

Developing Entrepreneurs through an Agribusiness Incubator at ICRISAT

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SYNOPSIS

The Agri-Business Incubation (ABI) Program at ICRISAT, launched in 2003, is an initiative of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in partnership with India's Department of Science and Technology (DST). ABI promotes agricultural technologies developed by ICRISAT, other R&D centers of excellence, universities, and other institutions, separately and jointly. Its approach features a dual service and outreach strategy. The service strategy focuses business development on five strategic areas, building on the expertise of ICRISAT and its partners: seed, bio-fuels, ventures to develop particular innovations (products or services), farming (high-value crops), and agricultural biotechnology. The outreach strategy involves collaborative business incubation to bring a wider range of expertise and resources to bear on business development to foster agricultural development in other regions.

CONTEXT: INCUBATORS IN INDIA AND AGRIBUSINESS

Business incubators are gaining a foothold in India. A recent survey found that their numbers had grown from 10 in 2000 to 30 business incubators and science and technology parks involved in the commercialization of software and other engineering technologies in 2009 (NSTEDB and ISBA 2009). Of the 495 ventures that graduated from the business incubators in India, 387 remained in business. More than 10,000 jobs were created through these ventures. These incubators have stakeholders in government agencies, financial institutions, and venture capital operations. Only three were involved in agribusiness in 2008, although various government departments, which recently created entrepreneurship promotion programs, have expressed an interest in establishing agribusiness incubators.

Agribusiness incubators can take the form of comprehensive occupational schools, offering rural producers and workers sufficient knowledge, experience, infrastructure, and means to become agribusiness entrepreneurs. This endogenous movement can have far-reaching effects, promoting the overall modernization of primary production, industrialization, and marketing and development of rural areas.

More specifically, however, an agribusiness incubator creates a mechanism to assist in the identification, adaptation, and commercialization of products from public and private agricultural research institutions and universities. From a development perspective, the goal of agribusiness incubation programs is to develop and commercialize new products, technologies, and services to improve productivity in farmers' fields and increase the practical impact of research conducted in India's academic and research institutions. Incubators provide a means of leveraging the significant resources invested in R&D and infrastructure, generating employment and income in India's rural areas, and ultimately creating wealth to support the livelihoods of the poor.

AGRI-BUSINESS INCUBATION PROGRAM OBJECTIVE AND DESCRIPTION

The Agri-Business Incubation (ABI) program, launched in 2003, is an initiative of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in partnership with the Department of Science and Technology (DST), Government of India. ABI promotes agricultural technologies developed by ICRISAT, other R&D centers of excellence, universities, and other institutions, separately and jointly. The incubator was set up as part of ICRISAT's Agri Science Park (later the Agribusiness and Innovation Platform). ABI is governed by a board of advisors headed by the Director General of ICRISAT and by a standing advisory committee that counsels the board on strategy and client intake and exit.

ABI represents a new resource to promote enterprise development in agriculture and facilitate business among entrepreneurs and technology developers. The pillars for high-performance incubation are R&D, business planning, business development, and access to capital (figure 5.4). The framework encompasses all the services and support systems offered to an agribusiness venture, such as technology transfer, business facilitation, and technical guidance, especially those in ABI's focal areas of seed, biofuel, and farm systems. ABI also facilitates the commercialization of services that benefit farmers.

INNOVATIVE ELEMENT

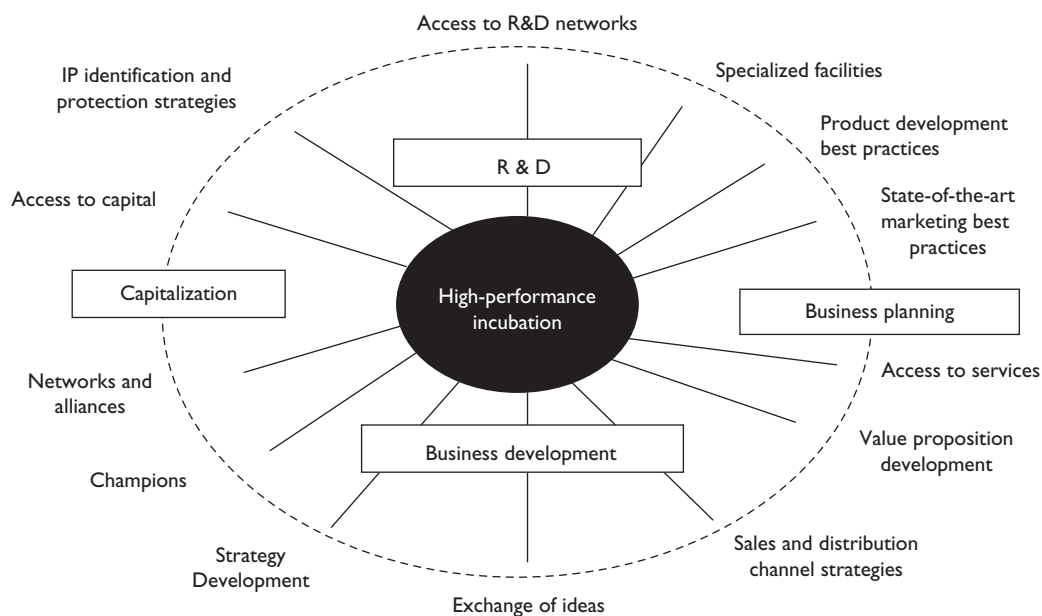
ABI is the only incubator with an inclusive, market-oriented development plan that seeks to improve farmers' livelihoods through business incubation. Based on the experience gained in the years since ABI's inception, the approach has evolved to benefit the farmers through a vertical strategy (*service strategy*) and a horizontal strategy (an *outreach strategy* based on partnerships in collaborative business incubation).

The *service strategy* focuses development on strategic areas related to the mandates of ICRISAT and its partners:

- **Seed ventures.** Rural entrepreneurs receive support in developing a seed business to meet the demand for high-quality seed of open-pollinated crops. Through partnering with public and private entities, entrepreneurs are assisted in seed production, processing, and marketing (box 5.30).
- **Biofuel ventures.** ABI promotes industries involved in producing ethanol from sweet sorghum and other agricultural materials.
- **Innovative ventures.** Innovative agribusiness ventures are based on proprietary products or novel services with good market potential.
- **Farm ventures.** Contract farming, organic farming, and precision farming are among the commercial farming ventures promoted through ABI.
- **Agribiotech ventures.** ABI enables seed companies to engage in the emerging area of agricultural biotechnology by developing genetic transformation protocols for commercial crops, molecular markers for traits of interest for seed producers, and tissue culture methods for producing medicinal, horticultural, and tree crops.

The *outreach strategy* of ABI is to collaborate with organizations globally in business incubation (cobusiness

Figure 5.4 Framework for Business Incubation in ABI



Source: ABI Strategic Business Plan 2008–13.

Box 5.30 Aakruthi Agricultural Associates: An Incubator Graduate

Aakruthi Agricultural Associates of India (AAI) was launched in 2004 as a commercial alternative to government agricultural extension services in Anantapur Province of Andhra Pradesh. AAI joined forces with Agri-Business Incubation (ABI) in 2005 and in 2006 became the second venture to graduate from the incubator.

Through the incubator, AAI developed a successful business model based on partnership with seed providers like ICRISAT, national and state agricultural research centers, and farmer franchisees. AAI designed replicable seed business ventures and proprietary methods for recruiting farmer entrepreneurs for local, low-cost, high-productivity seed multiplication. These ventures create seed delivery systems that offer an alternative to government-supported channels and allow more rapid introduction of superior varieties. AAI has built a network of 70 farmer entrepreneurs in Andhra Pradesh. These entrepreneurs pay franchise fees and receive working capital advances. They engage more than 300 farmers in seed multiplication and currently have 4,000 acres under production.

The target crops include groundnuts, chickpeas, pigeonpeas, and rice. Oil and legume seeds, in particular, offer limited commercial opportunity for multiplication and distribution due to their inherent low multiplication ratios. Through its franchise concept, AAI can sell seed of these crops in markets where demand significantly exceeds supply. Demand for groundnut seed in Anantapur, for example, exceeds

supply by 80 percent. The gap for chickpeas is 30 percent; for pigeonpeas, 70 percent.

When AAI graduated from the incubator in 2006, it became a full business partner with ICRISAT for distributing ICRISAT seed in Andhra Pradesh. AAI has compressed the time between the release of new seed and market acceptance in Andhra Pradesh from eight years to less than three years. The advantage of more rapid market penetration is significant for both ICRISAT and farmers. In 2009 the company generated revenues of 27 million rupees. Its net profit margin was 2 percent and is expected to reach 20 percent.

ABI assisted AAI with several critical elements of its development, including the creation of a business plan; provision of technical knowledge and seed science backstopping; introductions to multiple stakeholders and potential sources of financing; and introductions and links to the national research system and other public providers of technology. Arguably the most significant assistance that ABI provided to AAI consisted of increasing its credibility with government officials.

Despite these achievements, AAI's growth is constrained by a lack of external financing. In this area of development, ABI has not been able to assist its clients as successfully as it would wish, although it helped to secure financing for the company's seed processing plant, and 12,000 square feet of warehouse capacity was provided by the Department of Marketing. ABI has also assisted AAI in renting numerous local seed storage and distribution centers.

Source: AAI Annual Report 2009 (unpublished document).

incubation). The benefits of cobusiness incubation are that it provides enhanced support and services to a greater number of entrepreneurs; enables complementary business and technology development in a greater number of regions; fosters cross-border ventures and business development; provides access to a greater range of physical, technical, and other facilities for clients; improves access to a greater range of markets; offers common branding that can make clients' businesses more marketable; and maintains an inclusive, market-oriented development strategy.

Cobusiness incubation services with other institutional partners include: planning, development, and implementation of a business incubator; facilitating coordination

and operations; capacity building in business incubation operations; business consultancy support services; access by Technology Development Board entrepreneurs to seed capital; development and implementation of incubation services in the focal areas (seed, agricultural biotechnology, biofuel, other innovation, farms, and potentially other areas); and making the system successful and self-sustaining through M&E. To date, key partners for cobusiness incubation have come from the Network of Indian Agri-Business Incubators (NIABI) and from Mozambique.¹ ABI is the coordinating body for NIABI, which is implemented by ICAR under the World Bank-funded NAIP project.

IMPACT: TECHNOLOGIES COMMERCIALIZED

ABI has supported more than 158 ventures in agribusiness since 2003. Among ABI's clients, 62 percent are seed entrepreneurs, 13 percent are incubatees located on site, 30 percent are cobusiness incubatees, and 4 percent are biofuel entrepreneurs. To date, agribusiness products and technologies incubated through ABI have included sweet sorghum for ethanol production; insect-resistant transgenic cotton (box 5.31); a biofermentor for biopesticide production; a drought-tolerant groundnut variety; better-yielding chickpea varieties; biopesticide formulations; and organic farming methods. Businesses supported by ABI are estimated to have benefited 40,000 farmers.

In Andhra Pradesh and Maharashtra, 4,000 acres have been brought under sweet sorghum cultivation for ethanol production. (See other details in module 4, box 4.29 in IAP 2.) The drought-tolerant groundnut variety is used by 1,500 farmers on more than 5,000 acres; a new chickpea variety is

planted in 100,000 acres in Anantapur District by 20,000 farmers.

LESSONS LEARNED

ABI has chosen a fairly risky strategy of combining new entrepreneurs with new technology—a risk that is partly offset by close linkages with world-class scientists. ABI's access to capital and commercial expertise is also somewhat less developed than that of most other incubators. Some observations on sustainability and challenges follow.

Sustainability

ABI operates as a business. An initial startup grant of US\$444,444 as capital for infrastructure and US\$111,111 as a recurring grant was provided by the National Science and Technology Entrepreneurship Development Board (NST-EDB). On average, ABI is generating US\$250,000 per year; its annual operating expenses are around US\$2 million. Since its inception in 2003, ABI's average annual growth rate has been 30 percent. ABI works on two financial models:

- ***Under the capital gains model***, ABI takes an equity share in companies it incubates. This model is useful for startup companies with highly proprietary technologies and strong entrepreneurship capabilities. It requires less management support, but the new technology must be very strong.
- ***The revenue-generation model*** is a franchisee model in which revenue for ABI is generated through service fees, royalties, rental fees, and one-time fees. It is useful for small-scale entrepreneurs who need significant management support but do not require strong technology inputs; their business is based on incremental technologies or pure services.

Challenges in business incubation

Table 5.11 summarizes challenges that ABI has encountered since its inception and strategies and solutions used to deal with them.

Box 5.31 Agri-Biotech Incubation with Bioseed Research India

In 2003, Agri-Business Incubation (ABI) client Bioseed Research India licensed Bt gene technology from Monsanto to develop and commercialize insect-resistant cotton varieties. ABI provided its client with training in Bt breeding techniques, biosafety consultancy, and lab and greenhouse facilities. These services helped the mid-level seed company to enter the high-end seed business and gain a strong market share through early entry into the market for Bt cotton seed. The incubation service benefitted from commercialization of Bioseed's Bt technology. About 525,000 packets of Bt cotton seed were sold during the past two years. The company's varieties are grown by 200,000 farmers on 500,000 acres.

Source: ABI.

Table 5.11 Challenges Faced by Agri-Business Incubator Since Its Inception and Solutions

Segment	Challenge	Strategy/solution
Goal and objectives	<ul style="list-style-type: none"> – Balancing technology commercialization and agricultural development. – Profit or nonprofit entity. 	<ul style="list-style-type: none"> – Focus on incubating enterprises oriented to commercializing technology for agricultural development. – Nonprofit status ideal under society or section 25 clause of Indian Companies Act, 1956.
Target segments	Identifying and retaining innovators is difficult.	Target niche areas to retain clients.
Agricultural technology	<ul style="list-style-type: none"> – Availability of technology limited to what ICRISAT can provide. – Appropriate technology not available at right time. 	Provide incentives to scientist at ICRISAT for technology transfer to increase the pool of technology.
Innovations	<ul style="list-style-type: none"> – Limitations to innovations in R&D institutes because right enabling environment is lacking. – Individual innovators handicapped by ICRISAT's intellectual property (IP) policy. 	<ul style="list-style-type: none"> – Organize regular innovation camps and motivational programs to scout innovations in the institute. – Encourage individual innovators through official innovation camps and recognition in a public forum by employers.
Markets	<ul style="list-style-type: none"> – Low pricing of end products limits attractiveness of market for envisaged enterprises. – Ag-biotech market segment is not buoyant and is constrained by ICRISAT IP policy. 	Work for alternative end products to increase market opportunities.
Enterprise initiatives	<ul style="list-style-type: none"> – Risk inherent in technology-based businesses deters entrepreneurs and incubation. – Rural enterprises have less risk-taking ability and need high amount of management support. 	<ul style="list-style-type: none"> – Provide entrepreneurs internships on innovation and incubation with part-time options. – Provide rural enterprises a high level of management support and a service package that includes risk coverage.
Organization and policy	<ul style="list-style-type: none"> – ICRISAT's intellectual property right (IPR) policy and standard material transfer agreement (SMTA) deter technology commercialization and incubation. – Stringent entry and exit procedures limit intake of incubatees. 	<ul style="list-style-type: none"> – Liberalize IPR and SMTA policies. – Offer single-window clearance mechanism for incubation.
Operations	<ul style="list-style-type: none"> – Security systems prevent private clients from working late at ICRISAT and limit client retention. – Access to facilities and services for the incubatees is not always available. 	<ul style="list-style-type: none"> – The security systems need to be flexible for private clients. – The host institute can allocate and list the facilities and services available for enabling effective service to clients.
Human resources	Limited availability of incubation professionals reduces opportunities to incubate successful ventures.	Certified short-term incubation training program offered by acclaimed universities.
Financial	<ul style="list-style-type: none"> – Capital investment provided by the donor must not be redundant. Allow flexible fund transfers across cost centers to fund utilization as required by industry. – Rent must be billed to incubatees on full-cost rather than partial-cost recovery basis. 	<ul style="list-style-type: none"> – Donors' capital investment can be more flexible (confirmed clients can then request the facilities they need). – Rental revenues need to sustain the incubator.
Sustainability	<ul style="list-style-type: none"> – Innovative agricultural entrepreneurs mostly cannot pay for incubation services. – Institutional realignments and changes will erode the sustainability of ABI. 	<ul style="list-style-type: none"> – Revenues from innovators must be packaged in the investment, either upfront or based on margin of profits. – Maintain a reserve of 12 months of operating funds.
Cobusiness incubation partnerships	Leadership vacuum and poor follow-up/initiative of national agricultural research systems (NARSs), primarily in Africa (Mozambique).	<ul style="list-style-type: none"> – Strategize with non-NARS organizations along with NARSs as consortium partners.

Source: ABI.