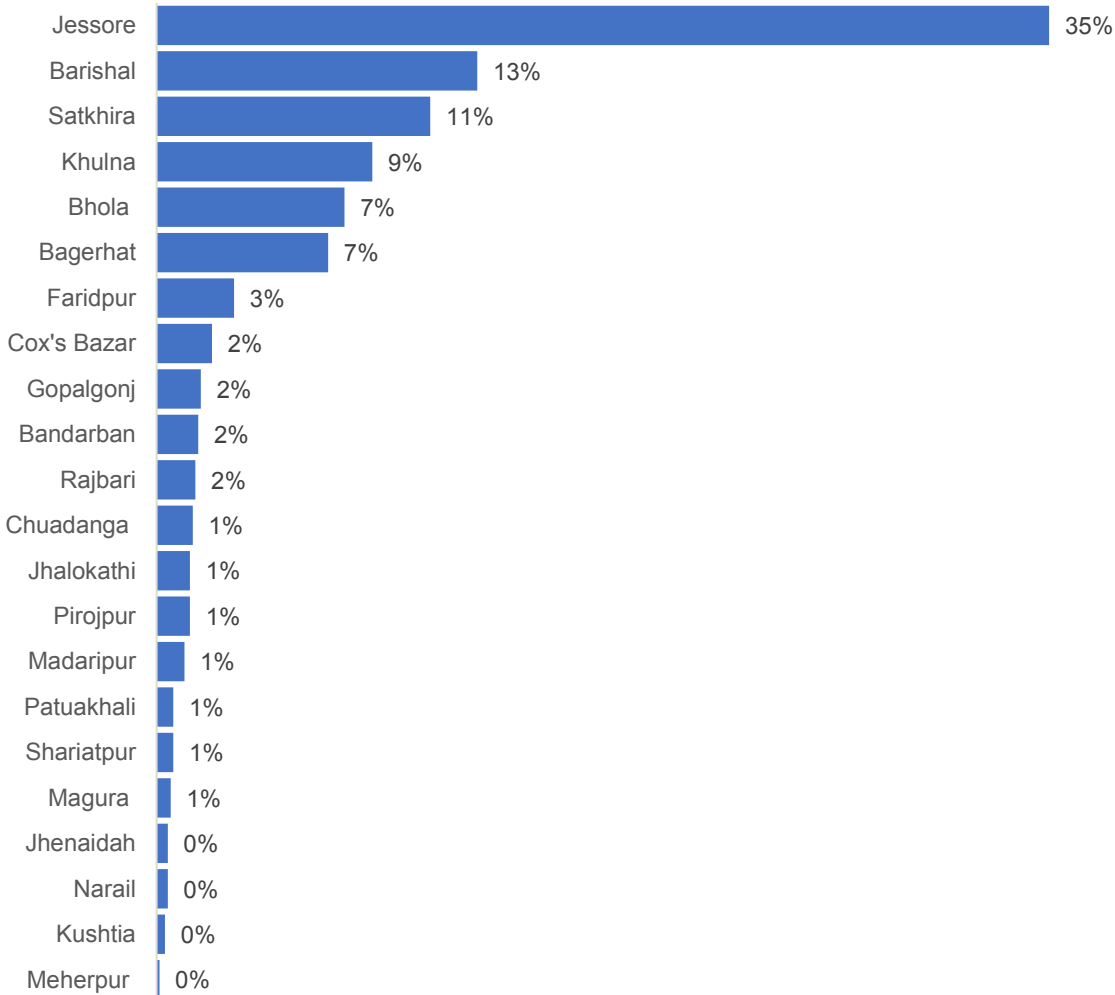
Occupation

Of the 917 farmers interviewed, over two-thirds said that they were involved in fish farming/aquaculture, while 33% said they were involved in agriculture. Nearly a quarter (24%) said that they had their own business while 10% said they were also housewives. It is important to note here that some respondents mentioned they had more than one occupation. So female respondents who said they were housewives, were also involved in farm activities.



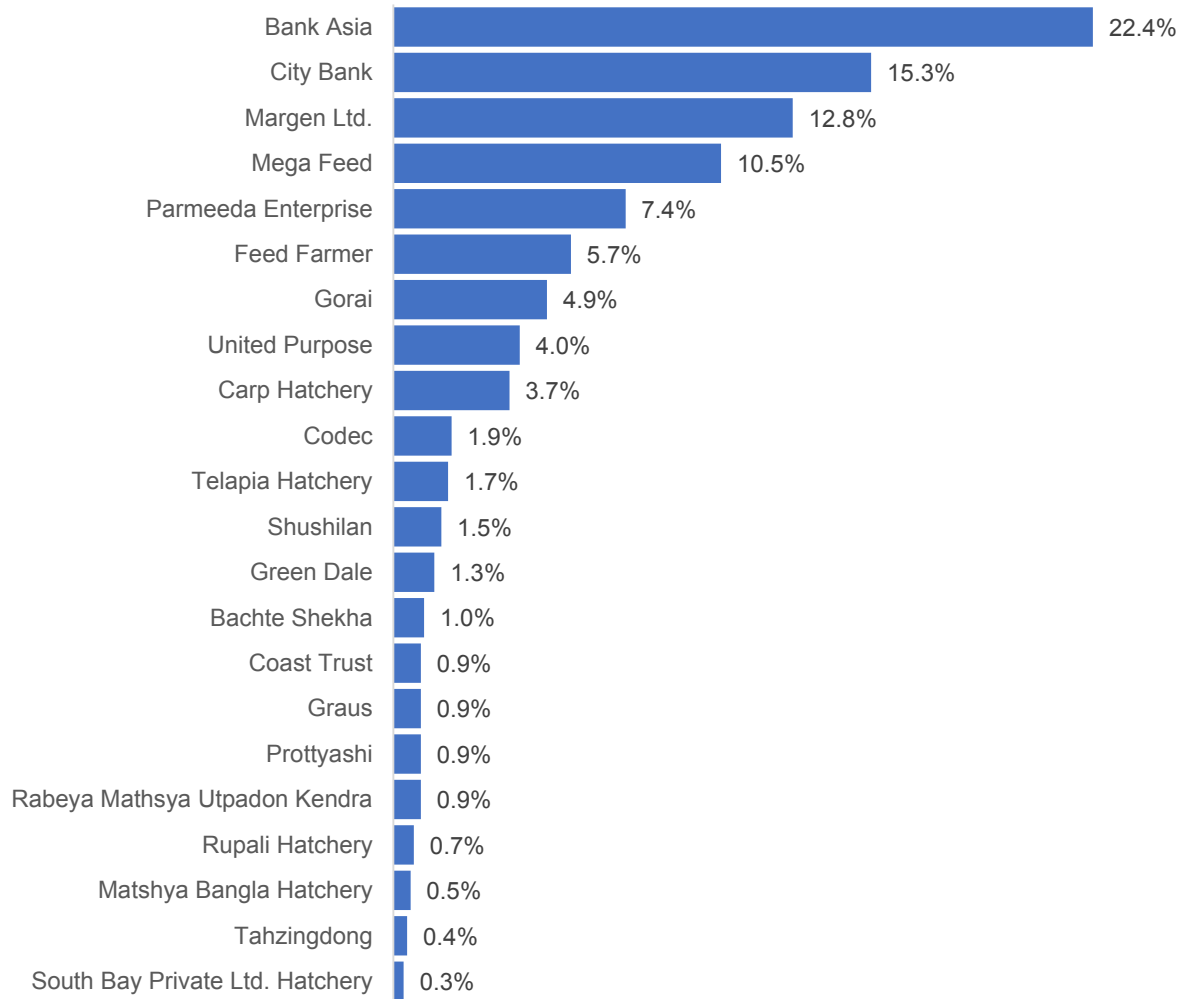
Geography

The geographic distribution of the beneficiaries is shown in the chart below. The top 3 districts – Jessore, Barisal and Satkhira – accounted for nearly 60% of the total sample, while the next three districts – Bhola, Khulna and Bagerhat – made up another 23%. The next 16 districts accounted for the remaining 18%. It appears that there is also an imbalance in how the respondents are distributed geographically, with some locations being heavily concentrated while others are relatively sparse.



Affiliated Partners

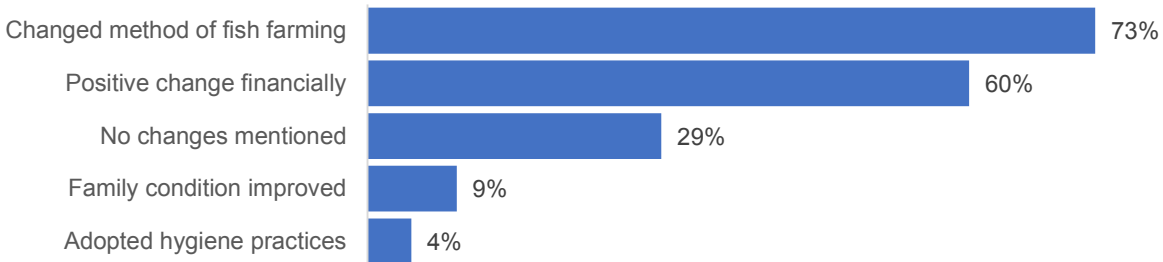
The distribution of respondents by implementing partner (IP) is shown below. Access to Finance partners (Bank Asia and City Asia) made up the bulk of the total at 38%. This was followed by Margen Ltd. at 13%, Mega Feed at 10% and Parmeeda Enterprise at 7%. The remaining 17 partners made up just 30% of the sample size.



Evidence of Change/Impact

How the intervention benefitted at an individual level

Interviewees were asked how the intervention impacted them at an individual level. Most of them responded that the interventions did bring about a positive change in their lives: over 70% said they had changed their method of fish farming, 60% said they had seen a positive change financially, 9% said their family condition had improved while 4% said they had adopted better hygiene practices. Around 30% did not report any changes. This is shown in the chart below.



As a result of these interventions, farmers have experienced many positive changes in terms of increased knowledge (31%), increased fish production (24%), higher profit (12%), reduction in cost due to lower priced inputs (9%), started cultivating new species (7%), improvement in social value (7%), etc.

Majed Hawladar, a 52-year-old fish farmer from Hijla, Barishal said:

“I use Mega Feed, and not other brands, because their quality is better and has more protein. Using Mega Feed my fish grew quickly, and I was able to harvest them in 4-5 months. I can cultivate fish twice and sell them twice in a year. My profit is good.”

Another farmer, 23-year-old Ashraful Hawlader, from Uzirpur, Barishal bought fish fry from Rabeya Mathsya Utpadon Kendra. He said:

“He always provides us with the best quality fish fry which grows faster and grows bigger in no time. He also gives us valuable information about fish farming. My production has increased a lot since I started using his fish fry. Also, I distribute litter alongside fish feed regularly which also has contributed to the overall growth. I have also tested with other fry traders’ fish fry which didn’t grow that well.”

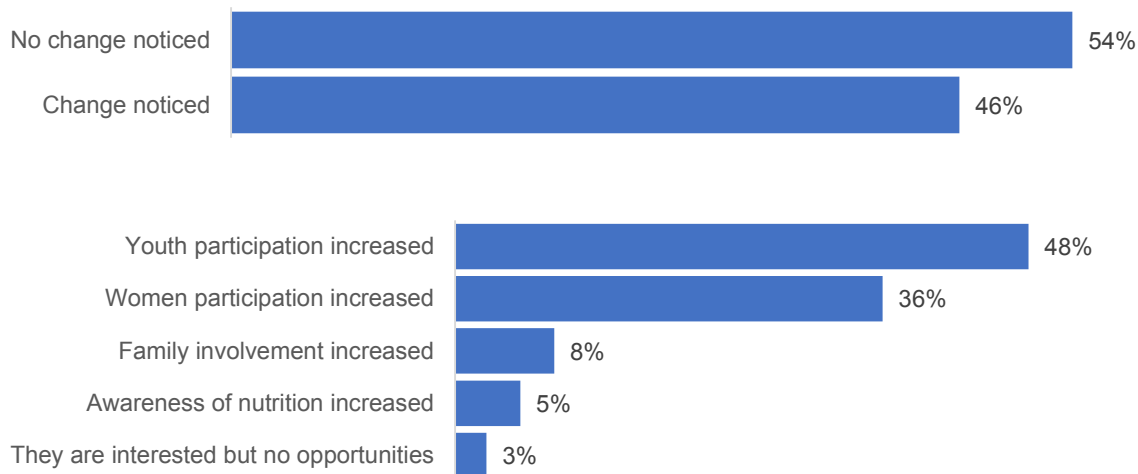
Azgar Ali, a farmer from Shyam Nagar, Satkhira, is a loan recipient of Bank Asia. He said:

“Through the help of the loan my capital has increased and I also got to do some cultivation activities easily. My decision-making mentality has changed. In the past, the amount of money I got from selling fish was not enough to prepare my pond, buy feed and fish fry, repay and complete my work. Similarly, if I bought fish fry, then there would not be any money left to buy feed, but through the loan I am able to prepare my own pond, buy fish fry and feed and it has decreased the crisis of fish cultivation. After taking the loan, my decision-making has been easy and profitable. For example, in the past I had to buy whatever feed was available in the shop and as I used to buy on loan, I had to pay whatever price was decided. Now, through my own money I can buy quality feed from a good shop and I can also justify the price from other shops if it is more than usual. I can also check whether the quality of the fish fry, so my money and product is not being wasted, which will be beneficial for me in future.”

Changes in women and youth participation

Over half of the respondents (54%) said that they hadn’t noticed any changes in women and youth participation while the remaining 46% said that they did. Of those that reported changes,

nearly half of them (48%) said that they had witnessed improvements in youth participation while 36% said they had observed improvement in women’s participation. Eight percent (8%) said that family improvement had increased while 5% reported an increase in nutrition awareness. These are all positive social changes that have taken place either as a direct consequence of or a by-product of BAA’s interventions.



Dasarat Biswas from Jessore Sadar is a fish farmer who received loan from Bank Asia. He said:

“Women do not cultivate much fish in this area. However, many changes have taken place among the youth. Young people in particular are becoming interested in fish farming to alleviate their unemployment.”

Ripa Begum, a 37-year-old female farmer from Kotalipara, Gopalganj and a beneficiary of Parmeeda Enterprise, said:

“Yes, many neighboring women are inspired to see me doing fish farming. They are also attending different pieces of training and doing farming by themselves. I will continue applying these techniques.”

Anju Mandol is a female fish farmer from Monirampur, Jessore. She is a loan recipient of Bank Asia and had this to say:

“If other women in the area can be brought under this loan program, then they will be interested in fish culture. But at present, Bank Asia has stopped this facility. If it is restarted, then a lot of women will be interested in this loan.”

Innovation

Innovation in business/farming practice

Over three quarters of the respondents (76%) said that BAA’s interventions have introduced innovation in their business/farming practice, while the remaining 24% felt that no significant transformation was brought about by the interventions.



Those that agreed that the interventions introduced innovation cited the following as examples: feed distribution technique (16%), quality feed (11%), pond cleaning/maintenance (8%), pond fertilizing/applying medicine (7%), commercial industrial feed (7%), fry stocking technique/transfer to pond (7%) and quality fry (6%). Lesser cited examples include safe fish cultivation (4%), aeration techniques (3%) and new species (3%) among others.

Ebadul Haq Mallik is a loan recipient of City Bank. He is 46 years old and hails from Jessore Sadar. He said:

“In 2021, I installed a new feeding machine in his pond. Through this, the fish got enough food and feed was not wasted. The quality of water stays good as a result and there is no loss financially.”

Md. Afsar Ali Gazi, from Shyam Nagar, Satkhira, is a 56-year-old fish farmer and is a loan recipient of Bank Asia. He said:

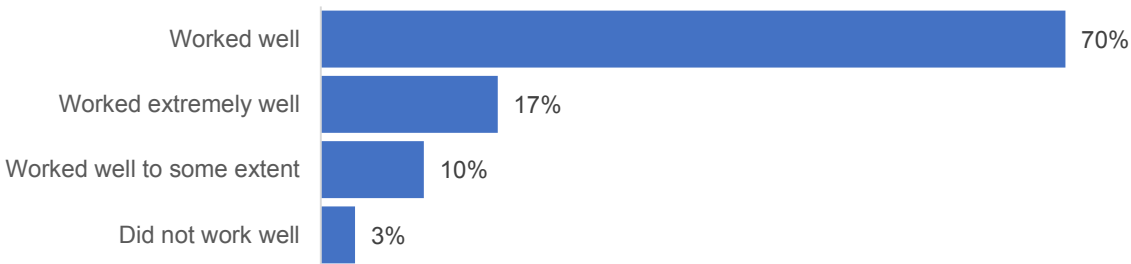
“Yes, I have started using industrial feed in my pond. Since I had no knowledge of industrial feed in the past, I just used to provide rice polish sometimes which led to less production. Through the meeting I learnt about industrial feed and how it increases cultivation as it is full of protein. So, I took the loan and started providing industrial feed, which has increased my cultivation and has benefitted me financially.”

Sharmin Sultana, a 37-year-old female farmer from Faridpur Sadar said:

“I got advice about fish culture through the training. I now write accounts of everything like pond preparation, fish sold etc, which I didn't do before. Now I know the amount of fish stocked in which pond and how much feed should be applied. I can transfer fry according to the level of pond. For keeping accounts of everything, and applying proper feed, the production is higher and cost is less.”

Experience with regards to adopting the innovation

When asked how well the innovations worked for them, an overwhelming majority (70%) said that they worked well, 17% said they worked extremely well and 10% said they worked well to some extent. Only 3% of the respondents said that the innovations did not work well for them. With 97% of respondents saying that the innovations have either worked well or very well, it is safe to conclude that the interventions have been very successful in terms of adoption and effectiveness.



Tuhin Jomaddar from Khalishpur, Khulna, is a 56-year-old fish farmer and is a beneficiary of Mega Feed. He said:

“Previously, I didn’t use to check if those fishes are eating the feeds properly or not. But now I do keep a track of their demand for feed. Thus, I can reduce feed wastage and save a lot of money. Also, the water remains fresh and the fish stay healthy. This is a completely new method for me. This has been working well for me as fish growth is higher now.”

Ayub Hossen, a 52-year-old male farmer from Monirampur, Jessore said:

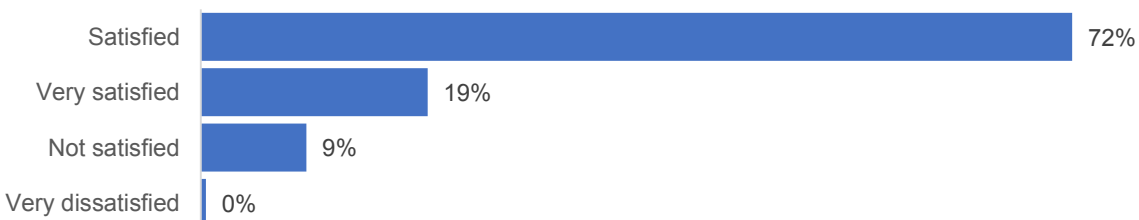
“Indian Catfish culturing and checking water has been effective. Because Indian Catfish does not require any separate feed, it can be cultured along with Carp. No other pond/land is required. By checking the water, instant measures can be taken such as applying lime, bleaching or medicine. Previously I would have to spend 2,50,000 taka but the production would be 5,00,000. Now, by spending 4,00,000 I am able to sell 11,00,000 taka worth of fish, all because of culturing Indian Catfish along with Carp. It is possible to go ahead with this process, as it does not require any other land or worker. Less expense and more production.”

Md. Mahmudur Rahman is a loan recipient of City Bank. He is 31 years old and hails from Nalcity, Jhalokathi. He said:

“In 12 years of fish farming I did not use commercial feed; I only used oil cake. But in 2021, after using oil cake and commercial feed, my fish grew much faster so I could sell them faster and there was low risk. Comparatively got higher price for the fish as well.”

Satisfaction with the innovation

An overwhelming majority of respondents (91%) also said they were either satisfied or very satisfied with the innovation they adoption. A small minority (9%) said they were not satisfied with the intervention; only 2 people said they were very dissatisfied with the innovation.



The commonly cited reasons for this high level of satisfaction were: gained knowledge (20%), high production (20%), easy term loan support helped in cultivation (16%), good selling price of fish and high profit (14%) and improved livelihood and better nutritional outcomes (7%). Other less cited reasons were: satisfied with quality input (4%), reduced risk (4%) and less waste (2%).

The following reasons were mentioned for dissatisfaction with their intervention: no innovation, dissatisfied with loan amount/process/time, IP agent did not contact further, low market price for fish and high input price.

Sabekun Nahar is a 45-year-old NGO farmer from Pekua, Cox's Bazar affiliated with Coast Trust. She said:

“On top of everything I am satisfied as many things were new that I did not know before but now do. The training taught hand washing, not applying chicken waste, giving good quality feed, manure application which creates plants at the bottom of the pond, etc. So I am satisfied.”

Sopna Rani Sarder, another NGO farmer from Dighalia, Khulna, who is a beneficiary of Shushilan, said:

“I am very satisfied. Because pulling harra helps to release the gas. Using neem mix saves money and I get chemical free vegetables. To give feed according to weight also lessens waste.”

Abdul Kader Fakir is a 35-year-old male fish farmer from Jessore Sadar. He received training from Margen Ltd. and had this to say:

“I am satisfied because my fish farming is better than before for following these steps. I gained profit comparatively. My interest for fish farming has increased. So I am overall satisfied with Margen Ltd.”

Continue with intervention

Over 90% of the respondents expressed their interest to continue with their intervention which bodes well for the sustainability and continuation of BAA's interventions. This is in line with the high level of satisfaction expressed by the respondents in earlier questions.



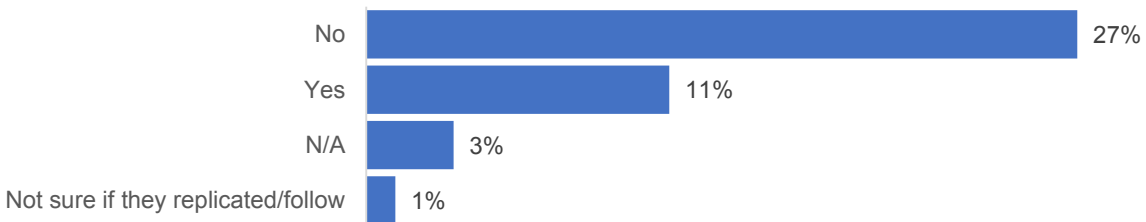
Replication/Secondary Adoption

Shared learnings with other fish farmers

Of the 917 beneficiaries interviewed, only 11% said that they have shared information and their learnings from the intervention with others, while 27% said that they did not share any

information with others. Some said that they have shared the information with 'many people' but failed to provide any names or contact details. Others said that they were not sure if the people they had shared information with had adopted their strategies.

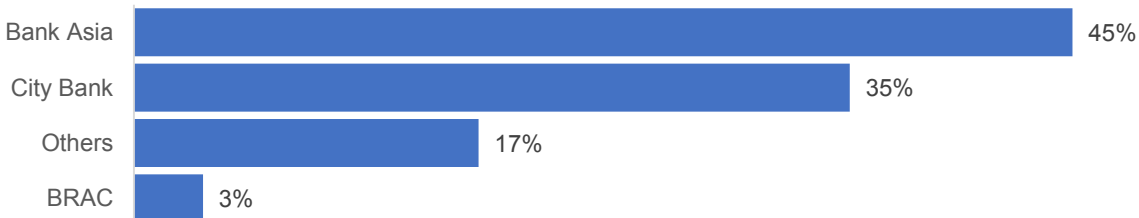
It therefore seems that the interventions have not been very successful with replication at the beneficiary level. A more detailed study could be designed to understand the reasons behind the low secondary adoption level and estimate it more accurately.



Access to Finance

Loan from financial institutions

Three hundred ninety (390) out of the total 917 respondents said that they have taken loans from financial institutions. Majority of them (45%) said that they have taken loans from Bank Asia, followed by City Bank at 35%. Only 3% said they have taken loans from BRAC while the remaining 17% took loans from various organizations such as Krishi Bank, Asa and several NGOs and MFIs.



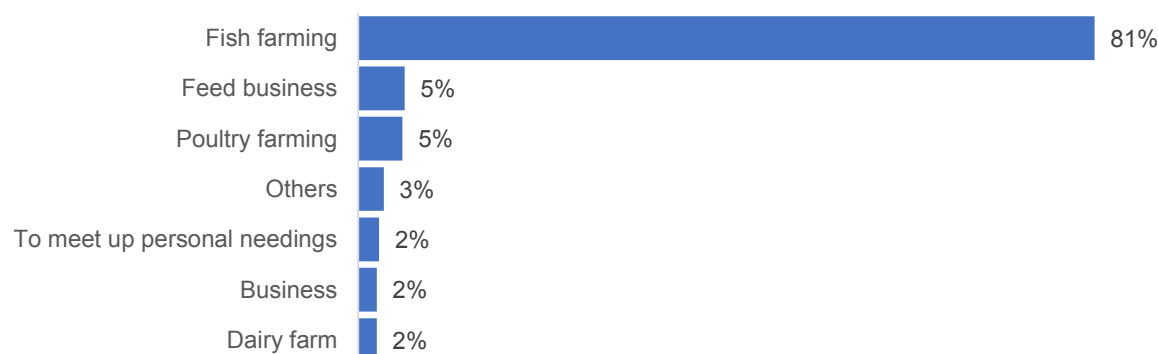
The average loan size was BDT 5.2 lakh, while the median value was just BDT 50,000. This means that there are outliers in the data which are causing the average value to become skewed. This is evident when one compares the minimum and maximum values; the difference between them is very stark with the minimum being just BDT 10,000 while the maximum stands at BDT 85,00,000.

The average interest rate charged was 6.3%, with the median value being 5.0%. There were fewer outliers in this case. However, many of the datapoints here were not recorded properly and therefore had to be discarded. The maximum interest rate charged was 25.0% while the minimum was just 2.0%. However, comparing these interest rates is rather problematic since for some recipients the interest rates were calculated on a weekly basis, while for others they were calculated on a monthly or annual basis.

	Loan Amount (BDT)	Interest Rate (%)
Average	5,22,205	6.3
Median	50,000	5.0
Minimum	10,000	2.0
Maximum	85,00,000	25.0

Loan purpose

Over 80% of the loan recipients used the loan for fish farming while 5% used it for feed business. A very small percentage also used for the loan for other purposes such as poultry farming (5%), dairy farming (2%) and other business (2%).



Spending of loan amount

The table below shows how loan receipts spent the money they borrowed. Here, too, we see some anomalies/outliers in the data that cause the average values to become skewed. The average values differ greatly from the median values which would not have been the case had the data been normally distributed. One way to make the data comparable would have been to compute the costs per pond size (ha). Unfortunately, the pond size of the farmers was not collected as part of this survey, and as such, it is not possible to standardize the costs in a way that would make them easy to compare. It would certainly have helped to explain and account for the outliers in the data.

	Average	Median	Minimum	Maximum
Pond preparation	1,03,950	20,000	10	12,00,000
Seed	97,956	30,000	30	20,00,000
Feed	1,78,583	37,500	50	20,00,000
Medicine	20,152	10,000	5	2,00,000
Aqua machineries	35,327	12,500	500	3,00,000
Pond leased in	1,55,036	80,000	10	17,00,000
Hatchery operation	1,71,333	1,05,000	9,000	5,00,000
Others	2,97,044	30,000	5	85,00,000
Total	4,23,101	40,000	100	85,00,000

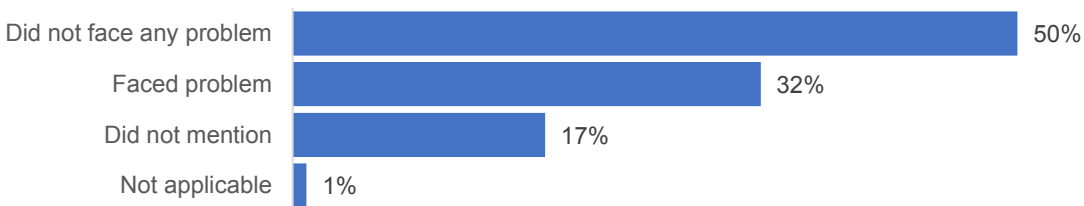
Decision-making regarding spending the loan amount

Loan recipients were asked who decided how to spend the loan amount. More than half of the respondents said that they made the decision jointly with their spouse. This is a positive outcome as it shows that a large number of men are now involving their wives in important decision-making. Forty-five percent (45%) said that they made the decision on their own; most of these respondents were men. Only 5% said that the decision was made by a family member or someone else.



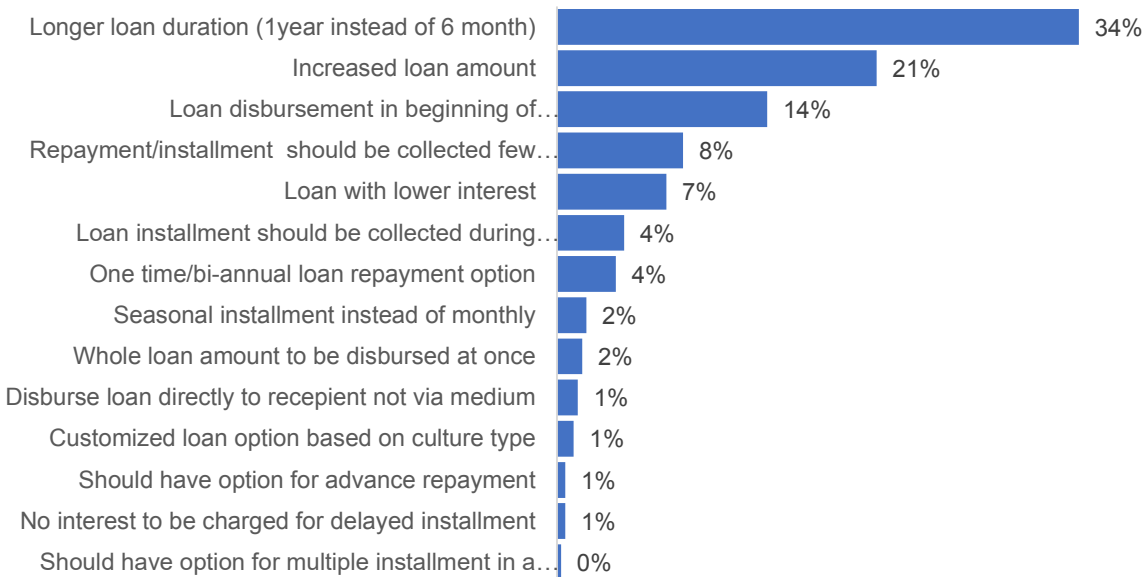
Loan repayment

Half of the loan recipients (50%) said that they did not face any problems in repaying the loans, while over 30% said that they faced problems. Most of the respondents (42%) said that they repaid the loan by selling fish, while 28% said they repaid the loan from other income sources and savings. Others did so by selling crops/vegetables or with capital from their business.



Suggestions regarding the loan package and repayment system

The respondents were asked for their suggestions on the loan package and the repayment system. The most cited recommendations were a longer loan duration of 1 year instead of 6 months (34%), following by increased loan amount (21%) and loan disbursement at the beginning of the season/beginning of fish culture (14%). Lesser cited suggestions were: repayment should start a few months after loan disbursement (8%), lower interest rate (7%) and loan installment should be collected during harvest time (4%).



Saiful Islam, a loan recipient from Jessore Sadar said:

“It is difficult to pay loan installment at the initial stage of production. Other than that the fish market is good, or else we cannot sell fish. But regardless of whether we can sell fish or not, there is pressure for repaying the loan. It would be good if there was a way of repaying the loan after few months of taking it or after selling fishes.”

Gopul Biswas from Khulna Sadar said:

“The interest rate is very high on the loan. It would be good if the rate is lower. The loan amount is also quite low. This small amount does not make a difference in businesses worth crores. It would be better if the loan amount is increased. The loan installments if arranged to be paid every six months or at the end of the combining interest and principal would be very helpful, instead of monthly repayments. Then the fund can be utilized properly.”

Md. Obaidur Rahaman from Jessore Sadar said:

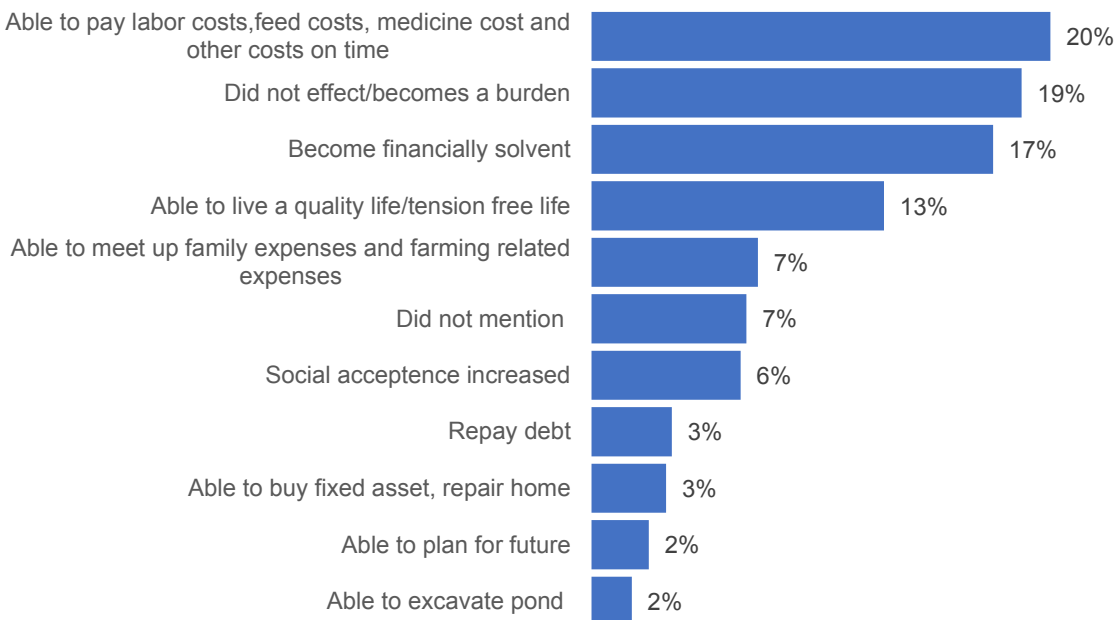
“The interest rate is very high, it would be better at 2%. The loan, if provided in February, and allowed repayment in December, would be helpful. Instead of monthly installments, a six-monthly or nine-monthly payment schedule could be arranged.”

This was a common theme, echoed by several loan recipients.

Impact of the loan on livelihood

When asked if the loans had an impact on their livelihood, majority of the respondents (%) said that they did. Twenty percent (20%) of them said that the loans allowed them to pay for labour costs, feed costs, medicine costs and other associated farming costs on time. Around 17% said that the loan allowed them to become financially solvent, while 13% said they were able to live a quality and stress-free life. Others mentioned that they were able to repay debts (3%), repair homes and buy fixed assets (3%), and meet family expenses (7%). However, around a fifth of

the respondents (19%) said that the loan did not make a difference and for some, it even became a burden.



Kamrul Hasan, a 55-year-old fish farmer from Barishal Sadar said:

“Yes, it has improved my life. Previously I used to buy feed on credit, so the seller would keep asking me for the money. This time I bought feed on cash, so I had no debt.”

Md. Safikul from Shyam Nagar, Satkhira said:

“With the loan I was free from the stress regarding managing the work, as it would previously require a lot of money which I did not have. Now the work has become easy for me, due to the loan. I am relaxed now.”

Ashraful, a loan recipient of Bank Asia from Jhikargacha, Jessore, said:

“I could buy feed and medicine on time with cash. There was no scope of getting advice about fish culturing, but now with the project it has become possible. I have been able to plan new things for fish culturing and earn solvency for my family.”

Another farmer from Jhikargacha, Md. Rafiqul Islam, said:

“Yes, if I did not receive the loan I would have to buy feed in credit from the Mohajon or shop. If I buy on credit, they charge very high prices. If I take loan from the Mohajon they charge 10% interest. Now I do not have to buy feed on credit and do not need to pay interest to Mohajon. Therefore, there will be higher profit in fish farming than before. My family's standard of living will improve.”

Summary

Overall, it seems that BAA's interventions have been successful at the beneficiary level. Ninety-seven percent (97%) of respondents said that the innovations have either worked well or very well for them. The level of satisfaction was very high with an overwhelming majority of respondents (91%) saying that they were either satisfied or very satisfied with the innovation. Over 90% of respondents expressed interest to continue with their intervention. All these are positive indicators of sustainability and means that the interventions are very likely to continue.

However, not enough evidence of replication/copying behaviour was seen at the farmer level which does not bode well for the interventions reaching scale. Though some farmers said that they have shared information with others, it was not possible to generate a knowledge transfer ratio/multiplier through this qualitative study. It is therefore recommended that a quantitative study be conducted in the future in order to estimate this ratio/multiplier more accurately.