

LIVELIHOOD IMPROVEMENT TO ENTREPRENEURSHIP DEVELOPMENT: THE JOURNEY OF AQUAFARMERS, SONARPUR, WEST BENGAL

B.N. Paul^{1*}, N.C. Sahoo², R.N. Mandal¹, S. Ghosh², F. Hoque¹, A. Das¹, A. Hussan¹, S. Adhikari¹, S.K. Swain³, H.K. De² and S.S. Giri³

¹*Regional Research Station, ICAR-Central Institute of Freshwater Aquaculture, P.O. Rahara, Kolkata- 700 118, West Bengal, India*

²*Sasya Shyamala Krishi Vigyan Kendra, RMVERI, Arapanch, Sonarpur South 24 Parganas*

³*ICAR-Central Institute of Freshwater Aquaculture, Bhubaneswar- 751 002, Odisha, India*

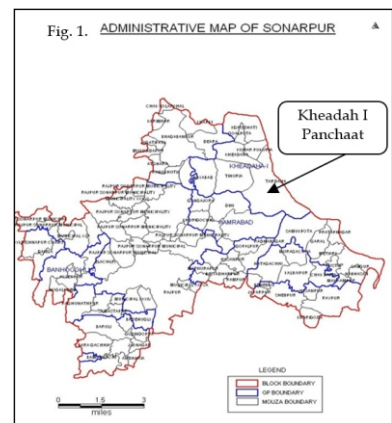
*Corresponding author: bnpaulcifa@gmail.com

This study highlights a transformative initiative in the villages of Saheberabad I & II and Baburabad, located in South 24 Parganas, West Bengal, aimed at enhancing livelihoods and fostering entrepreneurship among marginalized communities. The region primarily relies on agriculture, with limited cultivable land and scarce irrigation facilities. Two Farmer Field Schools, the Aquaculture Farmer Field School (AFFS) and Livestock Farmer Field School (LFFS), were established in Saheberabad I & II, fostering knowledge sharing and community-building. Capacity-building initiatives, such as training sessions, exposure visits, and technical support, were conducted, benefitting 530 farmers. In summary, ICAR-CIFA's intervention has significantly impacted the rural development of Sonarpur, West Bengal, empowering 350 farmers and farm women. This initiative has not only improved their livelihoods but also promoted self-sufficiency, knowledge sharing, and entrepreneurship in the region, marking a remarkable journey in aquaculture development.

Keywords: Aquaculture, farmers, Livelihood development

INTRODUCTION

Saheberabad I & II and Baburabad villages are situated under Kheyadah I Gram Panchyat, Sonarpur block, South 24 Parganas (Fig. 1). Agriculture is the important source of livelihood of the South Twenty-four Parganas people. The per capita cultivable land availability of the agricultural workers is only 0.41 hectare and all the lands are not irrigated. In 2019-2020, under SCSP Scheme of Government of India, the Regional Research Station (RRS) of ICAR-CIFA at Rahara, Kolkata took initiatives to improve the livelihood of villagers through introducing scientific aquaculture practices. At the beginning, RRS-CIFA liaised and



executed a memorandum of understanding (MOU) with the Sasya Shyamala Krishi Vigyan Kendra (SSKVK) at Arapanch, Sonarpur responsible for overall agricultural development in the Block. The MoU aims at implementing aquaculture practices, capacity building, establishment of Aquaculture Field School etc. for the livelihood improvement of three villages of Boynala I Panchayat covering 150 Scheduled Caste Farmers.

The livelihood is meeting the basic requirements of the marginal people, including utilization of available resources sustainably, more production of food resources, employment generation and thereby creation of self-resilience among marginal farmer (Mathur, 2011). To improve the livelihood and nutrition security of the rural mass, aquaculture was chosen as the option. ICAR-CIFA has earlier conducted aquaculture demonstrations in Orissa (Rath *et al.*, 2014) and West Bengal, in collaboration with Belur Math (Paul *et al.*, 2019). Under this programme, in 2019-2020 total 147, in 2020-2021 total 150 and in 2021-2022 total 123 interested farmers were identified and trained. These farmers were identified through Participatory Rural Appraisal (PRA) and through a number of meetings in villages, in collaboration with State Fisheries Department and Krishi Vigyan Kendra.

Questionnaire

To collect the baseline data initially a questionnaire was prepared and circulated among the selected SC beneficiaries. The information collected on ownership: name, land area, physical condition of pond, community he/she belonged to; Identifying criteria: AADHAR No., Phone no., Ration card no.; Aquaculture knowledge: application of lime, feed, cattle dung, etc.; Knowledge of fish: identification of different fishes, mainly carp species and lastly what they need for better aquaculture yield and production. Almost every farmer opted for undergoing aquaculture training to have better knowledge on scientific aquaculture and they showed interest for adoption of aquaculture as a part of their livelihood (Mondal *et al.*, 2019). The selected 147 farmers were given 650 kg fish seed (30 nos./kg), 10,290 kg floating fish feed, 8500 kg lime and 147 Aluminium Handi and cast nets during 2019-2020.



In 2020-2021 aquaculture input support given were 12 quintal IMC fish seed, 150 quintal fish feed, 75 quintal lime, 150 nos. hand pelletizer, Alluminium handi, towel (gamcha), Aquaculture book (in Bengali) to 150 farmers. A total of 15 farmers were given 50 nos. of Fountain aerators.

Farmer Field Schools

Field School is a school that does not have any walls and roof where farmers meet in an informal way. Field school approach is a tested extension methodology that bridges the research-extension gap. Two farmer field schools, Aquaculture Farmer Field School (AFFS) and Livestock Farmer Field School (LFFS) were created at Saheberabad-I &II in Sonarpur Block. Mrs Suniti Mondal, the Operator Farmer of AFFS took lots of interest to spread her knowledge on aquaculture to the fellow farmers, especially farm women. Similarly, Mr. Akshyay Mondal is the operator farmer of LFFS. Technical back stoppings were provided by the ICAR-CIFA scientists and the farm Scientists of the KVK. With this initiative 213 numbers of new farmers joined the aquaculture activity in last 3 years. Farmers' meetings were also conducted to create awareness in scientific aquaculture and animal husbandry.



Capacity building:

Trainings

Trainings were conducted on scientific aquaculture practices and animal husbandry. Scientists from RRS, state line departments and Agricultural University continuously trained the farmers in groups. A total of 530 farmers were trained on aquaculture and animal husbandry practices.

Exposure visits

Aquaculture Field day cum exposure visit was organized at ICAR-CIFA RRS, Rahara where, 150 farmers and farm women of Saheberabad I & II, and Baburabad villages of Sonarpur Block, South 24 Parganas, West Bengal, participated. They were involved in different field activities of the station. The farmers observed live hilsa in the pond. They were exposed to Wastewater Aquaculture system, breeding pool, hatching pool, different culture ponds (nursery, rearing and stocking ponds), paddy cum fish culture etc. Scientists' - Farmers' interaction meeting was also conducted.

Input support for aquaculture and demonstration of farm made feed preparation' to the beneficiaries of Sonarpur block

A training programme was organized on 'Dissemination of hand pelletizer and

demonstration of farm made feed preparation' under SCSP Scheme on 28.01.21. In this programme, lecture on farm made feed and demonstration on preparation of farm made feed was done. Main theme was the preparation of farm made feed with locally accessible feed ingredients. Among the inputs hand pelletizer, towel (gamcha) and training kit were also distributed to 150 beneficiaries. A farmer-scientist interaction meet during the training programme was also organized.



For pond preparation lime is one of the important components so 75 quintal of lime was distributed as input support to 150 Scheduled Caste (SC) farmers of Saheberabad I & II and Baburabad village on 03.2.21. As an input support for aquaculture, 150 nos. of Aluminum handi was given to 150 Scheduled Caste (SC) farmers of Saheberabad I & II and Baburabad village on 04.03.21. Also, a total of 150 quintal of Floating Fish Feed was distributed to 150 farmers on 15.02.21. Indian Major Carp fingerlings were given as Aquaculture input support to 150 farmers where a total of 12 Quintals of fish seed was distributed on 18.02.21 at village Saheberabad I & II and Baburabad. Technical support was provided through monitoring the water quality of 150 beneficiaries' pond. The dissolved oxygen (ppm) of the pond water ranged from 2.56 -6.75, pH 6.80-9.11 and NH₃ (ppm) 0.10 -4.0. The water quality range obtained in those ponds was suitable for aquaculture.

Entrepreneurship Development

The farmers experienced that feeds share 60-80% input costs in aquaculture. The feeds which are available in the local market are very costly and also quality is not very good. One of the fish farmers Mr. Shibdas Mondal showed his interest in manufacturing the feeds and supply to the farmers in the Block. He discussed the issue with ICAR-CIFA scientists and visited feed manufacturing units in West Bengal and Odisha. He came to know that ICAR-CIFA has developed Farm-made grow-out carp feed 'Gram-Ca Feed' and Magur larval feed 'Starter M' form ICAR-CIFA, which were advertised in the Agrinnovate India Limited website of the Ministry of Agriculture and Farmers Welfare, Government of India. He purchased the feed formulations from ICAR-CIFA and started his own feed manufacturing unit as SAHAJOGI Entrepreneur and supplying to the local farmers.

Village	Block	District	No.of beneficiaries	Quantity of IMC fingerlings given (Quintal)	Amount of feed given (Quintal)	Amount of lime given (Quintal)
Saheberabad I&II and Baburabad	Sonarpur	South 24 Parganas	63	5.44	15.75	12.60
Bamangachi	Sonarpur	South 24 Parganas	60	4.08	15.0	12.00
Total			123	9.52	30.75	24.60

Table 1. Input distribution viz. Fish Feed and Lime to SC farmers of Sonarpur during 2021-2022

In the village Saheberabad I&II, Baburabad and Bamangachi total of 123 SC beneficiaries were given 9.52 quintal of IMC fingerlings, 30.75 quintal of fish feed and 24.60 quintal of lime as aquaculture input support to the Sonarpur farmers.

Animal Feed Machine as input for feed preparation was supplied under SCSP Scheme

ICAR-CIFA, RRS, Rahara has installed an Animal Feed machine for preparation of sinking type pelleted feed and another Pulvalizer machine for grinding oil cakes, cereal grains etc. for the S.C. farmers of Saheberabad I &II and Baburabad. The machines are established in the aquaculture premises of Mrs.Sunit Mondal, the lead farmer. Earlier an Aquaculture Farmers Field School was inaugurated at the same place under SCSP scheme. The feed preparing machines will further broaden the knowledge of farmers, associated with the AFFS. The pelleted farm-made sinking fish feed will be prepared in these machines, to reduce feed loss in aquaculture.

Fish Growth

The growth assessment to fish was done in ponds of the SC Farmers of Saheberabad Village of Sonarpur block. The IMC fingerlings of ranging wt. 40-50g were stocked in mid February 2022, the growth data revealed that catla grew to 300-550g, rohu grew to 200-260g and mrigal grew to 200-350g in three months.

CONCLUSION

ICAR-CIFA has intervened in the rural development of Sonarpur block of West Bengal through aquaculture activities. A total of 350 farmers and farm women were trained on different aquaculture practices like fish stocking, farm made feed preparation, liming of pond, fish health etc. Aquaculture input support viz, fish seed, fish feed, lime, Aluminium handi, cast net, literature in Bengali, gamcha (cloth towel) etc. were given to Schedule Caste farmers under Schedule Cast Sub Plan of Government of India. Two Farm Schools namely AFFS and LFFS were established at Saheberabad I and II villages for farmer to farmer learning. One animal Feed machine and Pulverizer were installed by ICAR-CIFA at the farm of Mrs SunitiMondal for preparation of farm made feed at lower cost than the feeds commercial feeds available in the market. There was entrepreneurship development where one of the fish farmers Mr. Shibdas Mondal purchased two feed formulations from ICAR-CIFA and started his own feed manufacturing unit as SAHAJOGI Entrepreneur at Saheberabad II village and supplying to the local farmers.

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