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Fostering entrepreneurship through Agribusiness Incubation: Role of extension professionals



Development of competitive agribusiness enterprises is critical for creation of new jobs and promotion of farm livelihood diversification. Though extension professionals could play a very useful role in this endeavor, the field of agribusiness incubation hasn't yet got into the education and training curricula of extension professionals. Dr P Sethuraman Sivakumar and Mr I Sivaraman discuss the importance of agribusiness incubators and how extension professionals can support the incubation process in this blog.

Context

India, being one of world's fastest growing and most populous economies of the World, is emerging as a potentially large market for global agricultural trade and investment. With the growth in Indian economy and liberalisation of investment regimes, India's Agribusiness is booming (Box 1). As "Venture Capital" and "Private Equity Funds" are the primary drivers for the growth of new Agribusiness ventures, there is an urgent need to develop start-ups i.e. early stage technology ventures to utilise the emerging opportunities.

Box 1: Indian Agribusiness

The major sectors of Indian agribusiness, namely, Biotechnology, seeds, organic fertilizers and pesticides, farm machinery and food processing are major sectors of Agribusiness witnessed significant growth in the recent years. Currently, India's Agribusiness market size is estimated Rs. 17.44 trillion and it is growing at 9% per annum driven by captive domestic demand and export opportunities. Indian Food Industry is the largest growing category in India, accounting for 31% share of the consumer wallet; approximately twice as high as any other category (Srinivas, 2011). The private equity investments in Agribusiness as a percentage of total investments have grown to 3.8 per cent in 2012 from 0.2 per cent in 2008. During the same period, venture capital investments in agribusinesses grew from 0.2 per cent to 1.6 per cent of total investments (KPMG-FICCI, 2013).

Many countries are promoting business incubators to create new technology based business start-ups. In the agricultural sector, agribusiness incubators are promoted to encourage enthusiastic entrepreneurs to initiate business start-ups. Promoting agribusiness and entrepreneurship is increasingly considered as a priority area for extension and there is a lot of interest in promoting agribusiness initiatives in developed countries. While many developed countries have rich experience of promoting agribusiness incubation, in India it is a recent phenomenon. Though ABIs are developed through National Agricultural Innovation Project of ICAR with the help of International Crops Research Institute for the Semi-Arid-Tropics (ICRISAT), Hyderabad, there is a need to expand this network to the grass root level to maximise its benefit to farmers. Extension professionals can play a major role in bringing the benefits of ABIs to farmers.

Promoting agri-technology ventures

In general, technology based ventures are considered as key growth sectors that foster economic development through income generation and job creation. Business Incubators (Box 2) are popular

ways of creating new technology ventures and commercializing R&D outputs to foster socio-economic development. In the developed countries like USA, UK and other European countries, new technology ventures have created two-thirds of the net new jobs and 95% of the radical innovations in the last 25 years (Timmons and Spinelli, 2003). The business incubators vary in their objective and structure. Various types of business incubators are described in Annexure 1.

Box 2: Business Incubators

Business Incubators are organisations which create a supportive environment that is conducive to the “hatching” and development of new technology ventures (Chan and Lau, 2005). They eliminate the risk of business instability, especially among the start-ups by providing lab space, equipments and other business development support to budding entrepreneurs to help them to grow. Once a fledgling business is financially viable and the individual entrepreneur has developed the necessary survival skills, the technology venture is hatched into the open market, to stand on its own. Business incubators are originated in the United States of America in 1959 and proliferated rapidly during 1990s (National Business Incubator Association, 2009). Among the developing countries, China initiated the first business incubator at Wuhan in 1987 and India started its programme only during 2000s. Currently, there are over 8000 incubators in the World of which India has only 120 (Ryzonkov, 2013).

However, in India, technology based ventures are a rare phenomena. Though India has a vast pool of S&T infrastructure with over 800 technical institutions including around 200 universities, 400 national laboratories, over 1,300 in-house R&D units in the corporate and other sectors, there is a significant gap in commercialising the significant technological outputs into new technology ventures.

In the agricultural sector, the situation is still worse. Despite enormous scope for commercialising agricultural technologies, especially in the emerging areas of biotechnology and food processing, there are very few initiatives from the potential agri-preneurs. The main reason is that new technology based start-ups face greater problems at the initial stages due to technology volatility and they take longer time to commercialize as compared to other start-ups especially those focused on services. Other problems like inadequate product development experience, inability to map the markets, poor managerial skills, inadequate networking, as well as shortage of financial resources also prevent birth of new ventures.

Agribusiness incubators

InfoDev (2013) defines agribusiness incubation as *a process which focuses on nurturing innovative start-ups that have high growth potential to become competitive agribusinesses by serving, adding value or linking to farm producers*. Agribusiness incubator is a specialised form of mixed-portfolio business incubators focusing exclusively on the agricultural sector. Like other business incubators, the agribusiness business incubators provide shared facilities and equipment, business development, market access, and technology assessment services, financial services; as well as mentoring and networking (Box 3).

Agribusiness incubation has generally been conducted in the same way that general business incubation has, although the conditions for business success are substantially different. Agribusiness takes place in a complex environment, involving farmers, intermediaries, government policy and markets and follows a value chain approach, rather than improving individual businesses. The agribusiness incubator helps in the identification and commercialization of significant technologies and services from public and private agricultural research institutions and universities to improve productivity in farmers’ fields and increase the impact of research conducted in these organisations.

Box 3: Structure and function of Agribusiness incubators

In general, the Agribusiness incubators will host about 20 or more technology start-ups in a centrally located business complex. They are like single window service providers, which offer the techno-business services like lab space, equipment and library facilities, technical collaboration with host Institution scientists, business development services and training, professional networking etc at a cheaper rate (Ayers, 2012). Any budding entrepreneur with a sound technology/idea with a high market potential can apply for a space in a business incubator. A high profile committee comprising of scientists, administrators and business managers will screen the applications and select the ideas based on (i) their market potential, (ii) ability of the entrepreneur to develop the idea into a viable business.

After selection, the companies will be invited to occupy an allotted space in the building. The rent for the space varies with the host organisation. The companies can set-up their laboratory and office inside the allotted space and utilize the centralised lab, equipments, INTERNET and other facilities; consult scientists and business experts; attend scientific, business development and client meetings organised by the incubators etc. to develop their technology product. A technology incubator will have large area under laboratory space while the Agribusiness and other incubators utilise more space for business development, demonstration units and training.

At a minimum, staffing should include a manager with business experience who has been trained in incubator operation, possibly an administrative assistant, secretary/receptionist, and at least one business counsellor who provides technical services directly to tenants. The start-ups will graduate from the incubators once they are acquiring an assured market for their products/services; develop sound business management skills and ability to sustain in the competitive market. The graduation time varies from 4 years (in case of software companies) to 8-10 years (for biotech products). Successful completion of a business incubation program increases the likelihood that a start-up company will stay in business for the long term: older studies found 87% of incubator graduates stayed in business (Molnar *et al.*, 1997).

ABI Programme of ICRISAT

The Agribusiness Incubation (ABI) program of ICRISAT, Hyderabad is the most successful business incubator in India. Started in 2003, the ABI has over 140 clients, commercialised 113 technologies and supported over 180 business ventures. The ABI is also working with 22 Business Process Development (BPD) – an Agribusiness incubator, units of NAIP-ICAR under Network of Indian Agribusiness Incubators (NIABI) to promote start-ups in various parts of India (Karuppanchetty, 2012). The network of ABIs promoted by ICRISAT along with NAIP is displayed in Fig. 1. Award-winning BPD units in Tamil Nadu Agricultural University (TNAU), Coimbatore and Central Institute of Fisheries Technology (CIFT), Cochin are commercialising the agri-technologies at a faster rate and creating viable agriculture-based technology ventures.



Fig. 1. Network of BPDs mentored by ICRISAT and NAIP (Source: Karuppanchetty, 2012)

The agri-entrepreneurship is developed through vertical strategy (service strategy) and a horizontal strategy (an outreach strategy based on partnerships in collaborative business incubation) (Sharma *et al.*, 2012). The service strategy focuses development on strategic areas related to the mandates of host organisation and its partners. For example, the ABI at the ICRISAT promotes (i) seed ventures, (ii) bio-fuel ventures, (iii) Innovative

ventures on propriety products, (iv) farm ventures, (v) Agribusiness ventures and (vi) agri-biotech ventures. The outreach strategy of ABI is to collaborate with organizations locally and globally in business incubation (co-business incubation).

Role of extension professionals

In general, the Agribusiness incubators focus on viable technologies to develop agribusiness enterprises at the primary (e.g. farmer), secondary (e.g. processing) or tertiary (e.g. support service) level. It provides greater opportunities for extension professionals to perform multiple roles with a variety of stakeholders. As Agribusiness incubators are multi-disciplinary entities comprising of business managers, scientists, policy makers, input and marketing agencies, farmers and general public, the extension professionals can work in a collaborative environment to create viable start-ups. The extension professionals can play a major role in performing the outreach function of the Agribusiness incubators. Specific roles of extension professionals in Agribusiness incubation are given in Table 1.

Table 1. Specific roles of extension professionals in Agribusiness incubators

Mission	Level	Activity	In collaboration with	Specific extension method
1. Identifying and adopting technologies appropriate for specific agribusiness enterprises	National, Regional, State level	Technology prioritization; Demand – supply gap analysis; Value chain mapping	Policy makers, business Managers, scientists and agricultural Economists	Market survey; Field survey; Brainstorming; Delphi technique; Focus groups; Ex-ante assessment; Personal interviews; focus groups
	District and village level	-do-	Scientists and agricultural economists	Market survey; PRA; Personal interviews; focus groups
2. Identifying and motivating entrepreneurs in agribusiness enterprises, frequently in rural areas	National, State, District and village levels	Creating public awareness about incubator; Mobilising farmers and youth to develop business ideas; Selecting potential incubatees	Business Managers, scientists and agricultural economists	Field level and mass media campaigns; Mobilising farmers associations and training them to develop sound business proposals; Equipping farmers with necessary entrepreneurial skills through field and residential training
3. Building commercial conduits in the form of value chains which integrate new value creating activities in rural and urban spaces	National, State, District and village levels	Developing farmers associations; value chain mapping and analysis; Developing linkages with credit, input and marketing agencies; Developing market intelligence system	Policy makers, business Managers, scientists and agricultural economists	Team building activities; PRA; Focus groups; coordinating technical, financial and managerial training of incubatees and farmers; Training field staff to collect market data, conducting field work

Conclusions and recommendations

Business incubators are vital catalysts for developing new agricultural technology enterprises. In the developing countries, the incubators have contributed significantly in transforming potential start-ups into viable technology ventures. In India, the Agribusiness business incubators are relatively new entrants into the technology business, but their numbers are increasing at a significant rate. Few successful agribusiness incubators like Agribusiness Incubator of ICRISAT and Business Planning & Development Units of TNAU and CIFT have contributed significantly to agro-enterprise development in India. Extension professionals can play a larger role in executing the service function of the Agribusiness incubators by creating awareness, recruiting, mobilising and training potential entrepreneurs, networking with credit, input and marketing agencies and provide market intelligence services. Extension professionals can contribute to improving the efficiency of Agribusiness incubators in the following ways:



Identifying potential entrepreneurs

In India, the agri-entrepreneurship extension programmes are traditionally focused on developing entrepreneurial abilities of the farmers, with the aim to maximise “producers’ share” in the consumers’ price of the product. As entrepreneurship requires specialised skills and attitude especially in the area of business idea development, financial management and marketing, we can’t expect the small and marginal farmers (who are already faced with several struggles to manage their farms) to be a successful agripreneur. The value chain approach has demonstrated that the producer’s share can be maximised by manipulating other processes. Agribusiness incubators provide a new platform and “state-of-art” methods to identify potential agri-preneurs, who can create new and efficient value chains to help farmers maximise their share in consumer price.

Revising extension entrepreneurship curricula

Most of the extension entrepreneurship training programs organised by premier extension Institutes provide very little or no information about Agribusiness incubation. There is also an inadequate understanding about the role of extension professionals in the Agribusiness incubation process and the skills required to maximise their role and efficiency. In this context, there is a pressing need to revise the extension & entrepreneurship training and education curricula by incorporating information and tools of Agribusiness incubation

Extension research on Agribusiness incubation

In India, Agribusiness incubation and value chains are often researched by agricultural economics and business management professionals. Extension entrepreneurship research is outdated and focused more on traditional extension topics like training need identification, assessing management/financial management skills, market skills and entrepreneurial abilities of farmers, etc. There is a need to strengthen research on value chain modelling-mapping and analysis, business opportunity identification, financial management tools and techniques, logistics and branding to maximise our role in the agri-incubation process.

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Annexure 1: Types of Business Incubators

Incubators vary in the manner they deliver their services, in their organizational structure and in the types of clients they serve. There are a variety of incubators, which are described in the following table.

Type	Aim	Objectives	Target sectors	Example
Mixed Portfolio Business Incubation	To reduce the business gap in environments where there is little entrepreneurial activity	Create start-up companies and Employment generation	Targets high-growth firms in the sectors that align with the overall regional or national competitiveness strategy	Foundation Chile and Technoserve of Mozambique
Technology Business Incubation	To reduce entrepreneurial gap in the areas where this infrastructure and human capital are weak	Create entrepreneurship, stimulate innovation, technology start-ups and graduates	Targets high-growth technology firms – IT and biotechnology	TBI, IIT-Delhi , India and Sid Martin Biotechnology Incubator, USA
Business incubation with university relationships	To bridge the gap between research and commercialization or technology transfer	Create entrepreneurship for university based technologies	Typically targets technology firm, but may work with other sectors	Rice Alliance for Technology and Entrepreneurship, Rice University, USA.
Agribusiness Incubation	To improve the livelihood of farming communities through agri-preunership	Commercialise potential agricultural technologies and create competitive Agribusiness SMEs	Targets Agribusiness SMEs that have potential to improve the value chains	Agribusiness Incubator@ ICRISAT, India and Rutgers Food Innovation Center, New Jersey, USA
Social Business Incubation	To bridge the social gap by increasing employment possibilities for people with low employment capacities	To integrate social categories ; To create employment opportunities for people with low employment capacities	Creating socially valuable products and services in the non-profit sector	Social Incubator North, UK.
Basic research incubators	To reduce the discovery gap in a specialised area of study	To conduct blue sky research	High tech research sectors	DIBS Research Incubator, Durham, USA
Technology Parks	To accelerate growth of relatively mature businesses	For product advancement and innovation and to attract talent, ideas and financial resources and future clients	Focus on range of technology firms, but may target specific industries	Software Technology Parks of India

(Source: Ruby, 2004; Ayers, 2012)