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Report of

WORKSHOP ON

ORNAMENTAL FISHERIES

ENTREPRENEURSHIP DEVELOPMENT

Jointly Organized by NCDC, NFDB and Government of West Bengal



Date: 25 Jan, 2020 (Saturday)

Venue: Golden Tulip Hotel, DD – 19, Plot No. 8, Sector – I, Salt Lake City, Kolkata

Proceedings of the Workshop on
ORNAMENTAL FISHERIES ENTREPRENEURSHIP DEVELOPMENT

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On 25 January, 2020

Context

1. Though India's share in global ornamental fish trade is less than 1%, but it is considered as a "sleeping giant" for its potential resources are yet to be explored. The internal ornamental fish trade of India is estimated to be to the order of Rs. 25 crore while the export trade is to the tune of Rs. 6.0 crore, which is only 0.3% of the global trade. The activities are mostly concentrated in states of West Bengal, Maharashtra, Tamil Nadu and Kerala. The major part of the export trade is based on wild collection. There is a good domestic market for ornamental fish, which is predominantly confined to domestically bred exotic species. About 90% of ornamental fish is traded from Kolkata port followed by 8% from Mumbai and 2% from Chennai. India exported ornamental fish to the tune of Rs. 6.75 crore in 2015-16. The exports rose to Rs. 7.39 Crore in 2016-17 and Rs. 8.40 Crore in 2017-18, with an average increase of 11.6% per year.

2. On the commercial front, the ornamental fish trade is a growing business with Chennai, Kolkata, Mumbai, Bangalore and Kochi turning out to be the major hubs. The demand for ornamental fishes in domestic market is high and mass production of the ornamental fishes has augmented supply of ornamental fishes in market. In India, despite many initiatives taken by the government, the ornamental fisheries remain highly unorganized, resulting into marginalization of the producer.

3. Key beneficiaries of Workshop were fish farmers, budding entrepreneurs, youth, women and members of the weaker socio-economic sector. The Workshop was attended by as many as 97 participants including technocrats, policy makers, subject matter experts, scientists, academicians, development finance institutions, fish farmers, exporters, market players and the media. Besides, the NCDC officers attended the Workshop. The list of participants is at **Annex-I**.

Objectives

4. The objective of the workshop was to bring various stakeholders on one platform to explore possibilities of promotion of entrepreneurship and employment generation in Ornamental Fisheries sector. Besides, the workshop

was aimed at identifying the bottlenecks at the policy and implementation level and resolve them.

5. The workshop was aimed at augmenting the awareness in Ornamental Fisheries from a business point of view and also to come up with an actionable, time bound plan which would facilitate attaining the Government's vision of Doubling Farmer's income by 2022 and making India a US \$5 trillion economy by 2024-25. Specifically, the workshop aimed to develop a model of commercial ornamental fisheries through a network of rural cooperatives.

Proceedings

6. Lt. Colonel Bikramjit Singh, Chief Director, Laxmanrao Inamdar National Academy for Cooperative Research and Development (LINAC) at the outset welcomed all the participants & delegates to the Workshop. This was followed by lighting of lamp by dignitaries to mark the occasion and precious beginning of the Workshop.

7. Shri Sundeep Kumar Nayak, MD, NCDC, in his address whole heartedly thanked the participants who had come from West Bengal, Odisha, Jharkhand, Bihar, Chhattisgarh, Telengana, Andhra Pradesh & North Eastern States to attend the Workshop. He specifically thanked the tribal women coming from various states especially from Odisha & the Bihar Fish Federation to take part in the Workshop. He enlightened the audience about the idea of Ornamental Fisheries that conceived 2 years back during a discussion with Dr. M.V. Rao, Additional Chief Secretary, Panchayat and Rural Development Department and Cooperation Department, West Bengal. However, he emphasised that much needed impetus was received with the involvement of Shri Tarun Shridhar Former Secretary, Government of India and presently, Sr. Adviser, NCDC. He thanked NFDB & Government of West Bengal for jointly collaborating with NCDC to organise the workshop. He also personally thanked Dr. J.K. Jena, DDG, ICAR for lending his continuous support and guidance when it comes to Cooperative Entrepreneurship & Business Development. He put special emphasis on the participation of Telengana State under the leadership of Dr. C. Suvarna, IFoS, Commissioner, Department of Fisheries, Government of Telangana & Shri B.K. Mishra, MD, National Federation of Fishers Cooperatives Ltd. (FISHCOPFED). He expressed his gratitude to Fisheries & Cooperation Department, Government of West Bengal for their association. He also fervently thanked the newly established Department of Fisheries under Ministry of Fisheries, Animal Husbandry and Dairying in Government of India for its robust support & guidance under the reins of Shri Giriraj Singh, Union Minister of Animal Husbandry, Dairying and Fisheries and also Shri Pratap Chandra Sarangi, Minister of State for Animal Husbandry, Dairying and Fisheries and Micro, Small and Medium Enterprises, Government of India. He concluded his speech by mentioning that NCDC, being an apex body for Cooperative Development is ready to extend all kinds of financial or technical

support to the entrepreneurs & fish farmers and aims at boosting cooperative start-ups in Ornamental Fisheries.

8. Dr. C. Suvarna, IFoS, Commissioner, Department of Fisheries, Government of Telangana and MD, Telangana State Fishermen Cooperative Federation Ltd. pointed out that Ornamental Fisheries sector is a very miniscule & micro component but if tapped properly would have huge potential. This sector is slowly gaining popularity among urban, semi-urban & middle classes owing to the fact that many prefer to keep aquarium in their households for aesthetic purposes. She informed the audience that according to doctors, an aquarium can act as an antidepressant hence, it is gradually gaining popularity. She further added that the business aspect of this sector is lucrative and there are many women entrepreneurs who have been trained and funded by NFDB and successfully continuing their business in sustainable manner. She also mentioned about the NCDC funded Integrated Fisheries Development Scheme comprising of project outlay of Rs.1000 crore. She informed that out of Rs. 1000 crore, an amount of Rs. 750 crore has been spent on various components except Ornamental Fisheries despite having a provision of 20 units for Ornamental Fisheries @ Rs.5 lakhs per unit. She further informed that, only 10 eligible applications have been received so far under this sector, out of which 6 proposals are in process. She pointed out that major reason behind this hostility, despite having provision for subsidy, could be due to lack of awareness about this sector. She lamented that Telangana has no such brackish or marine wealth and is without a coastline but, despite that, it has a huge market for ornamental fisheries. The State Government is ready to lend its support hence, it is apt to form a good business model for entrepreneurs. Further, she added that Telangana has various SHGs of women wherein the State grants revolving fund assistance through bank tie ups. She assured that ideas emerging from this workshop would be implemented in Telangana.

9. Dr. M.V. Rao, Additional Chief Secretary, Department of Panchayat and Rural Development and Cooperation, Government of West Bengal addressed the gathering and pointed out that major challenge India faces is from China owing to its supply of cheap yet good quality of fish into the market whereas Indian traditional aquarium producers have almost vanished. He said that the idea that fish farmers & entrepreneurs can only survive with the help of Government subsidy needs to be brushed aside. Instead focus should be on making enterprises flourish through planned cluster development with a holistic creation of value chain. He emphasized on horizontal expansion of cluster development as it's difficult to start afresh in new areas; for instance in West Bengal emphasis should be on establishing business in areas adjoining to Falta, where already Ornamental Fisheries business is flourishing. He said efforts can be made to build aquariums in all schools, colleges, parks, gardens, shopping malls as this is eye catching and in this way interests and demands of people can be integrated to business. He said that State Governments should work towards

their capacity building of Ornamental fish farmers and providing additional thrust to their business so that enterprises become financially viable. Further, he also added that in state like West Bengal where there are already one crore females in SHG out of which a few lakh women can be incorporated into Ornamental Fisheries Business.

10. Dr. J. Balaji, Joint Secretary, Department of Fisheries, Ministry of Animal Husbandry, Dairying and Fisheries, Government of India in his address enlightened the audience about the various schemes like Fisheries and Aquaculture Infrastructure Development Fund (FIDF), Blue Revolution Scheme through which Ornamental Fisheries Sector have been nurtured. He also informed that the Department of Fisheries, Ministry of Animal Husbandry, Dairying and Fisheries, Government of India is formulating a new scheme for the developmet of Fischeires sector i.e. “Pradhan Mantri Matsya Sampada Yojana”. This scheme will focus on cluster development, establishing aqua parks across the country, hatchery units, brood banks, etc. and in fact West Bengal itself can become an ornamental hub. Especially after the focus of the Government of India on Fisheries Sector & establishing a new Department for it, the growth of fishery sector has increased manifold, with production of about 13.42 Million tonnes. He further mentioned that increase in export is majorly because of the introduction of a new species *Litopenaeus vannamei* also known as Pacific White Leg Shrimp. This incredible idea was the brainchild of Shri Tarun Shridhar. Further, he also added that Government is ready to invest more in fisheries and also provide aid in genetic improvement, species development, etc.

11. Shri Tarun Shridhar, Former Secretary Government of India & presently Senior Adviser, NCDC in his keynote address said that Ornamental Fisheries have huge domestic market and is growing by leaps and bounds owing to its aesthetic values and its utility as a major stress buster. He stated that China was the first to start production of Ornamental Fish, and Sri Lanka around 1930 was the first country to start trading of Ornamental Fish. As per data, though India ranks 2nd in the global production of fish and 1st in the production of shrimp, it ranks 5th in the export of fish. But the data pertaining to ornamental fisheries is quite dismal. India ranks on the lower side when it comes to export of ornamental fish. Out of the total share of 180 billion dollar trade of fish, roughly 24 billion dollar accounts from ornamental fish i.e. nearly 15 % but unfortunately out of which India’s share is only 0.4 %. Singapore is now the leading trader of ornamental fish despite not being a breeding ground, whereas India being a tropical country with all favourable conditions for ornamental fish lags far behind. Hence he asserted that a lot is needed to be done in this sector so that not only this can provide livelihood to the fish farmers but also lead to their prosperity and holistic development. He mentioned that Ornamental Fisheries unlike intensive fish farming require less investment but can give quite high returns. With chances of global growth of ornamental fisheries at the rate of 8-9 % with rapid urbanisation and gradual increase of people’s interest in keeping ornamental fish aquarium at homes, schools, colleges, malls, India has

the capacity to grow at a rate of 40% as it lies at the grass root level of the pyramid, hence more chances of growth and moreover ornamental fisheries do not require big land; it can be practised at the backyard also and can also serve as a supplementary source of income. He further added policies should be formulated such that this sector can contribute to the goal of doubling farmers' income. In this regard the fish federations, apex bodies like NCDC, NFDB, ICAR, State Government & Government of India need to work in integration with the various cooperatives, FPOs, SHGs and entrepreneurs for providing technical support, financial loans, brooding banks, breed improvement etc. National and State Fish federations can also play a major role by providing good feed, aquariums, marketing infrastructure so that the fish farmers can focus entirely on farming ornamental fish species.

12. Dr. J.K. Jena, DDG, Fisheries & Animal Science, ICAR, New Delhi gave a technical overview of the workshop. He mainly emphasised on the integration of demand and marketing. Marketing is the key to make a business venture successful thus proper strategies must be formulated. He also pointed out that market for ornamental fisheries is mostly restricted to big cities like Kolkata, Delhi, Chennai, etc and this marketing problem can be solved through cooperative/SHG/FPO models. There is need to focus on creating domestic demand through schools, colleges, shopping complexes; households etc. and treat this as an investment and not as an expenditure. Aquarium as an ecosystem should be learnt, then only India's trade in Ornamental fisheries can expand worldwide which is currently too meagre. Focus should be both on large as well medium and small scale enterprises and propagation of indigenous species into the market can provide the much required thrust which is presently only confined to exotic species. ICAR-Fisheries Institute had launched a network project on ornamental fish breeding and culture techniques for indigenous species in domestic market on 28th July, 2018 by collaborating with 7 fisheries research institutes. ICAR-CIFA has conducted about 114 trainings with over 3000 participants across India, developed "Ornamental Fish Villages" in Deogarh district of Odisha involving 177 farmers.

13. The First Thematic Session on "Ornamental Fisheries Landscape in India- Prospects & Issues" was chaired by **Shri S. Kishore, Additional Chief Secretary, Fisheries Department, West Bengal.**

14. Dr. B.K. Mahapatra, Principal Scientist, ICAR-CIFE, Kolkata was the first speaker in Thematic Session to address the gathering. In his presentation he briefed about ornamental fish breeding, culture, trade scenario of India in domestic & global market. He gave an overview of the various indigenous as well as exotic and fresh water & marine species of Ornamental fish in the market and added that a total of 1539 species of ornamental fishes are traded worldwide where India offers more than 374 fresh water and nearly 700 marine ornamental species. He also highlighted about the work of ICAR-CIFE, Kolkata in ornamental

fisheries and breeding of indigenous species. It has also organised an Ornamental Training Programme at Kolkata. He further added that value addition on fish for developing ornamental strain is an important aspect to meet the public demand for ornamental fish. China started the selective breeding of goldfish from 1000 AD to begin the new strain of goldfish but this technique of selective breeding is yet to be popularised in India. Hence, the indigenous ornamental fish are not accepted in large scale due to their less attractiveness. He also presented a SWOT analysis on Ornamental fisheries in India. He pointed out the strengths like availability of many variety of species and also gradual rise of popularity of this business due to people's interest in keeping aquariums at workplace and homes and opportunities of private sector keen to join ornamental fish marketing chain, favourable government vision and policies for developing breeding technology & expansion of market and initiatives of Green Certification. As regards disadvantages faced by this sector, he pointed out that shortage of resources, underdeveloped captive breeding technologies, poor awareness, limited capability and lack of infrastructure to produce quality fish on a mass scale, lack of training & capacity building, weak association & coordination in value chain coupled with threats from extinction of indigenous species and unexpected natural calamities are some of the weaknesses that we need to counter. He also presented a strategic framework for development of this sector which includes standardization of breeding technology of species in demand besides quality management, post-harvest management, market infrastructure development and adoption of proper packaging & transportation methods. He also showed that various species of Ornamental fish which are traded globally have been found in Andaman & Nicobar Islands. He recommended that ornamental fisheries can be given a serious thought from all concerned stake holders like fisher folks, exporters, importers, panchayat members, teachers, students, scientists and top level planners to sustain the growth of this new sector of fisheries as well as for better employment & foreign exchange earnings from this trade.

15. Thereafter, the Thematic Session was addressed by **Dr. B.K. Mondal, Consultant, Department of Panchayat and Rural Development.** He said that geographical conditions and good biodiversity are all in favour of Ornamental fish breeding but the major problem is that the producers are not getting good returns as there is lack of efficient marketing chain and involvement of middle men. He suggested that fish farmers need to get electricity at concessional rates like the States of Odisha and Andhra Pradesh, only then this sector can get a boost. Other supports that may be required are good quality breed, quality feed and financial and technical support and equipments from Government & other apex bodies like NCDC, NFDB, ICAR, GoI in the form of training to improve captive breeding techniques.

16. In the questions & answers session, the audience were asked to raise their questions or give any inputs and suggestions on the above session.

17. Mr Kripan Sarkar, a fish farmer & entrepreneur from Jalpaiguri, West Bengal who was associated with Ornamental fish business for 35 years recently gave up that business and shifted to food fish. He stated that the main reason behind this was immense difficulties in transportation. He was initially selling 50000 angel fish per month to an exporter from China who used to sell that to Israel but slowly that market collapsed mainly because of quality and rates. He also added that Govt subsidies do not reach the fish farmers easily and there is a lot of red-tapism involved within the process. He also said that cluster development is a good idea but that can only lead to production of a restricted variety of species suitable to the geographical condition of that area. He suggested that proper training should be given to the fish farmers on a priority basis as they are acquainted with only traditional methods and are not well aware about disease prevention and cure of the fish species. Further, the quality of live feed isn't good which affect the species and spread diseases because of which India's business gets hampered. He also advised that aqua culture & aqua ecosystems can be incorporated into the academic courses of students from school onwards so that people get aware as well as develop interest in water chemistry, different fish species, breeding techniques, etc. He also emphasised that practice of Green Certification Board is a must and can provide a new dimension to this business.

18. Another fish farmer Sh. Sunirmal Das from West Bengal also suggested that mostly farmers practise wild caught species breeding which isn't a popular demand among people, hampering their market. The lack of training, guidance, technological advancement and financial aid are a bane to this sector. He also asserted that the protocol for import of 92 species in India is preventing them to import the thousands of varieties of ornamental fish which are traded in the market thus reducing the import export business of the entrepreneurs.

19. Mr Suprabhat Dutta, a fish farmer from South 24 parganas of West Bengal while sharing his observation said that one of the reasons behind not so good business is that most of the shopkeepers who are selling fish aquariums are not aware of the fish diseases and their cure and hence they are not able to clarify the queries of customers. As a result, a lot of aquariums have been closed due to death of fish species. He suggested that this can be prevented by providing proper training by fisheries department and issuing a training certificate or license of permit, before they start selling fish aquariums.

20. Mrs Sarala Mondal belonging from West Bengal, who is running a cooperative with 75 members enrolled therein, said that they face problems in marketing of ornamental fish and availability of good species or brooders, hence requested for suitable help.

21. D. Nopany, from West Bengal and one of the leading exporters from India at the end Thematic Session promised that he is ready to provide free training to the farmers and also help in rearing and purchase of their breeds.

22. The 2nd Thematic Session on “**Infrastructure, Value Chains & Ancillary Activities in Ornamental Fisheries-Potential & Scope**” was chaired by **Dr. C. Suvarna, IFoS & MD, Telengana State Fishermen Cooperative Federation Limited.**

23. Dr. Archana Sinha, Principal Scientist, ICAR-CIFRI, Kolkata in her address said that though ornamental fish sector has great scope & potential but there are various challenges which are faced by the fish farmers & entrepreneurs associated with this business. These are lack of infrastructure, technological advancement in breeding, seed production and culture, packaging and transportation issues resulting into mortality of fish breeds, sustainability & conservation issues in utilisation of indigenous species, certification, quarantine, quality control, etc. There is no specific market for ornamental fish. She also cited the example of ornamental fish village Amtala in West Bengal through NCDC in 2006. She further pointed out that cluster development is a good technique but proper monitoring also needs to be done in that case. She mentioned that the greater portion of the amount of assistance the farmers and entrepreneurs receive goes to create the infrastructure. She also added that CIFRI conducts various skill development programmes for the farmers & fish entrepreneurs and is also conducting breeding techniques of eel species, besides they also have provision for infrastructure creation for the fish farmers. She recommended that collectivization of small units is a good tool for the domestic producers to face stiff competition from importers & forming a corporate entity is worth emulating in order to encourage, develop and nurture Farmers Producers Organizations (FPOs) in the country. Govt assistance and incentives should also be extended to machinery/infrastructure used for manufacturing the ornamental fish culture accessories. Effective quarantine, disease diagnosis methods and cure, technical progress & effective packaging & transport system with establishment of brood banks for quality seeds & feed mills for micro-encapsulated feed along with re-circulatory system for bio-security and cut down of water requirements should be treated on a priority basis.

24. Next keynote speaker on the above thematic session was **Dr. G. Ramakrishna Rao, Senior Executive (Technical), NFDB.** He said that ornamental fisheries have huge potential considering its low cost of production and high returns within short time span and gradual increasing demand in both domestic as well as international market. He said that NFDB envisages a cluster approach for the holistic development of the ornamental fisheries in the country. Community based ornamental aquaculture has the effect of direct conservation benefits and sustainable livelihood to the rural folk. He also briefed about the schemes of NFDB on Ornamental Fisheries and requested all the stake holders & farmers to submit suitable proposals to NFDB for consideration to provide financial assistance for Backyard Hatchery, Medium & Large scale Ornamental Fisheries & also brood banks. He also gave an overview on the various challenges and impediments faced by this sector regarding non availability of good quality

breeds & cost effective good quality feed for brooders and lack of infrastructure and trained human resources. Some of the recommendations given by him were that there should be diversification of produce, provisions for quality seed and continued supply with creation of value chain. Demand and supply gap needs to be addressed and formation of more SHGs and Farming clusters should be encouraged, Accreditation, BMP (Best Management Practice) & CoC (Code of Conduct) may be voluntary and Certification should be mandatory. Concluding his speech he said that capacity building through training & demonstration is of utmost necessity.

25. The audience were then asked to put forth their questions. **Mr Kripan Sarkar from West Bengal** pointed out that there is an entrepreneur named Jayanta From Kolkata who was also present in the audience and who has been carrying out high quality ornamental fish breeding for many years but he lacks infrastructure and works only in a limited space and in this regard NFDB can directly help him in creating infrastructure of a brood bank so that he can sell more broods to the farmers.

26. Another entrepreneur, **Mr Sunirmal Das from West Bengal** said that marine ornamental fisheries is not legal in India as it has better prospects than freshwater ornamental fisheries because the quality of fresh water species cannot match with the quality of international breeds and, hence, it does not offer any lucrative market in the export business.

27. Another entrepreneur added that they fish farmers have been working in old model tanks which have become outdated keeping in view present market scenario and are of less capacity. Hence, he requested the NFDB & other apex institutions to consider providing them assistance to build and equip them with new infrastructure.

28. **Mr Kripan Sarkar, West Bengal** also asserted that schemes of NFDB and other organisations should be flexible enough so as to amend them from time to time considering the practical needs and problems of the fish farmers and should also contain provisions to incorporate new innovations and scientific techniques.

29. The 3rd and final Thematic Session was named as **“Involving collectives (Cooperatives, SHGs & Others) in enhancing production and institutional support available”** and was chaired by **Dr. M.V. Rao, Additional Chief Secretary, Department of P&RD and Cooperation, Government of West Bengal**. He shared his experiences of the ornamental fisheries sector serving as Chief Executive, NFDB and informed the audience that initially NFDB had 34 different application forms making it really difficult for the entrepreneurs to comprehend resulting in slowing down the entire process. But now, the NFDB has devised a single page application to ease out the process and unlike the earlier process when the application had to be routed through district and state level before approaching NFDB, the entrepreneurs now can directly send their

application to NFDB by sending a copy to the officials of the State Government and respective district.

30. Shri B.K. Mishra, MD, FISHCOPFED, spoke about the objectives & activities of FISHCOPFED in employment generation, enhancement in production & facilitating better return to the fish farmers. He apprised that FISHCOPFED has also conducted various capacity building training programmes for the fish farmers and entrepreneurs. He also recommended for development of Ornamental Fisheries through cooperative societies by giving training and financial assistance from NCDC, NFDB, State Government & Government of India besides marketing support and market intelligence guidance at the grass root level.

31. From among the audience **Mr. Sunirmal Das, Secretary of Ornamental Fisheries Association of India**, said that there should be schemes for individual entrepreneurs by NFDB. He also said that the farmer loan previously provided by MPEDA has been stopped and since they are dependent on live feed for their business, Government should also help them in production of daphnia, earthworms & bloodworms to help them in good quality production. His doubt was clarified by Dr. G. Ramakrishna Rao, Sr. Executive (Tech.), NFDB who informed that NFDB lends loan to entrepreneurs in cluster approach.

32. Mr Kripan Sarkar, a fish farmer of West Bengal pointed out that they face problems in getting bank loans approved and have to put mortgages in form of security which becomes difficult for small farmers to manage. Dr. M.V. Rao, Additional Chief Secretary, Department of P&RD and Cooperation, Government of West Bengal immediately assured that Cooperative Bank will address their grievance immediately and will lend loans in a hassle free manner. He assured that he will utilise the services of expert entrepreneurs present in the gathering as faculty in association with West Bengal Cooperative Bank to provide training to the fish farmers and make them progressive enough to prosper in this business. The Bihar, COFFED was also requested to look into the problems being faced by fish farmers in getting funds and issue of credit cards to the ornamental fish farmers. He also suggested to review the insurance schemes for ornamental fish farmers in the best interest of fish farmers.

33. A woman entrepreneur from Telengana who has set up a benchmark in this business shared her success story as to how she overcame the issue of exorbitant electricity bills by putting natural plantations in the aeration tanks. She told that she has successfully dealt with the issues related to live feed quality by making tubifex herself using soya beans, etc. She also wants to establish a Recircular Aquaculture System (RAS) system in her farm which is hygienic and bio secure, besides being economical, as it cuts down electricity charges and seldom requires changing of water.

34. Mr Kripan Sarkar requested Dr M.V. Rao to provide them electricity at subsidised rate of Rs.4 per unit like that of agricultural rate and **Dr. M.V. Rao** immediately assured to look into the matter to ensure that the problem gets solved at the earliest. **Dr. C. Suvarna, Commissioner, Department of Fisheries, Government of Telangana** also suggested that they can also try thinking of utilising solar and hybrid energy as alternative sources of electricity to cut down electricity charges. Some of the women members coming from SHG in Mayurbhanj, Odisha and dealing in goat farming enquired as to how they can start the venture of ornamental fisheries. **MD, NCDC** informed that for any kind of assistance and guidance they can consult the Regional Director, NCDC, Bhubaneswar.

35. Mr. Pravat Kumar Das, Chief General Manager, FISHFED, Odisha said that they have provisions for revolving assistance to help them develop their societies.

36. Lt. Col. Bikramjit Singh, Chief Director, LINAC, Gurugram next highlighted the NCDC's schemes and subsidy component for fisheries and other sectors. He informed that NCDC has its regional offices in 18 States across India and they can directly approach the Regional Office nearest to them for any financial assistance or guidance. He further added that as per the provisions of FPOs Scheme, farmers and entrepreneurs associated with fisheries business can also avail assistance. He also emphasized on the efforts made by NCDC to dovetail IT in NCDC's schemes related to Fisheries for advancement.

37. Dr. J. Balaji, Joint Secretary, Department of Fisheries, Ministry of Animal Husbandry, Dairying and Fisheries, Government of India addressed all doubts of the participants. He clarified that the present Blue Revolution Scheme has the Ornamental Fisheries as one of its key components with availability of subsidy. He informed that FIDF Scheme has an interest subvention Scheme and it will support RAS, cluster based farming, hatcheries, brood banks, seed bearing units and even brackish water aquaculture. It also supports innovation schemes up to Rs.1.0 crore besides supporting fish market renovation, modernisation as well as new constructions. He also clarified that there are no restrictions on ornamental fish farmers for availing Kisan Credit Card (KCC). He further apprised of the new Scheme i.e. '**Pradhan Mantri Matsya Sampada Yojana**' of the Department of Fisheries, Ministry of Animal Husbandry, Dairying and Fisheries, Government of India which is in its last stage of formulation and would roll out soon.

38. Shri Tarun Shridhar, Former Secretary Government of India & presently Senior Adviser, NCDC concluded by giving an overview of recommendations furnished by the various expert delegates and speakers. He said that the issue of credit guarantee needs to be resolved at the earliest by providing them with insurance and also that the entrepreneurs and fish farmers

must have access to markets directly. He said that training and skill development should be carried out on a priority basis involving the progressive and experienced entrepreneurs to enrich the new fish farmers and others who are new to the business. He further added that at the end of the training, follow ups need to be done with the farmers and entrepreneurs who have been trained to keep a track whether they have been able to make any profit after implementing it. Moreover he recommended that the various apex organisations like NCDC, NFDB, MPEDA, ICAR, State Governments, Government of India should collectively work towards holistic development of this sector by formulating schemes along with Government of India keeping in mind the practical problems faced by the entrepreneurs and fish farmers in their day to day business.

39. In the last, **Shri Snehanshu Goswami, Regional Director, NCDC, RO. Kolkata** offered a vote of thanks to all the dignitaries for sparing valuable time from their busy schedules to attend the workshop. He also thanked all the Scientists, Government officials from different States, media persons, entrepreneurs, members of federation and cooperative societies and all participants wholeheartedly for their enthusiastic participation and for sharing their success stories, difficulties and suggestions, making the workshop a grand success. The Workshop ended with a vote of thanks to the chair.

40. Recommendations

- a.** The focus should be on making Ornamental Fisheries enterprises flourish through planned cluster development with a holistic creation of value chain with regular monitoring and feedback mechanism. The clusters should be provided marketing support and market intelligence guidance at the grass root level.
- b.** Ornamental Fisheries should be promoted by building aquariums in schools, colleges, parks, gardens, shopping malls as this is eye catching and in this way interests and demands of people can be integrated to boost this business.
- c.** In states like West Bengal where there are many SHGs, some members should be encouraged to take up Ornamental Fisheries Business.
- d.** Appropriate policies related to Ornamental Fisheries should be formulated that contribute to the goal of doubling farmers' income.
- e.** State level fish federations, apex bodies like NCDC, NFDB, ICAR, State Government & Government of India need to work in integration with the various cooperatives, FPOs, SHGs and entrepreneurs for providing technical support, financial loans, brooding banks, breed improvement etc.
- f.** National and State Fish federations should play a major role by providing good feed, aquariums, marketing infrastructure so that the fish farmers can focus entirely on farming ornamental fish species.
- g.** The policy should encapsulate strategic framework for development of this sector which includes standardization of breeding technology of species, quality management, post-harvest management, market infrastructure development and adoption of proper packaging & transportation methods.

- h.** A model be created for aquarium to study as an ecosystem.
- i.** Propagation of indigenous species into the market through MSMEs can provide the much required thrust in Ornamental Fisheries sector which is presently only confined to exotic species.
- j.** The process of providing subsidies to the ornamental fisheries farmers should be simplified.
- k.** Topics from aqua-culture & aqua ecosystems can be incorporated into the academic curriculum of school students so as to generate awareness and develop interest in subjects such as water chemistry, fisheries, their breeding techniques, etc.
- l.** Collectivization of small ornamental fisheries units through Farmers Producers Organizations (FPOs) should be actively encouraged
- m.** FPOs should be made eligible to receive Govt assistance, support and incentives.
- n.** NFDB & other apex institutions should provide the practitioners of ornamental fisheries with financial and technical assistance to build up new and essential infrastructure.
- o.** Ornamental fisheries farmers should be covered under insurance schemes and provided with easier financial access and subsidized electricity to promote them further. They should also be incentivised to use solar and hybrid energy as alternative sources of electricity.
- p.** The issue of credit guarantee should be resolved at the earliest so that the ornamental fisheries entrepreneurs and fish farmers have better access to markets.

41. Actionable Points based on the deliberations

S. No.	Actionable Points	Proposed Action by
1	Promotion & Development of ornamental fisheries by signing MoUs between apex organisations like Department of Fisheries, GoI (NFDB), MPEDA, ICAR Fisheries Research Institutes, FISHCOPFED, State Governments, and related stakeholders	NCDC, Ministry of Fisheries, GoI, NFDB, MPEDA, ICAR Fisheries Research Institutes, FISHCOPFED and interested State Governments
2	Formulation of NCDC scheme for financing of ornamental fisheries value chain for export promotion through cooperatives by dovetailing subsidy of Department of Fisheries, GoI (NFDB) under the schemes of Blue Revolution, FIDF, Pradhan Mantri Matsya Sampada Yojana and CSISAC.	NCDC / Ministry of Fisheries, GoI/ NFDB/ MPEDA,

3	Training & Capacity Development of members of federation and cooperative societies and entrepreneurs on various aspects.	Training on technical aspects by ICAR Fisheries Research Institutes (CIFA, Bhubaneswar and CIFE Kolkata) and Cooperative Management aspects by LINAC, Gurugram
4	Development of model commercial ornamental fisheries wholesale-cum-retail Fish market in West Bengal/ interested states along with various value chain like live fish transportation vehicle, availability of quality brood stock thorough Brood bank, feed and seed through financial assistance from NCDC with network of rural cooperatives.	BENFISH/ Department of Fisheries, Govt. of WB/ Other interested states.

One-day Workshop on Ornamental Fisheries Entrepreneurship Development

Held on 25.01.2020 at Kolkata

Venue: Golden Tulip Hotel, DD – 19, Plot No. 8, Sector – I, Salt Lake City, Kolkata, West Bengal

List of participants

Dignitaries			
Sl. No	Name	Designation	Dept. / Organisation
1	Shri Sundeep Kumar Nayak, IAS	Managing Director	NCDC, New Delhi
2	Dr. M.V. Rao, IAS	Addl. Chief Secretary	Panchayat & Rural Development and Cooperation Dept., Govt. of West Bengal
3	Dr. S. Kishore, IAS	Addl. Chief Secretary	Fisheries Department, Govt. of West Bengal
4	Shri Tarun Shridhar	Sr. Adviser	NCDC, New Delhi
5	Dr. J. Balaji, IAS	Jt. Secretary	Department of Fisheries, Govt. of India
6	Dr. Joykrushna Jena	Dy. Director General (Fisheries and Animal Science)	Indian Council of Agricultural Research (ICAR), New Delhi
7	Dr. C. Suvarna, IFoS	Commissioner	Fisheries Department, Govt. of Telangana and MD, Telangana State Fishermen Cooperative Federation Ltd.
8	Dr. G. Ramakrishna Rao	Sr. Executive (Tech)	National Fisheries Development Board (NFDB), Hyderabad
<u>Officers</u>			
Sl. No	Name	Designation	Dept. / Organisation
9	Shri B. K. Mishra	Managing Director	National Federation of Fishers Cooperatives Ltd. (FISHCOPFED), New Delhi
10	Shri Bidhan Chandra	Managing Director	West Bengal Fishermen's

	Ray		Coop. Federation Ltd. (Benfish), Kolkata
11	Shri Subrata Mukherjee	Managing Director	West Bengal State Fisheries Development Corporation Ltd. (SFDC), Kolkata
12	Shri Soumyajit Das	Jt. Secretary	Panchayat & Rural Development Dept., Govt. of West Bengal
13	Dr. B. K. Mondal	Consultant	Panchayat & Rural Development Dept., Govt. of West Bengal
14	Dr. G. H. Pailan	Principal Scientist & Officer In-charge	ICAR-Central Institute of Fisheries Education (CIFE), Kolkata
15	Dr. B. K. Mahapatra	Principal Scientist	ICAR-Central Institute of Fisheries Education (CIFE), Kolkata
16	Dr. Archana Sinha	Principal Scientist	Central Inland Fisheries Research Institute (CIFRI), Kolkata
17	Shri P Koteswar Rao	Principal/Addl. Director	State Institute of Fisheries Technology
18	Shri. T. Yonggam	Deputy Director	Fisheries Department, Govt. of Arunachal Pradesh
19	Shri Rishikesh Kashyap	Managing Director	Bihar State Co-operative Fisheries Federation Ltd (COFFED)
20	Shri Suman Kumar	Joint Director (Technical)	Fisheries Department, Govt. of Bihar
21	Shri R. K. Singh	Assistant Fishery Officer	Fisheries Department, Govt. of Chattisgarh
22	Shri R. P. Verma	Assistant Fishery Officer (Retired)	Fisheries Department, Govt. of Chattisgarh
23	Shri Nazimullah Ansari	Fisheries Extension Supervisor	Fisheries Department, Govt. of Jharkhand
24	Shri Pravat Kumar Das	Chief General Manager	FISHFED, Odisha
25	Shri V. Srinivas	General Manager	Telangana State Fisheries Cooperative Societies Federation Limited (TSCOF)
26	Shri Saptrashi Biswas	Deputy Director	Fisheries Department, Govt. of West Bengal
27	Dr. C. Dutta	Asst. Director	Fisheries Department, Govt. of West Bengal

28	Shri Amit Dutta	Asst. Fishery Officer	Fisheries Department, Govt. of West Bengal
29	Dr. Sdamik Das	Jt. Director	Fisheries Department, Govt. of West Bengal
30	Dr. P. K. Jana	Jt. Director	Fisheries Department, Govt. of West Bengal

**Entrepreneur/ Progressive Farmers/Coop. Society Member/
Exhibitor**

Sl. No	Name	Designation	Dept. / Organisation
31	Shri B V V Phaneendra	Entrepreneur	Pavan Aquariums, Andhra Pradesh
32	Shri Teshi Rotu	Progressive farmer	Yupia Village, Papumpare District, Arunachal Pradesh
33	Shri Jogeswar Deka	Entrepreneur	Shark AcquariumMangaldoi, Assam
34	Shri Partha Rathi Hazarika	Entrepreneur	Matchyagandha, Nagaon, Assam
35	Shri Bijoy Chetri	Entrepreneur	Chetri Ornamental Fish Farm, Somitpur, Assam
36	Shri Brajendra Nath Sinha	Entrepreneur	Bihar
37	Shri Sunil Kumar	Progressive Farmer	Bihar
38	Shri Naresh Kumar Sahani	Farmers/ Entrepreneur	Bihar
39	Shri Chamaklal Sahani	Farmers/ Entrepreneur	Bihar
40	Shri Arun Kumar	Farmers/ Entrepreneur	Bihar
41	Shri Manoj Kumar Choudhary	Farmers/ Entrepreneur	Bihar
42	Shri Sujit Kumar Choudhary	Farmers/ Entrepreneur	Bihar
43	Shri Nemchand Kewat	Farmers/ Entrepreneur	Bihar
44	Shri Krishna Kumar	Farmers/ Entrepreneur	Bihar

45	Shri Neelmani	Farmers/ Entrepreneur	Bihar
46	Shri Alok Kumar Singh	Farmers/ Entrepreneur	Bihar
47	Shri Sandeep Mahto	Entrepreneur	Jharkhand
48	Ms. Manju Toppo	Progressive Farmer	Jharkhand
49	Shri Naresh Chandra Mohanta	Progressive Fish Farmer	Odisha
50	Ms. Mamata Mohanta	Progressive Fish Farmer	Odisha
51	Shri Kanhu Chandra Mohanta	Progressive Fish Farmer	Odisha
52	Shri Ramakrushna Mohanta	Progressive Fish Farmer	Odisha
53	Ms. Sunita Giri	Progressive Fish Farmer	Odisha
54	Ms. Rakheerani Mohanta	Progressive Fish Farmer	Odisha
55	Ms. Baijayanti Mohanta	Progressive Fish Farmer	Odisha
56	Shri Tushar Ranjan Sahu	Progressive Fish Farmer	Odisha
57	Ms. Chilkuri Sathyavathi	Entrepreneur	Telangana
58	Shri C. Laxman	Progressive Fish Farmer	Telangana
59	Shri Kripan Sankar	Entrepreneur	West Bengal
60	Ms. Chandra Mondal	Progressive Fish Farmer	West Bengal
61	Ms. Rubi Manna	Progressive Fish Farmer	West Bengal
62	Shri Jayanta Mondal	Fish Breeder & Exporter	West Bengal
63	Shri Amit Adak	Progressive Fish Farmer	West Bengal
64	Shri Srikanta Pramanik	Progressive Fish Farmer	West Bengal

65	Shri Ajay Das	Progressive Fish Farmer	West Bengal
66	Shri Sundar Atta	Farmer & Trader	West Bengal
67	Shri Dipak Nopani	Exporter	West Bengal
68	Shri Somnath Mayur	Fish Trader	West Bengal
69	Shri S. Parui	Progressive Fish Farmer	West Bengal
70	Shri Sanjoy Paul	Progressive Fish Farmer	West Bengal
71	Shri Gouranga Maity	Progressive Fish Farmer	West Bengal
72	Shri Subhrangshu Das	Progressive Fish Farmer	West Bengal
73	Muktarum Bibi	Progressive Fish Farmer	West Bengal
74	Shri Sunirmal Das	Progressive Fish Farmer	West Bengal
75	Shri S. Dutta	Progressive Fish Farmer	West Bengal
76	Shri Bhaskar Das	Progressive Fish Farmer	West Bengal
77	Shri S. Halдар	Progressive Fish Farmer	West Bengal
78	Shri Malay Banerjee	Progressive Fish Farmer	West Bengal
79	Shri Debnath Mondal	Progressive Fish Farmer	West Bengal
80	Shri Pradip Naskar	Progressive Fish Farmer	West Bengal
81	Shri Tapojit Roy	Progressive Fish Farmer	West Bengal
82	Shri Swarup Patra	Progressive Fish Farmer	West Bengal
83	Shri Haridas Dhara	Progressive Fish Farmer	West Bengal
84	Shri Saroj Das	Progressive Fish Farmer	West Bengal
85	Shri Sanjoy Chowdhury	Exhibitor	West Bengal

86	Shri Samir Das	Exhibitor	West Bengal
87	Shri Pravasa Samanta	Exhibitor	West Bengal
88	Shri Prasenjit Das	Exhibitor	West Bengal
89	Shri Samiran Purai	Exhibitor	West Bengal
90	Shri Tapas Atta	Exhibitor	West Bengal
91	Shri Nantu Das	Exhibitor	West Bengal
92	Shri Lal Mohan Mondal	Exhibitor	West Bengal
93	Shri S. Mondal	Exhibitor	West Bengal
94	Shri Pradip Roy	Exhibitor	West Bengal
95	Shri Shanbhu	Exhibitor	West Bengal
96	Shri Rahul Dutta	Reporter	Bartaman News Paper
97	Shri Soumitra Nandi	Reporter	The Millennium Post

NCDC Officers in Workshop

Sl. No.	Name	Designation	Head Office/ RO
1	Lt. Col. Bikramjit Singh	Chief Director	NCDC, LINAC
2	Shri Snehanshu Goswami	Regional Director	NCDC, Kolkata
3	Shri Rajnaresh Gopal	Regional Director	NCDC, Bhubaneswar
4	Smt. Minesh Tuteja	Dy. Director	NCDC, New Delhi
5	Shri Ramandeep Kaushish	Assistant Director	NCDC, Kolkata
6	Shri Shyam O	Programme Officer	NCDC, Kolkata
7	Shri Arghyadeep Jana	Programme Officer	NCDC, Kolkata

8	Shri Debnath Roy	SPA	NCDC, Kolkata
9	Shri Sanjeev Karmakar	Jr. Asstt.	NCDC, Kolkata
10	Ms. Aratrika Dutta	Jr. Asstt.	NCDC, Bhubaneswar
