

# Converting Scientific Knowledge and Technical Innovation into Successful Business

## – Case of freshwater aquaculture

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*Agri-business incubation centre of ICAR-CIFA has been operating in the field of freshwater aquaculture since 2013. During last six years, centre has contributed significantly to the entrepreneurship development in freshwater aquaculture. It has leveraged technological strength to showcase successful business models across the country. The setup has generated social impacts in the form of new business creation, income and employment. Establishment of new enterprises in strengthening value chain has been a major achievement.*

**Key words:** Agri-business incubation, Freshwater aquaculture

**B**USINESS incubation is the process of nurturing entrepreneurs, start-ups in the early stage of enterprise development. Agri-business incubators are specialised in promoting enterprises relating to the food value chain. Traditionally, agriculture was considered synonymous to farming or husbandry activities but in the modern times, agri-business encompasses much broader activities in the value chain from inputs-supply to food-processing, marketing and export. The enterprises are the economic units that operate within the business environment with the objective to create value in market while earning livelihoods and profit out of it. Therefore, the new age entrepreneurs, start-ups find opportunity in whole value chain. But success of these entrepreneurs depends upon supporting environment, a range of technology, support, services etc. In absence of such support, the failure rates of these new initiatives are quite large. Globally, business incubation is being used as a tool to provide the

necessary support to increase the chance of success of new firms in the market environment.

Business incubation is the process in which new business organisations are created from idea through entrepreneurial, social, and economic development process. Business incubators are the physical space in which business incubation process is carried out. Incubators orient its resources, support services and strength to nurture young firms especially at the initial stage. There are diverse categories of incubators, agri-business incubators are one of them. Agri-business incubators (ABI) serve the new firms in the field of agri-business with focus on value addition, market linkages and value chain developments. Agri-business incubators are unique as they help client in dealing with market linkages, high value business models, uncertainties, technology gap to increase chance of survival and growth of new age entrepreneurs.

ABI of ICAR-Central Institute of Freshwater Aquaculture is one such incubator where the primary goal is

to develop new enterprises in the field of freshwater aquaculture in India. Freshwater aquaculture sector in India has developed only in last five decades primarily driven by wide range of technologies made available by Indian council of Agricultural Research. The aquaculture research was carried out by Pond Culture Division located at Cuttack of CIFRI, Barackpore since 1947 and later converted into Independent institute as CIFA in 1986. Aquaculture technologies were instrumental in building freshwater aquaculture industry in the tune of ₹ 65,000 crores in 2016-17. The sector is growing at the rate of 6.1% since 1960 and considered as one of the fastest growing sector within agriculture.

Economic growth was possible through creation of new enterprises, adoption of technologies and development of aquaculture clusters across the country. The aquaculture business has been ever increasing as many new players are entering into the sector to take advantages in the economic conditions derived due to

high demand and high price situations. The dynamics of the sector is driven by expansion of the market and increase in specialisation and new enterprise creation. Hence, the new value chain is created and entrepreneurs are attracted towards the sector.

Within this economic context, the ABI of ICAR-CIFA focussed on new business creations in the freshwater aquaculture sector since 2013. ABI is involved in activities like (a) Promotion of business through commercialization of technology, (b) Incubation of small and medium enterprise to develop aqua-business, (c) Skill development of entrepreneurs, (d) Development of bankable projects for entrepreneurs, (e) Consultancy services to the industry, NGO, etc. and (f) act as one-stop-center for technology assessment and exposure for the entrepreneurs and industry.

#### Demand for incubation services

Incubation is the specialised service provided through strength in domain knowledge and management expertise within particular agri-business space of freshwater aquaculture. Effectiveness and impact of the services depends on the demand of these services by the entrepreneurs. Whether services provided are demanded by sector or not? If demanded, what are the services needed by the entrepreneurs? ABI has assessed the demands from the participation of entrepreneurs in the training programmes, request made to ABI, visit of entrepreneurs and communication in last seven years. As per the assessment, major enterprises in which entrepreneurs were interested were seed production, fish culture, feed production and feed plant, fish processing, pearl culture, carp hatchery, fish waste processing, other aquaculture services like fish health products, aqua-eco tourism, fish marketing etc. Approach of incubation centre has been to openly discuss with the entrepreneurs on their idea about the opportunities within the business ecosystem in which they operate. The centre helps in identifying such opportunities within freshwater aquaculture value

**Table 1.** Enquires for enterprises during 2013-20

| Enterprise                               | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|------------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Seed production                          | 10      | 15      | 18      | 45      | 63      | 83      | 71      |
| Fish Culture                             | 31      | 44      | 62      | 109     | 121     | 139     | 127     |
| Feed Production & Feed Plant             | 27      | 29      | 22      | 33      | 41      | 40      | 35      |
| Fish Processing                          | 41      | 22      | 20      | 28      | 37      | 42      | 31      |
| Pearl culture                            | 35      | 24      | 22      | 15      | 92      | 103     | 86      |
| FRP hatchery                             | 71      | 72      | 78      | 94      | 117     | 152     | 140     |
| Fish Hydrolysate                         | 4       | 3       | 5       | 15      | 84      | 71      | 91      |
| Others (fish health, tourism, marketing) | 45      | 44      | 42      | 111     | 129     | 144     | 136     |
|                                          | 264     | 253     | 269     | 450     | 684     | 774     | 717     |

chain.

#### Technological and business services

Services are the elements of incubation process through which the need of the entrepreneurs and start-ups are served. The services can be categorised into business and technological services. The business services are the typical incubation services provided by ABI while technological services leveraged on technological strength of the institute.

ABI Unit acts as one-stop-center for technology showcasing and exposure to the entrepreneurs. Most of the technologies were provided by the institute on which ABI has provided value added technological and business services leading to successful ventures. Technological services in the form of technological accesses, technology commercialization, hands-on training, laboratory testing, technological design, on site handholding etc. There were also group of enterprises which were unique and innovative in nature, the ideas and technologies were brought in by entrepreneurs on which ABI has provided both technological and business services leading to many innovative ventures.

The business services are in the form of DRP preparation, support for accessing finance and subsidy, development of marketing strategy, support in branding, help with accounting/financial management, links to strategic partners, management team identification, help with regulatory compliance, Intellectual property management, Administrative and secretarial support etc.

#### Achievements

Firm creations: The entrepreneurs in the freshwater aquaculture were working in whole value chain from inputs supply, production to marketing. Therefore, organizational structure was diverse. The firms engaged in farming and seed production were in the proprietorship or partnerships. Whereas new business models having high growth potential were undertaken in the incorporated companies. Some of the firms developed are given in Table 1.

#### Value chain development

Value chain development in freshwater aquaculture has been undertaken by ABI to build entrepreneurs in the underdeveloped areas. The value chain development in the Nabarangpur district was under taken during 2019-20 under RKVY project, in Madhya Pradesh in collaboration with TAAL (an NGO) under consultancy project during 2016-17, in Malkangiri and Jharkhand with consultancy project of WASSAN (Section 25 company) during 2014-16. In the value chain developments, linked enterprises were identified, business plan was developed, capacity built and handholding support was provided to successfully establish the value chain from production to marketing in the identified areas.

#### Skill development

During this period several skill development training programmes were conducted, viz. National Training Programme on Installation and Operation of FRP Hatchery (Training) (5 numbers with participation of 110 operators), value

chain developments (6 numbers training about 300 entrepreneurs), Fish Feed Production and Feeding Management in Aquaculture (3 numbers for 75 entrepreneurs), business orientation for pearl farmers (6 numbers 170 entrepreneurs) etc. The necessary skills required to establish an enterprises were imparted through these programmes.

### Collaborative programmes

Entrepreneurship development programme was undertaken in collaboration with NRRI, Cuttack; MANAGE, Hyderabad; OUAT, Bhubaneswar; APICOL, Odisha; KVK, Khordha; IMAGE, Bhubaneswar; National Innovation foundation, Bhubaneswar; WASSAN, Hyderabad; TAAL, Bhopal in addition to the on-going programme of ABI-CIFA.

### Network development

The network created by ABI CIFA across the organisations was key to success of new enterprises as it provides necessary support to the entrepreneurs in various aspects of the business. Through these networks the access to the services from various organisation had been easy. For example, the network with APICOL (apex body for subsidy delivery to entrepreneurs in odisha) had been helpful for entrepreneurs in getting financial support. Network with the NABARD helped in getting support from banks on the matter of credit. The related institutes like CARI, NRRI, IIHR, CIFT etc. were also supported entrepreneurs in technology access. MSME, Odisha has been helping the entrepreneurs in start-up Odisha programme.

### Coaching, mentoring and consultations

Coaching, mentoring and consultation are important tools of information sharing and guiding the firms and entrepreneurs. The entrepreneurs in the pre-incubation phases spent a large amount of time in discussion with the incubators before taking their decisions. Similarly, large number of organisations were also benefitted by these processes to strengthen their capabilities in dealing with the

emerging aqua- business enterprises. Some of the examples of such consultations were with DCMSME, Paradip on formation of dry fish cluster in Paradip; IL&FS on Aquaculture Cluster Development in Balasore; CESC- RP Sanjib Goenka group company in Aquaculture Cluster Development in Haldia, West Bengal; Mission Skakti Odisha in development aquaculture based women entrepreneurs etc.

Similarly, some of the entrepreneurs consulting with ABI to develop enterprise based on new technologies were Saurava Kumar Biswal (Jayanti Rohu), Kailash Ch. Sahu, Gope Odisha (Fish feed), Navneesh Nalwa Sumrihi Seeds, Haryana (Fish manufacturing), Himmat Raghunath Rao Morey, Nagpur (Fish processing), Maalaxmi aquaculture (P) Ltd. (Jayanti Rohu), Sidharth Roy, Chandikhol (Aquaculture farm), Zoo Fish Ltd, Bhabanipatna (Live Fish Marketing System) etc.

### Incubatees

Incubatees were only a small percentage of total entrepreneurs with whom ABI is engaged. The incubatees were committed resources and time on particular enterprises and taken advantage of the incubation centre. Details of the incubatees across enterprises and their status is given in Table 2.

### Economic benefits

The operations of agri-business incubation centre has been beneficial to the entrepreneurs, host institute and society at large. The entrepreneurs were able to find a

platform to get exposure, discuss and decide on enterprises, access to technology, access to resources and enter into the networks. The host institute was able to find large number of entrepreneurs to take up the technologies developed by them. Scientists were able to interact with large number of entrepreneurs on the technical matters pertaining to their subject. The market information and dynamics of the sector was better understood by the entrepreneurs and acted as a bridge between economy and research institutes. The ultimate benefits of the incubation process lies in generation of new business out of it. Since business generation is a long term process, it is difficult to assess the social impact of incubation. However, the business generation and capital investment made by selected entrepreneurs can provide indicators of the economic impact of incubation. Following are the few firm having generated capital based on the DPR prepared by ABI-CIFA.

### Success stories

#### Success Story of Zoofresh, Bhawanipatna, Odisha (Live fish system)

The entrepreneur Mr. Sadananda Satapathy shown interest to become an incubatee of ABI of CIFA to provide fresh, local, safe products for approx. ZooFresh Foods Private Limited was established on 23 March 2016 and operates in Western Odisha. ZooFresh Foods is incubated at CIFA, Unltd India, a-IDEA NAARM, Hyderabad. It is recognized by Startup India and Startup Odisha, and was selected by the Ministry of Food Processing

**Table 2.** Status of incubatees of ABI-CIFA during 2011-19

| Enterprise types                      | Graduated | Continue | Total |
|---------------------------------------|-----------|----------|-------|
| IMC breeding                          | 0         | 3        | 3     |
| Murrel breeding                       | 0         | 2        | 2     |
| Catfish breeding                      | 0         | 2        | 2     |
| Fish feed production                  | 0         | 2        | 2     |
| Pearl farming                         | 1         | 0        | 1     |
| Fish processing                       | 2         | 1        | 3     |
| Fish waste based fertiliser           | 0         | 3        | 3     |
| Plastic gadgets                       | 2         | 0        | 2     |
| Jayanti Rohu                          | 5         | 0        | 5     |
| Aqua-field school (technical service) | 0         | 3        | 3     |
| Market development                    | 0         | 1        | 1     |
| Total                                 | 10        | 17       | 27    |

**Table 3.** Start-up enterprises by Incubatees

| Entrepreneur's Name              | Address                                   | Technology/Enterprise                                   |
|----------------------------------|-------------------------------------------|---------------------------------------------------------|
| Maalaxmi Aquaculture (P) Ltd     | Kalna, West Bengal                        | Jayanti Rohu, Anabeas seed production, Fish hydrolysate |
| Zoo Fish Ltd                     | Bhawani Patna, Odisha                     | Live Fish Marketing System                              |
| Mr. Sanjay Agarwal               | M/s Agarwal Trading Corporation, CG       | CIFAX, Feed manufacturing                               |
| Mr. Sushanta Pradhan             | Sheraton Eco, Bhanjanagar, Ganjam, Odisha | Aqua-tourism                                            |
| Mr. Akash Mishra                 | M/s. Farbon India (P) Ltd.                | Aquaculture                                             |
| M/S Aishrya Aquaculture Pvt. Ltd | Naihati, West Bengal                      | Broodfeed manufacturing                                 |

Industries (MoFPI) as one of India's top 20 food startups at World Food India 2017. It is a part of FSSAI's Food Innovators Network, and has a PPP with the Odisha Poultry Federation, Govt. of Odisha. The start-up enterprises developed by ABI-CIFA are given in Table 3.

#### Success Story of Farbon India Pvt. Ltd., Gop, Puri, Odisha (Integrated Fish Farming)

Two friends Mr. Akash Mishra and Dr. Pravas Panda started an initiative in the year 2018 in Integrated fish farming which includes poultry, goat farming and horticulture at Gop,

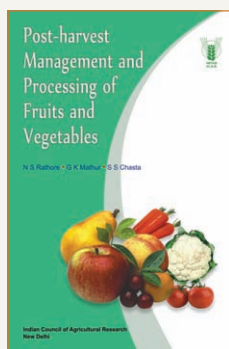
Puri. They have been trained at ABI-CIFA before starting their enterprise. Now they are successfully producing sustainable quantity of products from different farming systems. Looking into their excellent contribution towards integrated fish farming in aquaculture sector, they have been awarded Best Fish Farmer by ICAR-CIFA, Bhubaneswar on the occasion of National Fish Farmers Day (10th July, 2019). In the present context, Farbon India has set an example to prospective entrepreneurs in the field of integrated fish farming as an incubatee of ABI-CIFA.

## SUMMARY

The entrepreneurship were developed through wide range of services provided by ABI-CIFA. Incubatees were the primary focus of incubator with Incubatees (27) engaging in large number of enterprises in the freshwater aquaculture value chain. In addition, the entrepreneurs were also provided support through skill developments, mentoring and consultancy. During last 6 years, 79 entrepreneurs/firms were supported through 27 numbers of DPRs and entrepreneurs were able to attract funding to the tune of ₹ 26 crores and assets generated at about ₹ 34.2 crores. It is estimated that revenue generation by the entrepreneurs amounted to ₹ 13.72 crores per year. During this period 8 technologies were commercialised. Some of the brands like Tisya Pearls Pestolyset, Bindadd, fish Mount, Veggie Plus, freshterian etc. were developed by the entrepreneurs.

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### TECHNICAL SPECIFICATIONS

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