

Enhancing Farm Income through Entrepreneurship Development in Fisheries Post harvest sector

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Introduction

Value addition means “any additional activity that in one way or another changes the nature of a product, adding to its value at the time of sale”. It is the most talked about word in food processing industry, particularly in export oriented fish processing industry, because of the increased realisation of valuable foreign exchange. Of the fish destined for direct human consumption, the most important product form is live, fresh or chilled fish, with a share of 46.9 % in 2010, followed by frozen fish (29.3 %), prepared or preserved fish (14.0 %) and cured fish (9.8 %) (Anon.2012). Value can be added to fish and fishery products according to the requirements of different markets. These products range from live fish and shellfish to ready to serve convenience products. There is a great demand for seafood/seafood based products in ready to eat “convenience” forms. A number of such diverse products have already been available in the western markets. One of the factors responsible for such a situation is more and more women getting educated and taking up employment and not having much time for traditional cooking. Reasonably good expendable income, education, awareness and consciousness towards hygiene and health, increased emphasis on leisure pursuits, etc. are some of the other reasons.

Marketing of value added products is completely different from the traditional seafood trade. It is dynamic, sensitive, complex and very expensive. Market surveys, packaging and advertising are a few of the very important areas, which ultimately determine the successful marketing of a new product. Most of the market channels currently used are not suitable to trade value added products. A new appropriate channel would be the super market chains which procure directly from the source of supply of the products and control most of the components of production and supply chain like packaging, advertising and retail marketing. Appearance, packaging and display are all important factors leading to successful marketing of any new value added product. The retail pack must be clean, crisp and clear and make the contents appear attractive to the consumer. The consumer must be given confidence to experiment with a new product launched in the market. Packaging requirements change with product form, target group, market area, species used and so on. The packaging technology needs to be evolved which should be attractive, convenient and adding to the shelf life of the processed products (Gopal et al, 2015).

The Agri-Business Incubation (ABI) Centre and Zonal Technology Management Centre (ZTMC) established at ICAR-CIFT, Cochin supports operations on business projects as a measure of

enhancing the foundation for new technology based industries and establishing a knowledge-based economy. It focuses on finding new ways of doing business in fisheries by finding doors to unexplored markets. ABI Centre helps prospective entrepreneurs, by providing pro-active and value-added business support in terms of technical consultancy, infrastructure facility, experts' guidance and training to develop technology based business ideas and establish sustainable enterprises. It acts as a platform for the speedy commercialization of the ICAR technologies, through an interfacing and networking mechanism between research institutions, industries and financial institutions. The Incubator at CIFT differs from traditional Business Incubators as it is tailored specifically for technology based industries and is operational at an area with a high concentration of fish production. This industry-specific incubator also allows new firms to tap into local knowledge and business networks that are already in place. ABI offers its services to industries not only in Cochin, but also all over India through virtual incubation. Beyond promoting business growth, the Centre aims to bring its benefits to all the fisheries communities in India.

Major Technologies in fisheries post-harvest sector are outlined below:

Processing Methods

The methods used for freshwater fish includes chilling, modified atmosphere packaging, active packaging, freezing, drying, thermal processing, drying and smoking. Major freshwater fish species which can be used for the production of coated products are Rainbow trout (*Oncorhynchus mykiss*), European eel (*Anguilla anguilla*), Japanese eel (*Anguilla Japonica*), Milk fish (*Chanos chanos*), Channel catfish (*Ictalurus punctatus*), Nile tilapia (*Oreochromis niloticus*), Rohu (*Labeo rohita*), Catla (*Catla catla*), Mrigal (*Cirrhinus mrigala*), Common carp (*Cyprinus carpio*), Roach (*Rutilus rutilus*), etc. Prominent fresh water shellfish are scampi (*Macrobrachium rosenbergii*) and crayfish.

Live fish: Many fishes if sold in live condition fetch a much higher price than in the frozen or chilled forms especially in overseas markets. Hence, it is becoming a general practice to transport those varieties of fish and shellfish to the prospective markets in the live condition. They are also sold in the live condition in the super markets. Murrels are being transported in live condition in India to distant overseas markets. Fishes like channa, catfish etc. are preferred in live condition. In North Eastern States, carps are also fetching better price in live condition. Although fish are transported in live condition, it is essential to evolve much better technology to transport them to distant places and with full freshness to fetch better price.

Chilled fish: Chilled fish is another important value added item of international trade. Immediate chilling of fish ensures high quality products (Connel, 1995; Huss, 1995). Chilled fish fetches more price than frozen fish. Indian major carps like, catla, mrigal and rohu packed in boxes in iced condition and exported. From Andhra Pradesh different species of fish is packed in boxes,

transported to Calcutta and other major cities in trucks or by rail in chilled condition. Chilled storage life of fish depends on several factors such as composition, microbial contamination and the type of microflora present in the fish (Venugopal, 2006). Up to 35% yield of high value products can be expected from fish processed within 5 days of storage in ice, after which a progressive decrease in the utility was observed with increase in storage days and beyond 9 days of ice storage no high value products could be processed (Venugopal and Shahidi, 1998).

Vacuum packaging: In vacuum packaging, air inside the pack is removed completely and sealed immediately. This helps in reducing the oxidation in fatty foods and also reduces the growth of aerobic microorganisms thereby extending the shelf life considerably.

Modified atmospheric packaging (MAP): Modified atmospheric packaging is a process by which the shelf life of fish is increased by enclosing it in an atmosphere so modified that it slows down the degradation by microorganisms and development of oxidative rancidity. In practice fish/fish products are packed in an atmosphere of carbon dioxide and other gases like oxygen and nitrogen. MAP chilled fish has an extended shelf life of 10 days or more depending on the species. Different combinations of gases have been studied for extension of shelf life of fish in a modified atmosphere. Elevated carbon dioxide levels in MAP have been shown to inhibit the normal spoilage flora of seafood and double or triple the shelf life. Studies conducted at CIFT proved that a mixture of 80% carbon dioxide and 20% oxygen was more effective in extending the shelf life of *Catla* fillets when stored at 0-4°C. The shelf life was limited to 28 days using 80% carbon dioxide and 20% oxygen, 20 days in a mixture of 50% carbon dioxide and 50% oxygen compared to 12 days in air. Dressed and gutted pearl spot packed in 60% carbon dioxide and 40% oxygen had a shelf life of 11 days in air compared to 22 days in modified atmosphere packaging. Rohu fish fillets packed in 40% carbon dioxide, 30% oxygen and 30% nitrogen had a shelf life of 28 days in MAP compared to 18 days in air (Gopal, 2009). MAP can be effective if used in conjunction with packaging materials of correct O₂/CO₂ permeability characteristics. Properties required may not be found in one polymer, hence laminated films or multilayer films are used.

Active packaging: Active packaging is defined as 'a type of packaging that changes the condition of the packaging and maintains these conditions throughout the storage period to extend shelf-life or to improve safety or sensory properties while maintaining the quality of packaged food' (Vermeiren et al. 1999). These systems can be classified into active scavenging systems (absorbers) and active releasing systems (emitters). Scavenging systems remove undesirable compounds such as oxygen, excessive water, ethylene, carbon dioxide, taints and other specific food compounds. Releasing systems actively add compounds to the packaged food such as carbon dioxide, water, antioxidants or preservatives. Most important active packaging components includes: O₂ and ethylene scavenging, CO₂ scavengers and emitters, moisture

regulators, anti-microbial packaging, antioxidant release, release or adsorption of flavours and odours.

Oxygen scavengers is mainly used to prevent oxidative reactions, discolouration and mould growth. Different Oxygen scavengers are chosen depend on the amount of Oxygen to scavenge (pack size and material) and product water activity. Oxygen scavengers for high water activity foods react faster compared to scavengers for dry foods but in general the absorption is slow and exothermic. Work carried out at CIFT using O₂ scavenger, an extension of shelf life for about 10 days was achieved for catfish (*Pangasius sutchi*) steaks packed in EVOH pouches in chilled conditions.

In some cases, like meat and fish products, high CO₂ levels (10-80%) are desirable to extend the shelf-life. CO₂ has a inhibitory effect on bacterial growth. It is particularly effective against gram-negative, aerobic and psychrotrophic spoilage bacteria, such as pseudomonas sp. The commercial CO₂ emitters are based on either ferrous carbonate or a mixture of ascorbic acid and sodium bicarbonate. Studies conducted using salmon fillets with soluble gas stabilization technique with combined oxygen absorber and carbon dioxide emitter (Ageless G-100) indicate fast microbial growth stored in air without absorbers and slower growth rate using absorbers and emitter.

Frozen fish fillets: Many varieties of fresh water fishes like rainbow trout, shell fishes, catla, rohu, tilapia fillets can be frozen for domestic market and export to developed countries in block frozen and IQF forms. In the importing countries these fillets are mainly used for conversion into coated products. Fish fillets can also be used for the production of ready to serve value added products such as fish in sauce and fish salads.

Individually quick frozen products: IQF products fetch better price than conventional block frozen products. However, for the production of IQF products raw materials of very high quality needs to be used, as also the processing has to be carried out under strict hygienic conditions. The products have to be packed in attractive moisture-proof containers and stored at -30°C or below without fluctuation in storage temperature. Thermoform moulded trays have become accepted containers for IQF products in western countries. Utmost care is needed during the transportation of IQF products, as rise in temperature may cause surface melting of the individual pieces causing them to stick together forming lumps. Desiccation leading to weight loss and surface dehydration are other serious problems met with during storage of IQF products. *Some of the IQF products in demand are the following:* Prawn – Whole, peeled and deveined, cooked, headless shell-on, butterfly fan tail round. Fish fillets – Fillets of rohu, tilapia, catla, trout & catfish.

Battered and breaded products: Coated products viz., fish fingers, squid rings, cuttlefish balls, fish balls and prawn burgers form one of the major fish and shellfish based items of trade by the ASEAN countries (Chang et al., 1996). Battered and breaded seafood offers a convenience food valued widely by the consumer. Battered and breaded items are included in the value added products because the process of coating with batter and bread crumbs increases the bulk of the product thereby reducing the cost element. The pick-up of coating on any product can be increased either by adjusting the viscosity of batter or by repeating the process of battering and breading. As a convention 50% fish portion is expected in any coated product.

Ready to serve fish products in retortable pouch: Ready to serve fish products viz. curry products, in retortable pouches are a recent innovation in ready to serve fish products for local market. The most common retortable pouch consists of a 3 ply laminated material. Generally it is polyester/aluminium/cast polypropylene. Some of the products are rohu curry, prawn curry, mahaseer fish curry, prawn kurma and prawn Manchurian. These products have a shelf life of more than one year at room temperature. As there is increasing demand in the national and international markets for ready to serve products the retort pouch technology will have a good future. The technology for retort pouch processing of several varieties of ready to serve fish and fish products has been standardised at CIFT and this technology has been transferred successfully to few entrepreneurs in the country. The demand for these products is very good. Work carried out in Central Institute of Fisheries Technology has shown that different commercially important species viz., oil sardine, mackerel, seer fish prepared in curry medium and packed in retort pouches having composition polyester / aluminium foil / cast polypropylene remained in excellent condition for a period ranging from 18 to 36 months at ambient storage conditions (Ansar Ali et al., 2005; Ravishankar et al. 2002; Gopal et al., 2001).

Ready to eat combination meal in polypropylene trays: Ready to eat combination meal consisting of rohu fish curry and parboiled rice were developed using indigenous thermoformed polypropylene trays. In this, rohu and parboiled rice/tapioca were packed in separate trays and thermal processed to an F0 value of 8.0 min at 121⁰C. The developed product had a shelf life of 15 months at ambient temperature.

Ready-to-eat fish-kure: CIFT has worked on the production of extruded products by incorporating fish mince with cereal flours. One such popular combination is the combination of Japanese threadfin bream (*Nemipterus japonicus*) mince with rice flour and Bengal gram flour. The product obtained is finally coated with Chaat masala to provide a mouth-watering snack that has been christened as "Fish Kure". Similarly extruded fish products can be prepared from fresh water fish fillets frames and other low value fresh water fishes.

Fish Soup Powder: Soup powder prepared from different materials like vegetables, meat, egg, chicken etc. are very popular and widely consumed in different parts of the world. These are rich in constituents like protein, vitamins, fat and minerals. However, soup processed out of fish is not so common. Fish soup powder contains partially hydrolysed protein, carbohydrates, fat and several seasoning compounds including salt and is hygroscopic in nature. Fishes of low economic value can be used to prepare this product which will have good export as well as domestic markets.

Pickled products: Fish pickle makes use of the non-fatty variety of low cost fish having good meat content. Major ingredients are: fish, garlic, green chilly, ginger, chilly powder, turmeric powder, gingelly oil, salt, vinegar and sugar. The method of preparation of pickle is simple, the preservative being oil, salt and vinegar. The traditional packing is in glass bottles. Modern packing materials suitable for packing fish pickles have also been identified. Pouches and stand packs made of 12 micron polyester laminated with 118 micron LD/HD co-extruded film can be used for packing pickles.

Zonal Technology Management Centres of ICAR

The IP and technology management drive of ICAR has entrusted the Zonal Technology Management Centres (ZTMC) to establish a mechanism that accedes to the conditions of international standards and also to find ways for stimulating research, enabling access to technology and promoting enterprise growth, all for the ultimate benefit of the Indian farming community.

The main activities of ZTMC is targeted at the development and use of a Database System for management of intellectual assets, IPR protection, sensitization and capacity building, development of technology evaluation tools, formulation of model Business Plans/Project Reports and technology transfer/commercialization through business incubation. The Centre aims at protecting and translating the research results arising from the field of fisheries and other agricultural sectors into successful business ventures. It identifies new opportunities of business formation and helps the prospective entrepreneurs, by providing pro-active and value-added support in terms of technical consultancy, IP protection, infrastructure facility, business support services and training to develop technology based business enterprises.

ZTMC guides the member institutes under the zone to secure IPR protection of the research results, as per the Indian law and in conformity with the international agreements to which India is a signatory. It promotes transfer of these IPR enabled technologies, including finished processes, products, creations / works and other know-how, through commercial and public routes to farmers. The systematic management of IP assets have promoted commercial ethos in public sector research helping to transform agriculture from a predominantly subsistence mode to

a globally competitive one. The Unit has the powers and flexibility to outsource for efficient execution of IP and commercialization matters.

The ZTMC established at ICAR - CIFT is one of the hubs for R&D information management in ICAR for South India. The Centre caters to the needs of following ICAR research institutions that are specialized in Fisheries sector.

- Central Institute of Fisheries Technology (CIFT), Cochin
- Central Institute of Brackishwater Aquaculture (CIBA), Chennai
- Central Institute of Freshwater Aquaculture (CIFA), Bhubaneswar
- Central Marine Fisheries Research Institute (CMFRI), Cochin
- Central Inland Fisheries Research Institute (CIFRI), Barrackpore
- Central Institute of Fisheries Education (CIFE), Mumbai
- National Bureau of Fish Genetic Resources (NBFGR), Lucknow
- Directorate on Coldwater Fisheries Research (DCFR), Bhimtal

Business Incubation Centre at CIFT

Fisheries sector with its important role played in the socio-economic development of the country has become a powerful income and employment generator, and stimulates the growth of a number of subsidiary small, medium and large scale industries. In order to translate the research results arising from the field of fisheries and other agricultural sectors, and to establish fisheries enterprises through IPR enabled technologies, ICAR set up an innovation based Agri-Business Incubation (ABI) Centre at ICAR - CIFT, Cochin. ABI supports operations on business projects as a measure of enhancing the foundation for new technology based industries and establishing a knowledge-based economy. It focuses on finding new ways of doing business in fisheries and allied agricultural fields by finding doors to unexplored markets. The Centre helps prospective entrepreneurs, by providing pro-active and value-added business support in terms of technical consultancy, infrastructure facility, experts' guidance and training to develop technology based business ideas and establish sustainable enterprises. It acts as a platform for the speedy commercialization of the ICAR technologies, through an interfacing and networking mechanism between research institutions, industries and financial institutions. The Incubator at CIFT differs from traditional Business Incubators as it is tailored specifically for technology based industries and is operational at an area with a high concentration of fish production. This industry-specific incubator also allows new firms to tap into local knowledge and business networks that are already in place. ABI offers their services to industries not only in Cochin, but also all over India through virtual incubation. Beyond promoting business growth, the Centre is also trying to bring its benefits to all the fisheries communities in India.

With the aim of transforming the incubator into a symbol of entrepreneurship and innovation, the ABI has created an environment for providing timely scientific and technical assistance and support required for establishment of technology based business ventures. The activities of the ABI focuses on finding creative and innovative ways for linking public sector resources and private sector initiatives within and across regional and national boundaries for promoting economic growth. The Centre uses the right expertise in relevant fields to identify and analyze the constraints and barriers hindering the growth of a business and devise appropriate strategies. It explores various structures and strategies to help small enterprises to grow and ensure a promising future in the global market. It fosters corporate and community collaborative efforts, while nurturing positive government-research-business relationships.

Process of Business Incubation

The Agri-Business Incubation (ABI) Centre targets entrepreneurs, from fledgling start-ups in need of basic small scale processing capacity to sophisticated businesses in need of R&D back up, office infrastructure and pilot / test market processing facility for the development of new products. It possesses good infrastructure facilities suitable for providing direct incubation to 9 entrepreneurs in a corporate environment within the premises of CIFT at a time. The purpose of direct incubation is to support emerging companies through their infancy. ABI apart from being a multi-tenant facility with on-site management that delivers an array of entrepreneurial services to clients operating with the facility, it also serves clients that are not located in the facility through virtual incubation or incubation without walls.

The Centre regularly conducts industry interface and technology promotional programmes for sensitization of entrepreneurs and to identify interested potential candidates for physical and virtual incubation. The Clients at ABI gets the privilege of meeting ICAR-CIFT officials directly, to discuss and finalise the strategies to be adopted to take the business forward. It is also the peer-to-peer relationships that develop within the incubator, that ensures the delivery of basic services such as how to actually incorporate a business; what are the legal issues; how to take intellectual property protection; how to do basic accounting and cash flow; how to do business presentations etc. Those kinds of skills are what are transmitted as part of the incubation process.

Client Selection

The process of client selection starts with the review of applications submitted by the Entrepreneur for becoming Business Incubator Client. The application must address the requirements described a prescribed format which includes executive summary, vision and focus, financial plan and economic impact of the proposed business. The application and the proposal will be first reviewed by the Principal Investigator of the Business Incubation Centre against the set criteria. During the second stage of the selection process, applications will be evaluated by a Joint Evaluation Committee. The committee reserves the right to request additional information

from an applicant, or reject / accept an application. During the committee's review, applicants will be required to make presentations of their proposals. Once selection procedures are completed, the Client can sign Memorandum of Understanding with CIFT, for availing the facilities and services of ABI for a limited period of time on a payment basis.

The residency period for direct incubatees is normally for one year, extendable by another year in special cases, depending on the progress of business development. As the business venture becomes mature enough, the concessions and the facilities provided to the incubatee companies will be gradually withdrawn. Incubatee mentoring will continue in virtual mode after graduation on a case to case basis.

Services and facilities offered

The Incubation Centre provides shared physical workspace, management and technical assistance, access to financing and other supporting services to the incubating entrepreneurial firms. Incubation facilities under one roof are:

- Furnished office suites within the premises of CIFT, with shared facilities like secretarial assistance, computing, copying, conferencing, video conferencing, broadband internet and communication services.
- Pilot level production lines
- Culinary facility
- Modern laboratory facilities for product testing and quality control
- Physical and digital libraries

Pilot Level Production Lines

A state-of-the-art generic semi-commercial production facility is made available to incubating entrepreneurs for developing value added products from fish. ABI provides access to these facilities along with support of manpower, and assists the entrepreneurs in production and testing of new product formulations. For the tenants, the pilot plant is an ideal testing arena to determine the commercial viability of new products. The plant also serves as a process lab, a place to see how processing equipment impacts food products under varying conditions.

Various lines available with ABI for entrepreneurs are listed below:

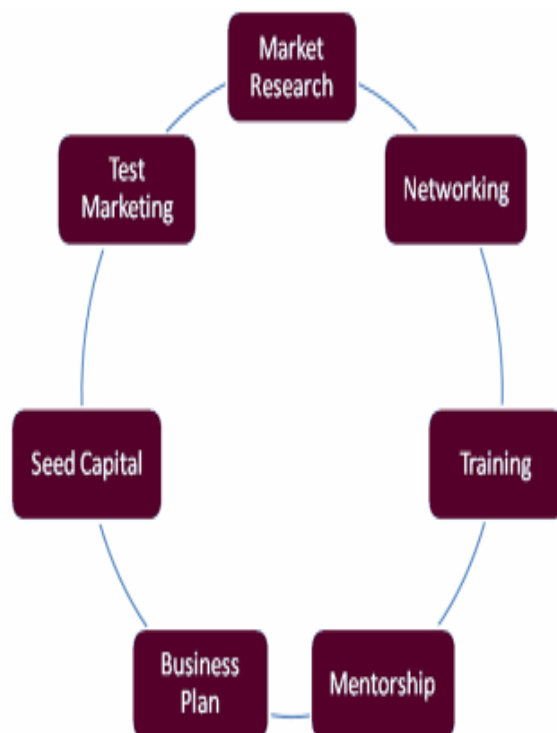
- Fish Pre-Processing line
- Retort Pouch Processing unit
- Fish Canning line
- Fish Sausage production line
- Fish extruded product line
- Fish Curing and Drying line
- Fish battering and breading line

- Fish product packing system line
- Chitin & Chitosan Production line

By providing access to these resources, the Centre greatly reduces one of the major barriers to the commercialization of institute technologies by smaller firms - the high capital cost of intermediate or large scale process equipment.

Business Services

The business oriented services offered by ABI include assistance in complying with business regulations, licensing procedures, financing, information services, marketing and tailor-made services designed for the various tenant enterprises. Incubator clients can also gain special advantage in terms of tax savings through special regulations for Business Incubators. ABI also offers a wide variety of services, with the help of strong associations throughout the Business Incubation Network. Currently the services being offered as part of business development assistance are as follows:



Facilitation for financial assistance

The Zonal Technology Management Centre at CIFT facilitates the availability of loans with the aid of State Bank of India (SBI), Agri-Commercial Wing and provides direct access to financial schemes offered by Micro Small and Medium Enterprises (MSME) for gathering capital investment, company expansion and new product development. It also helps entrepreneurs in developing linkages with various venture funding agencies. ABI being a registered member of Indian STEP and Business Incubators Association (ISBA), the privileged tenants of incubator are entitled for getting tax exemption benefits as well as opportunity to attend the ISBA Annual conference, workshops, training programs etc.

Promotion of ICAR Technologies

The ZTMC, since its establishment at CIFT, has been responsive to the rapid transformation of innovation processes and business needs, and has been continuously trying to enhance the visibility of ICAR technologies through Business/ Industry Meets, Exhibitions, Industry Interface Programmes etc. This has helped in strengthening the public private partnerships and to bring together innovators involved in research and development, and entrepreneurs from the field of fisheries on to the same platform. Technology exhibitions are regularly organized, and entrepreneur-ready innovations and technologies developed by the ICAR Institutes specialized in fisheries and aquaculture are exhibited to the Industry. The areas addressed are seed production technologies of fish and shrimp, cost-effective and nutritious fish feed formulations, diagnostic and test kits, new and improved aquaculture methods, harvest and post harvest technologies, ready-to-cook / ready-to-serve products from fish, pharmaceutical and biotechnological products, and techniques for fisheries waste management.

Human Resource Development

Human resource development for the fisheries industry has been in the mandate of CIFT since its inception. Fish processing industry is a fast growing industry in our country as well as abroad, where there are immense opportunities for rightly trained professionals. CIFT has the right expertise and facilities to provide hands-on, application-based training courses such as HACCP concepts, HACCP Audit, Seafood Quality Assurance, Basic Food Hygiene, Food Processing and Preservation, Energy Efficient Harvesting Techniques, Boat Construction etc. Successful trainees have high potential for employment in India and various foreign countries including Middle East and South Africa. The ZTMC organises several awareness workshops, seminars, training programmes etc. for human resource development in the fisheries sector. The Unit also conducts capacity building programmes to help the incubatees build their competence in the areas of business practices, technology up scaling, networking and financing strategies.

Outcomes

- Transmitting benefits of developed technologies to the nation fast and effectively
- Distributed regional economic growth and national wealth creation through SMEs
- Creation of gender equity and economic independence to women through SHG clustering
- Reduced chances of failure for first generation entrepreneurs and consequent saving of national wealth
- Import reduction and enhanced national life style through introduction of innovative products and services
- Increased national savings through efficiency enhancement of industries
- Employment generation
- Enhanced build-up of human resources and national IPRs
- Encourage thrust towards solution driven research to benefit target groups
- Increased revenue to host Institute

Lessons Learned in Business Incubation and Way Forward

From the experience gained from the interaction with budding entrepreneurs, three primary reasons which create difficulty to the small and medium start-up businesses to remain competent have been identified. They are, lack of access to capital, lack of managerial skills, and the lack of knowledge about how to estimate their markets, gauge growth and potential business basics. Incubators are proved tools that can specifically address these three issues. High risk start-ups are instrumental in creating jobs, and business incubators play a role in making and leveraging the investments these entrepreneurs make. In a country like India, entrepreneurship is ubiquitous and is reflected in all the major dimensions of civilization *viz.* social, political and economic. With the initiation of economic reforms in early 1990s, India's business environment has witnessed considerable improvement. Domestic and foreign investors are finding it easier to do business after the reforms, which are aimed at reorientation of the centrally controlled economy to a market-oriented one in order to foster greater efficiency and growth. In spite of the global meltdown, Indian economy offers ample opportunities for business, both to the domestic and foreign entrepreneurs.

Conclusion

Amidst the changing paradigms and demanding global structure, India, in order to remain a frontrunner among developing nations, has primarily focused on the agriculture sector. The scope and level of protection of intellectual property rights (IPRs) has been increasing in the past few decades. The three tier IP management system is introduced in ICAR as an incentive for investing in research and development, creative activities, and for extending markets for

technology and products. Among the various strategies to promote planned growth in this sector, focus was also given on promoting viable small and medium scale enterprises. However the Indian agricultural sector, despite its importance in industrialization strategy and immense potential for employment generation, confronts several problems in business development and management. In this context, business incubators which can help entrepreneurs turn their ideas into viable businesses and promote innovation, by providing business support services and resources have great scope and significance.

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