The Agribusiness Innovation Center of Senegal:

Scaling a competitive horticulture sector through value adding post-harvest processing

infoDev

Agribusiness

THE WORLD BANK

International Finance Corporation
The Agribusiness Innovation Center of Senegal

Scaling a competitive horticulture sector through value adding post-harvest processing

Prepared by infoDev

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About infoDev

This report was developed by infoDev, a global partnership program within the Financial and Private Sector Development Vice Presidency of the World Bank Group. Its mission is to enable innovative entrepreneurship for sustainable, inclusive growth and employment.

This study was made possible thanks to the support of the Ministry for Foreign Affairs of Finland.

For more information visit www.infodev.org or send an email to infodev@worldbank.org.
infoDev would like to acknowledge the following stakeholders for their guidance, support, and input through the conceptualization and development of this business plan for an Agribusiness Innovation Center in Senegal:

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Haidara

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Lamine Diao

ESTEVAL AGROALIMENTAIRE
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Valérie Quénum Ndiaye

ETS MAME FANADE WALLE
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POUT PRODUCER ASSOCIATION

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SAFNA PLUS

SEDAB AGRICULTURAL INPUTS

SENCHEIM ENGRAIS

SHIVETE FRUITS

SOCIETY OF INDUSTRIAL AND AGRICULTURAL PRODUCTS (SPIA)

SOLDIVE

SOPE SERIGNE FALLOU

SUKHALI SA GOKH

SUGAR CANE COMPANY OF SENEGAL (CSS)

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<td>GP</td>
<td>GROWTH PROFIT</td>
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<td>HACCP</td>
<td>HAZARD ANALYSIS AND CRITICAL CONTROL POINTS</td>
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<td>IAA</td>
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<td>NGO</td>
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<td>OECD / OCDE</td>
<td>ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT</td>
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<td>OP</td>
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1.0 EXECUTIVE SUMMARY

Senegal has tremendous potential to raise incomes and create jobs in agriculture. This potential is particularly strong in the horticulture sector where Senegal enjoys a comparative advantage because of the following factors: favorable climatic and water conditions; capacity to supply European markets at a time when others cannot; proximity to European markets with availability of competitive air and sea transport; access to quality inputs; and few policy distortions. The fact that exports have increased from 2,700 tons in 1991 to 51,270 tons in 2011\(^1\) indicates the quality and demand for Senegalese horticulture products.\(^2\)

However, only about 5 percent of the fruits and vegetables grown in Senegal are processed. The country imports many processed products that could be produced competitively domestically, and exports raw materials that—if processed—could be sold at much higher margins. Processing could also help reduce post-harvest losses, which dramatically affect farmers’ incomes. The country is, therefore, not realizing the income and job generating potential offered by its comparative advantage.

This document proposes a new model for promoting the growth of a competitive value adding horticulture sector in Senegal. The proposed Agribusiness Innovation Center (AIC) will provide a set of financial and nonfinancial services to high-growth potential entrepreneurs, aiming to accelerate the growth of their enterprises and demonstrating product, process, and business model innovation across the horticulture sector. AIC complements existing efforts focused on farm-level improvements and foreign investment facilitation. The success of the AIC will be measured by the growth of the enterprises in the form of revenues, export revenues, profits, and jobs created, as well as the positive impact on farmers and other input providers triggered by the increased demand from the processors. Within six years, the AIC is expected to directly increase the competitiveness of 195 enterprises, raise their incomes by close to $32 million\(^3\), and create more than 5,000 new jobs. The AIC will also significantly impact the incomes of women as they constitute the majority of horticulture processors. Farmers will also benefit significantly because of the increased demand from processors. Projections indicate that the minimum increase to be expected for farmers’ income will reach close to $4.5 million over the six-year period. Finally, the AIC will actively promote the take-up of product and process innovations beyond its immediate clients. The indirect benefit of the AIC is expected to be exponentially larger because of its commitment to playing a catalytic role in the sector.

\(^1\) Source: SCA.
\(^2\) Source: SCA.

\(^3\) All dollar amounts are U.S. dollars unless otherwise indicated.
The AIC represents an innovative model with high promise to transform the horticulture sector in Senegal. The right conditions are in place for making the AIC a success: there is high quality primary production; high demand for horticulture products; a pipeline of entrepreneurs; a policy environment that has assigned priority to the promotion of the agribusiness sector; and a set of partners motivated to coalesce around the concept of an AIC.

1.1 DEVELOPING THE AIC MODEL FOR SENEGAL

The development of the proposed model was carried out upon the invitation of the Stratégie de Croissance Accélérée Secretariat (SCA) in the Prime Minister’s Office. InfoDev’s implementation approach is premised on building the local ownership and capacity necessary to plan and implement a successful intervention. With support from SCA, infoDev carried out a seven month long highly participatory feasibility assessment, engaging more than 170 Senegalese stakeholders, including small- and medium-enterprises (SMEs), agribusiness industry, relevant ministries and local authorities, research and development (R&D) facilities, universities, financial institutions, and international agencies operating in the agribusiness sector in Senegal.

The proposed model was then derived on the basis of the conclusions of the feasibility assessment against the background of a literature review, infoDev’s experience with promoting innovation and entrepreneurship over the past decade, and infoDev’s global good practice assessment on agribusiness incubation covering nine countries. In November 2011 a workshop was held with stakeholders in Senegal to verify the feasibility of the business model, and professionals with experience in implementing agribusiness innovation programs in other developing countries reviewed the model.

1.2 THE FOCUS OF THE AIC

The AIC approach is a targeted effort to accelerate the growth of a domestic value adding sector, focusing on select horticulture value chains where the following conditions exist: a demonstrated demand; primary production already yields high quality raw materials in sufficient quantities to enable agribusiness SMEs to process horticulture products; and there are significant opportunities for processing within the next three to five years.

On the basis of these parameters, baobab, bissap, ditakh, madd, mango, onion, sweet potato, tomato, tamarind, and papaya were selected as the first value chains of focus. Immediate low-to medium-tech processing opportunities based on these horticulture products included dried fruits, juices, concentrates, and powders. Many of these products also have significant health

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4Other name for hibiscus.
and nutritional properties that can be exploited for higher-end processed products targeting the infants’ food, pharmaceutical, and cosmetic markets.

The feasibility assessment revealed that the highest impact—and the highest likelihood of financial sustainability—could be achieved by focusing on high growth potential entrepreneurs currently operating at a scale of $100,000 to $150,000 in annual turnover and employing less than 20 workers. Such enterprises demonstrate a basic level of understanding of market demand, target the local and national markets, and have access to a minimum level of equipment. They, thus, have a foundation that positions them for growth into new markets or products. Yet, they face significant constraints that prevent them from growing to become medium-scale enterprises. These barriers were assessed by examining the value chain, the market conditions, the policy environment, and the company, as well as access to technology and finance. On the basis of this assessment, the AIC service offering outlined below was defined.

### 1.3 The Services of the AIC

As illustrated in the figure below, the AIC will provide entrepreneurs with a comprehensive service offering including business coaching; market research, marketing and procurement facilitation; technology identification, technical training and access to processing technologies; and financial services, including a small fund. Additionally, due to the commitment to have a demonstration effect and spur uptake of technology and marketing innovation beyond the enterprises directly served by the AIC, the AIC will host innovation challenges and awards and engage in select advocacy activities.

The AIC is a partnership based, highly networked model. Many of the services outlined below will be delivered in partnership with existing organizations. Based on a review of the existing service offerings available, the service gap appears most acute in the market pillar of the figure below. This will, therefore, be the first area that AIC will emphasize.
1.4 LIMITS OF THE AIC

Important barriers to growth that will not be met by the AIC include the development of a system of cold chain facilities, storage of raw materials, processed products and specialized transport providers, as well as investments in reliable energy supply. The AIC will seek to overcome these particular challenges by working with and strengthening the capacity of the associations representing the target enterprises.

1.5 CRITICAL SUCCESS FACTORS

As revealed in Growing Food, Products and Businesses, there are a number of critical success factors for an intervention of this kind: 1) help clients manage risk; 2) understand the details of the value chain; 3) maintain a broader goal of demonstrating innovative business propositions so as to stimulate broader sector take-up; 4) adapt the focus and business model of the incubator; 5) proactively identify and promote higher value market opportunities; and 6)...

5 Global assessment carried out by infoDev to understand the impact and lessons from agribusiness incubators and innovation centers available at: http://www.infodev.org/en/Article.800.html
design and operate the business incubator in line with good practice, including ensuring a strong selection process that identifies and cultivates innovative, growth oriented entrepreneurs and developing strong partnerships with the public and private sector.

An AIC needs the following to fulfill these success factors: 1) staff with extensive experience in the agribusiness sector, 2) a strong capital structure, and 3) a governance framework that allows the management to operate the AIC in a business-like manner.

1.6 IMPLEMENTATION OF THE AIC

The AIC service offering outlined by nature requires a partnership-based model. For example, one of the large companies that is currently importing processed products is interested in working with the AIC to increase competency domestically, so that the same products can be sourced locally. Similarly, a local bank is at the cusp of developing new financial products for agribusiness SMEs and is interested in partnering with the AIC to reduce the level of risk associated with lending to such enterprises. Some of the services of the AIC will also be outsourced to competent existing entities, while other competencies will be developed internally to the AIC. Examples of services to be outsourced include lab testing and training in food safety standards.

The most optimal legal form for implementation in Senegal appears to be to create a new not-for-profit organization, registered as a “foundation” under Senegalese law. This organization would have a board of directors with representation from the public and private sectors, as well as academia. Senegalese stakeholders would own and operate it.

To kick off the implementation stage, infoDev would typically convene an interim Board of Directors (BOD) comprising public and private sector representation to oversee the planning stage. The BOD would include partners who contribute to the success of the AIC in the form of cash or in-kind contributions, along with a client representative.

Organizations that have expressed an interest in partnering on an AIC include Accelerated Growth Strategy (SCA); Institute of Food Technology (ITA); Ministry of Mining, Industry, Agro industry and SMEs; Training Center for Careers in the Food Industry (IAA), University of Thiès, Gaston Berge University, Research Institute for Development (IRD), the Federation of Agribusiness Associations (FP2A), the Cooperative Federation of Horticulture Stakeholders in Senegal (CFAHS), Banking Company of West Africa (CBAO), Economic Promotion Fund (FPE), and Kirène. These organizations, and others interested in contributing to the success of the AIC, could be invited to serve on the interim board.

1.7 LOCATION

The AIC must be located in an area that 1) is within close proximity to its target clientele, 2) allows economical procurement of raw materials and processing infrastructure and packaging, 3) is convenient from a logistics perspective, and 4) is near the required sources of
expertise (for example, technical, business or R&D). On the basis of these criteria, the most feasible location appears to be between central Dakar and Thiès, with potential satellite centers in St. Louis and possibly Casamance.

1.8 THE ROLE OF INFODEV

At the planning and implementation stage, infoDev views its role as providing the technical guidance to plan, resource, and operate the AIC successfully. With a strong commitment to building local institutional capacity, infoDev would thus harness its decade-long experience with setting up business incubators and innovation centers, its agribusiness incubation training program, and its international network of innovation and entrepreneurship professionals across 107 countries to guide the BOD and the AIC manager through such important milestones as developing a governance framework, client selection process, service design and execution, marketing, and monitoring and evaluation. InfoDev could also manage single or multidonor trust funds to be disbursed to the AIC. In order to ensure sustainability and adequate local capacity, infoDev typically remains engaged for a three to five year period, gradually scaling down its support as the capacity of the local team and partners increases.

1.9 BUDGET REQUIREMENT

The AIC will require a start-up investment of $8.7 million. The AIC would be expected to reach 80 percent financial sustainability in year six on the basis of fees charged to the client enterprises: an annual 5 percent fee on turnover and a 1 percent fee on finance raised. In year seven onwards a public/private sponsorship of $150,000 per annum would be required. Donor funds are being sought for implementation; however, infoDev does require local stakeholders to contribute at least a percentage of the start-up cost.
According to the World Bank, “the potential of agricultural growth to reduce poverty is four times greater than the potential of growth from other sectors.” The 2008 World Development Report outlined how investments in agribusiness produce significant multiplier effects through their forward and backward linkages, generating demand for agricultural products and associated inputs and services and creating on and off-farm employment. Interventions that can unleash this potential can have a tremendous impact on poverty.

The fact is that many developing countries have not turned their vast comparative advantage in agriculture into a competitive advantage in value added processed products. They have subsequently lost out on income generation and job creation opportunities that this value addition opportunity offers. Tanzania for example, exports raw cashew nuts and imports processed cashew nuts. Senegal’s retailers stock only a handful of locally manufactured food products—preferring imported products—despite Senegal’s extensive horticulture industry and rich culinary traditions.

Reaching development goals such as job creation and inclusive growth in agriculture, will need more focus on supporting growth-oriented entrepreneurs engaged in downstream business activities (such as processing) to develop competitive enterprises to effectively link into productive value chains.

InfoDev seeks to advance new approaches to accelerating the growth of innovative, technology-enabled agro-processing enterprises, while creating powerful demonstration cases that illustrate how engagement of farmer associations, industry, financiers, and government in creating innovation and market-driven shared value, can catalyze the green growth of an inclusive and job creating, competitive agro-processing sector.
2.2 AGRIBUSINESS INNOVATION CENTERS

InfoDev is piloting the concept of an AIC as a mechanism to increase the competitiveness and growth of pioneering innovative growth-oriented small or medium agro-processing enterprises that have the potential to become an industry leaders by advancing product, process and business model innovation translating into improved products and larger market share in existing markets or entry into new markets and development of new products for existing or new markets.

The AICs are unique from the perspective of their target clientele, their business model, and the holistic service offering, which – although tailored to the specific needs and characteristics of the target market – generally provide the following services:
Over the past decade, infoDev has accumulated a range of lessons about enabling the start-up and growth of high growth potential enterprises in developing countries. Its recent global assessment: Growing Food, Products and Businesses revealed a number of critical success factors for an intervention similar to an AIC (the conclusions of the global study are available in Annex 1):

- Help clients manage risk: Agribusiness is inherently risky because of its reliance on farming (which is susceptible to such environmental risks as flood, drought, and pests) and perishable products. Critical to the success of an AIC is to help agro-processors manage these risks above and beyond the business challenges that any enterprise faces in any industry.

- Understand the characteristics of the value chain: The agribusiness value chain can be long with critical dependencies between each element in the chain. The AIC must understand the state and dynamics of the value chain to assist the agro-processing enterprise in being successful. Relatedly, the World Bank has found in its review of agribusiness investments that a strong focus on a few cross-cutting issues, locations, or value chains with an established comparative advantage and strong market prospects provides an opportunity to “pilot difficult reforms, demonstrate success, and learn from those efforts in scaling up the program.”

- Proactively identify and promote higher value market opportunities: The agribusiness sector is complex and plagued by information asymmetries that often prevent enterprises from recognizing high-value business opportunities. An important role of the AIC is to help the enterprise gain access to relevant market information.

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"The global assessment carried out by infoDev to understand the impact and lessons from agribusiness incubators and innovation center is available at: http://www.infodev.org/en/Article.800.html."
Maintain a broader goal of demonstrating innovative business propositions: The desired catalytic effect of an intervention of an AIC does not necessarily happen without a deliberate, tangible effort. Specific programs must be designed for this purpose.

Design and operate business incubation in line with good practice.

Business incubation good practices include the following, regardless of sector:

- Ensuring a strong selection process that identifies and cultivates innovative, growth-oriented entrepreneurs
- Developing strong partnerships with the public and private sector
- Locating the AIC in a geographic location that is attractive to the target clientele. The World Bank’s review of agribusiness investments corroborates this lesson: “Locations with revealed competitive advantage and proven investor demand should be preferred over attempts to initiate new industries in new areas.”
- Ensuring that the AIC manager and service provider have entrepreneurial, and preferably industry, knowledge and that these staff members have incentives that align with the desired outcomes and impacts of the AIC
- Obtaining a strong capital structure
- Putting in place a governance framework that allows the management to operate the AIC in a business-like manner
- Continuously adapting the focus and business model of the incubator in line with evolving market conditions

InfoDev has sought to address each of these factors in the design of the AICs.
3. THE SENEGAL AIC FEASIBILITY AND BUSINESS PLANNING PROCESS

3.1 THE PROCESS

InfoDev maintains a strong commitment to lasting impact, sustainability, and local ownership. Therefore, InfoDev always adopts a highly participatory approach to its feasibility assessment and business planning process. In Senegal, over a seven-month period, InfoDev consulted more than 170 Senegalese stakeholders, representing small and medium enterprises, agribusiness industry, relevant ministries and local authorities, R&D facilities, universities, financial institutions, and international agencies operating in the agribusiness sector in Senegal. The consultations focused on Dakar, Thiès, St. Louis, and the surrounding areas.

![Breakdown of Stakeholders Consulted]

Figure 3 Breakdown of Stakeholders Consulted
The feasibility assessment and business planning methodology is outlined in the figure below.

Figure 4: Senegal AIC Feasibility Assessment and Business Planning Methodology

- **Value Chain Analysis**
  - Identification of value chains that offer high growth opportunities for the country

- **Stakeholder Identification**
  - Identification of stakeholders affecting the success of agribusiness entrepreneurs

- **Stakeholder Consultation**
  - Workshops and interviews to validate selection of value chains and identify barriers to SME start-up and growth

- **Gap Analysis**
  - Interviews to map existing service offerings and planned initiatives

- **Business Modeling**
  - Data gathering to create business model, evaluate locations, principal partners/hosts, etc.

- **Partner Identification**

- **Stakeholder Consultation**
  - Feedback from local stakeholders
  - Review and inputs from international expert group
A critical lesson learned from agribusiness incubator-type initiatives elsewhere is the importance of targeting select value chains. The process of the AIC feasibility assessment started with a literature review to identify agricultural subsectors (such as horticulture or cereals) and value chains (such as mango, tomato, or dairy) for which Senegal has a comparative advantage. The team then examined the market opportunities associated with these products and the quality of the raw materials to narrow down the selection of the subsector and value chains of focus.

Next, the needs of agribusiness entrepreneurs and the service offering available to them were examined to understand the gaps in the market place, derive a potential service offering, and map potential partners. Upon deriving a draft service offering, a business model was developed and verified.

A critical decision point for all incubator-type initiatives is the location. The following criteria were used to determine the most feasible location: 1) is within 50km of a large number of the target clientele; 2) is within an area that allows economical procurement of raw materials, processing equipment, processing infrastructure, and packaging; 3) is convenient from a logistics perspective; and 4) is near sources of expertise (such as technical, business, or R&D).

The output of this process is a well-motivated business model for the AIC and the identification of a range of offerings that are tailored to the needs and market opportunities of growth-oriented entrepreneurs in Senegal.

The timeline for the feasibility assessment process is depicted in the figure below:
3.2 KEY AGRIBUSINESS STAKEHOLDERS IN SENEGAL

A diverse set of stakeholders is involved in agribusiness in Senegal, both from the public and private sectors. Their interventions target different segments of the value chain as depicted in Figure 6 below.

The AIC implementation approach will be to engage all actors affecting the ability of its target clients to succeed and to partner with organizations that have key competencies required to serve these clients effectively. The AIC will seek to complement existing initiatives and contribute to strengthening the innovation and entrepreneurship ecosystem required for innovative, growth-oriented enterprises to thrive.

A quick overview of the key agribusiness stakeholders in Senegal is provided here. Further details on the horticulture value chain and activities of each stakeholder are provided in Annexes 5 and 7, respectively.

The main stakeholders operating in the horticulture sector are gathered under the “Fondation Origine Sénégal.” This foundation aims to develop a national strategy for the horticulture sector that promotes value chain development, market development, and exports.

Farmers—The majority of horticulture farmers (70 percent) work on family farms of 1,000 to 5,000 square meters without mechanization. Small-holders represent some 20 percent of horticulture farmers. These farmers work on slightly larger plots, use some basic level of mechanization, and may hire some seasonal staff to help family members. They often sell their raw materials on the side of the fields. Commercial farmers (representing 10 percent of horticulture farmers) own 200,000 square meters—several hundred hectares—plots on which the level of mechanization can be sophisticated. These farmers employ full-time staff in addition to some seasonal staff, and produce 40 percent of the annual national production of horticulture products, and 90 percent of the horticulture exports of the country. They usually work with a couple of distributors.

Processors—It is estimated that there are more than 1,500 processing companies in Senegal, some 600 are formally established and registered, whereas more than 1,000 operate informally. The vast majority of these enterprises have less than 15 employees, and work out of their own houses, using kitchen equipment and developing products that do not meet the standards required to access profitable distribution schemes. The majority of the processors belong to associations that try to facilitate sourcing of raw materials, access to home-based processing units, and distribution of processed products. These well-established and respected associations have a thorough understanding of the challenges faced by agro-processors and
try to address those, but lack the capacity and financial means to do so efficiently. Section 5.1 provides a further breakdown and characterization of the horticulture processing sector.

**Distributors & Retailers**—Domestically, agribusiness products are distributed through 12,000 retail food outlets, including modern supermarkets, traditional grocery stores, and numerous small boutiques and kiosks. The latter constitutes as much as 80 percent of retail food outlets. Senegal relies heavily on imports to meet its food needs. Supermarkets, grocery stores, and boutiques/kiosks distribute mainly imported processed products.

**Exporters**—Exporters mainly export raw materials to European markets where the demand has been increasing significantly over the past 10 years. Export of processed products remains limited and quite unorganized.

**Government**—Strategies are implemented by several ministries, as well as public agencies that interact more directly with private sector. The Accelerated Growth Strategy emphasizes the growth of the agribusiness sector (see box below). The government has also contributed to the implementation of an agricultural markets development program PDMAS, which acts at the national level to stimulate investments and public-private partnerships with the aim to improve the competitiveness and diversification of high added value agriculture products, while reinforcing the producers’ capacity to integrate sustainable and profitable commercial agriculture distribution schemes at the local, national, and international levels. The government also works towards strengthening the knowledge, skills, and competences of agribusiness stakeholders via rural development agencies (for example, ANCAR supports producers in their rural activities) and research institutes (for example, the Institute for Food Technology).

**Financial institutions**—Very few financial institutions serve agribusiness SMEs, and this constrains the growth of the sector. Some microfinance is available, mainly dedicated to farmers. It is estimated that the Agricultural Credit provides 50 to 60 percent of microfinance products. A few other microfinance institutions also exist; for example, in Saint-Louis, FEPRODES provides small producers access to credit through cooperatives in the range of $200 to $2,000. Some commercial banks are currently exploring the possibility of establishing credit lines dedicated to agribusiness SMEs and view positively the prospect of working with the AIC as a provider of pipeline of growth-oriented clients.

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_SCA’s Vision for the Agribusiness Sector_

Creating an investment-friendly business environment - prerequisite to private sector development through:

—boosting a growth cycle and improving the competitive potential of the agribusiness sector;

—enabling a modernized and dynamic sector, capable of adapting itself to the changing conditions of globalized supply chains (on both domestic and export markets).

The maintained growth should rely on a critical mass of performing enterprises and industries and an institutional and legislative framework enabling private investments.
Figure 6 Senegal Agribusiness Stakeholder Mapping

4.0 FOCUSING ON VALUE ADDITION IN HORTICULTURE

4.1 WHY HORTICULTURE?

Senegal has a comparative advantage in production in many agricultural sectors. The agricultural sector in Senegal is the main occupation of close to 60 percent of the active workforce, providing 17 percent of the gross domestic product (GDP)\(^8\).

A number of studies have been undertaken to identify the most promising agribusiness sub-sectors in Senegal. Through the preparation of its Accelerated Growth Strategy (SCA), the government of Senegal identified that horticulture is a key value chain with high growth potential. The quality of products grown by Senegalese producers is evidenced by an increase in exports of horticultural products from 2,700 tons in 1991 to 51,270 tons in 2011, primarily directed to Europe. Many horticulture products are also in high demand for import substitution or in sub-regional markets.

According to the World Bank, “analysis of the horticulture subsector revealed that Senegal has a comparative advantage in the production of several horticulture products for both the European and domestic/regional markets. Strengths of Senegal horticulture include: (i) favorable climatic and water conditions; (ii) availability of land; (iii) low labor cost; (iv) capacity to supply European markets at a time when others cannot; (v) proximity to European markets with availability of competitive air and rapid sea transport; (vi) privatization of inputs markets allows access to quality inputs; (vii) regulatory environment conducive to private sector investment with little policy distortions and (viii) emergence of competitive players along the horticulture value chains.”

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Senegal's comparative advantage in horticulture is evident. However, more can be done to turn this advantage into higher incomes and more jobs. Moreover, because of the very low levels of local processing, farmers experience tremendous post-harvest losses. Many products are exported as unprocessed raw materials, implying a lack of local value addition, and processed agricultural products are imported.

It is estimated that in Senegal the foodprocessing sector contains 750,000 direct jobs, with a total economic impact of 3.2 million indirect jobs. This indicates that 2.86 jobs are generated for every direct job in food processing. Moreover, 80 percent of women are employed in this sector. Increased competitiveness in this sector will positively impact women's economic empowerment.

The Potential of Horticulture Processing in Senegal

Post harvest losses for fruits and vegetables, including tomatoes and mangos, range between 20 to 50 percent.

Senegal imports:

- More than 1,000 tons of concentrated tomatoes (35 percent of domestic needs)
- More than 200 tons of mango pulp (45 percent of domestic needs)

Imports of processed products (such as juices, dried and powdered products, and jams) are worth close to $40 million annually.

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9 "Agribusiness and the Return on the Certified South Carolina Grown Campaign", The Darla Moore School of Business, University of South Carolina, April 2010
4.2 OPPORTUNITIES IN HORTICULTURE PROCESSING

Mango, sweet potato, tomato, melon, banana, ginger, and tamarind are among horticulture products produced competitively in Senegal today. Two examples illustrate the horticulture processing market opportunity:

Mango—Estimates indicate that 50 percent of the mango production is lost post-harvest because of fruit flies, inadequate preservation measures, and storage issues. Five percent of the production is processed. Meanwhile, Senegal imports some 200 tons of mango pulp, covering 45 percent of the domestic needs.

Tomato—Post-harvest losses reach about 20 percent of the production. A third of the production of tomatoes is double concentrated and 2,000 to 3,000 tons are dried. Imports of tomato triple concentrated reach 10,000 tons, covering 35 percent of the domestic needs.

In terms of products derived, the literature review and the enterprise survey establish that processors of horticulture products currently focus on three types of products to meet the customers’ demand: 1) drinks (mainly juices); 2) syrups; and 3) jams. However, Senegal imports the same products as it produces: imports of processed products (that is, juices, dried and powdered products, and jams) are worth close to $40 million annually. For instance, Senegal imports more than 1,000 tons of concentrated tomatoes covering 35 percent of domestic needs and more than 200 tons of mango pulp to cover 45 percent of domestic needs. Small processors can potentially grow to medium-scale enterprises by carrying on using the same technologies, given they use the right equipment and processes to ensure the quality and attractiveness of their products. In some cases, the value addition needed before major benefits can be realized is very limited; in fruit juices, for example, the lack of adequate packaging is a core reason for imported juices.

The AIC could take a few different approaches in terms of promoting innovation in the horticulture-processing sector. As depicted in the figure below, the AIC could assist entrepreneurs with strengthening the market position of their current or new products.

Product Innovation Example

The potential margin on bissap juice can be up to 51 percent of the market price.

The potential margin on bissap jam, however, usually only reaches 3 percent.

The volume of jam sold would, thus, have to be substantially higher to make up for this difference in margins. Yet, juice production is not maximized. (For more information please see Annex 3)

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10 Dr Pape Ndary Niang. 2006, Etude de la filière sénégalaise de transformation artisanale de fruits et légumes – Analyse de la chaine de valeur, rapport provisoire. Dakar: PAOA.
On the basis of this premise, two stakeholder workshops were held to identify the products that present the highest growth potential for postharvest processing in three to five years.\textsuperscript{11,12} The stakeholders identified future opportunities for growth. Currently processed products (such as tomato, onion, melon, sweet potato, flowers, and banana) could reach new markets, if the quality and marketing of those are improved and meet notably export markets' requirements. Potential demand for processed horticulture product is high in local, national, and export markets, but the barriers to enter local and national markets are lower than for the export market where complying with international standards is demanding and required. New products could also be developed by using drying or powdering technologies (for example, onion powder or dried mango).

Many of the horticulture products also have excellent health and nutrition qualities. High-added value products offer tremendous opportunities for the agro-industry and cosmetics

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure7.png}
\caption{Positioning Enterprises for Growth}
\end{figure}

\textsuperscript{11} The report on the stakeholders meeting is available at: http://www.infodev.org/en/Article.744.html
\textsuperscript{12} The report on the stakeholders meeting is available at: http://www.infodev.org/en/Article.752.html
industries—for example, processing sweet potato as biscuits and mashed potatoes for infants’ food markets, processing essential oils from baobab, or processing enzymes from tomatoes\(^{13}\).

From the analysis above, the following conclusions can be drawn:

1. There is a demand for processed horticulture products from Senegal, justifying numerous market opportunities at local, national, and international levels—notably, a significant opportunity to replace imported processed products sold in the country.
2. There is a wide enough variety and quantity of quality horticulture products produced in Senegal (with complementary seasonality) and with great potential for value addition through processing (high-value new products can potentially be developed).
3. There is a critical mass of processors with relevant experience and growth potential.

### 4.3 THE FOCUS OF THE AIC

The AIC has been designed as a value adding and processing focused project concentrating on horticulture value chains where the level and quality of production is already sufficient, demonstrating that these select value chains are ready for the AIC’s intervention.

On the basis of a) the market potential, b) the current production quality and quantity levels and c) the profile and current activities of small- and medium-size processors, the first phase of the AIC initiative will focus on the select value chains of baobab, bissap, ditakh, madd, mango, onion, sweet potato, tomato, tamarind, and papaya.

By providing technical assistance on market, product, and management issues and facilitating access to the required equipment and finance, the AIC will impact the following:

- Extending the shelf life of products as semi-processed products, hence, increasing the volume of products to be processed and extending the processing period
- Improving the quality of the products to meet more markets’ requirements, hence extending their market reach
- Improving the packaging of the product to attract more customers, hence extending their customer base
- Developing new added value products, hence expanding to new markets

From the perspective of the AIC, processed products from the horticulture sector present the following combined advantages:

1) Demand for horticulture products on both national and international markets
2) High potential to counter importations

\(^{13}\)For an overview of potential technology use on horticulture products, see table in Annex 4.
3) Favourable current sector dynamics (for example, current size and programs to encourage growth)
4) Demonstrated quality and quantity of raw materials
5) High potential for value addition of processed products
6) Presence of a sufficient number of growth entrepreneurs
7) Potential for creating and growing small- and medium-size enterprises
8) Linked to point 4, there is high potential for job creation

5.0 THE AIC TARGET CLIENTS

The team set out to identify which segment in the horticulture processing sector would represent the most effective target point and to better understand this target segment’s aspirations, characteristics, and needs.

Between July and November 2011, micro, small, medium and industrial processors were visited and interviewed in the areas of Dakar, Thiès / Pout (representing three-quarters of the enterprises interviewed) and St Louis (one-quarter). These locations have the majority of Senegalese horticultural products processors and are in proximity to primary production areas. A total of 59 enterprises were interviewed on a one-on-one basis. Among these, the majority had been operating for longer than three years, employ up to 15 employees, and generate consistent revenues and profit.¹⁴

5.1 STRUCTURE OF THE HORTICULTURE PROCESSING SECTOR

Of the more than 1,500 processing companies in Senegal, about 600 are formally established and registered, whereas more than 1,000 operate informally. As discussed in further detail in below, the sector is characterized by a few large companies (Level 4 companies), a significant number of small- and medium-size processors (referred to as Level 2 and 3 companies) and some informal micro processors (Level 1 companies).

The processors currently transform the same products (for internal or external markets)—the difference between micro, small, and medium size processors lies in the level of equipment they are using.

While there is a scarcity of data on the existing horticulture producers in Senegal, the literature review, the enterprise survey, and interviews with enterprise associations enabled the team to identify the following structure of the processing sector of horticulture products, which includes four main segments:

¹⁴ For more details on the results of the survey, see Annex 6.
Level 4 Processors: A handful of large companies (average monthly turnover of more than $100,000) with an established brand, a full structured industrial production facility, including adequate processing equipment, and that have local, national, regional, and export market access (for example, Kirène, Zena, or Socas).

Level 3 Processors: Some medium-size companies (average monthly turnover of $15,000 to $100,000) who demonstrate full understanding of market demand and implement accordingly as per their business plan (they have already established contacts with commercial banks for accessing funding for equipment and running costs.) They access the broader distribution nationally (national supermarket chains and urban small supermarket chains called “supérettes”) and regionally by exporting very limited quantities. They typically employing more than 10 people, and own some processing equipment and facilities (for example, Maria Distribution, Fruitales, Esteval, La Colombe, Monastery Keur Moussa, Monastery Keur Guilay, and Baobab des Saveurs).

Level 2 Processors: Several small local-level processors (average monthly turnover of $4,000 to $15,000) generally registered at the national registry and owning a transformation and product sale (FRA) authorization). They are often grouped in GIE and utilize microfinance and cooperative funds schemes. They most often have a formalized business model demonstrating their understanding of the market demand and the need for quality—although there are limited quality controls in place. They target local and nearby formalized stabilized and expansive markets (for example, schools or private parties) with labelled products and an organized distributionscheme—they have a planning component for their raw material (they manage a more direct relationship with their sources of procurement). They typically employ 5 to 15 people, the majority of those being full-time employees that often have received technical training (that is, processing), the minority of their employees being hired on a temporarily basis. They have access to limited yet quite adequate equipment and dedicated processing facilities (they can have an area separate from the kitchen in their homes) that allows them to process and sell a full range of products, including juice, syrup, and jams.

Level 1 Processors: Many micro-level informal processors (average monthly turnover: less than $2,000) with a highly variable production both in terms of quality and quantity—the focus is on low-value bagged juice products exclusively. They are within indirect supply chains and their markets (informal) are very localized and erratic. They typically employ one to four people on an ad hoc basis, operating with kitchen equipment and usually in their own kitchens. They represent survival entrepreneurship.

Women entrepreneurs constitute 80 percent of the last two groups, giving an important gender dimension to the industry.

As illustrated, the capacity level of these four levels of enterprises is varied and the levels of enterprises require different types of support. An initiative intending to target processors cannot adequately and appropriately support all four levels of entrepreneurs simultaneously.
It is, therefore, necessary to identify the target market for an AIC, taking into account the mission and vision set out previously and the maximum potential impact of supporting each level.

The AIC will most likely have the greatest impact—and greatest opportunity for sustainability—if it focuses on Level 2 and Level 3 entrepreneurs. The capacity of Level 3 enterprises to grow is clear—they have established and stable operations with established markets and the ability to access growth financing. Therefore, the least risky from a financial and almost-guaranteed-impact perspective would be focus on Level 3 companies. However, the number of Level 3 enterprises in Senegal is insufficient to support an AIC. To operate cost-effectively, the AIC would require a potential demand from about 200 companies, and at this point in time the estimate is that only about 30 such companies exist.

Level 2 enterprises are more abundant with an estimated 400 in the Dakar-Thiès region. These enterprises can support an AIC, but it is recognized that the numbers of enterprises that can scale up, and are willing to scale up, may be less apparent. Furthermore, many of these enterprises are in need of more basic support to entrench their position and to expand their companies by doing “more of the same.” Their ability to innovate and capture new markets and develop new products is low—not necessarily out of choice, but because they do not have the foundation nor the support (for example, technical or financial) to do so.

Level 1 and Level 4 entrepreneurs are excluded because of the following:

**Level 1:** Many of these entrepreneurs are not growth oriented but rely on processing to supplement an income or for survival. The inputs required to support this level relative to the impact (as measured in jobs created, income generated and value chain multipliers) is not believed to be high. Other types of interventions may offer better benefit/cost ratios. Finally, the true test of growth entrepreneurship is in moving from this level into Level 2 and is seen as a filter for selection into a support initiative, such as the AIC.

**Level 4:** Entrepreneurs in Level 4 companies are highly capable, having overcome traditional challenges, such as access to finance and markets. Their operations are advanced, competitive, and fall way outside the scope of the AIC mission. Additional job and income creation impact, as a percentage of current operations, would be lower than Level 2 and Level 3 interventions.

The AIC would thus focus on, but not be limited to, Level 2 and Level 3 companies processing such products as juices, concentrates, dried fruits, and powders on the basis of the following products: baobab, bissap, ditakh, madd, mango, onion, sweet potato, tomato, tamarind, and papaya. Because of the uncertainty associated with estimating the exact potential deal flow for the AIC, the AIC must retain some flexibility to potentially expand its target clientele to
include other enterprises with similar needs (such as honey processors) or primary producers who can reap benefits from innovations in packaging and distribution.
5.2 NEEDS OF HORTICULTURE PROCESSORS

While horticulture does represent a high growth opportunity for Senegal, the country does face important supply-chain constraints in terms of providing inputs, production, logistics, and marketing. Production and marketing assets (for example, land, technology, finance, business know-how, and human networks) are unevenly distributed across different types of producers, ranging from a few large commercial firms to small-scale family farmers who represent the majority. For the latter, the installation cost of modern equipment and materials often exceeds small family farmers’ financial capacity. Moreover, their low level of production technology and marketing know-how impedes product diversification and quality improvement.

The main needs of Senegalese small- and medium-size processors can be identified at different levels:

1. Procurement
2. Processing
3. Packaging
4. Marketing
5. Facilities
6. Advice
7. Linkages
8. Finance

Specific needs identified in relation to each of these aspects are outlined in further detail below.

### Procurement

- Processors express difficulty procuring sufficient produce at the right quantity and price, notably due to post-harvest losses.
- Processors are unsure about the quality and type of equipment to buy and as they buy individually, do not receive collective purchase benefits.
- Processors note that they cannot buy consumables and packaging at good prices because of low volumes.
- Processors suffer from weak logistics, notably in terms of transport of raw materials from the producers to the processors.
## Processing

- Processors lack appropriate technical advice on processing, as well as access to and use of adequate and performing equipment.
- A critical constraint to better quality and longer shelf life is hygienic production.
- Meeting of minimum standards is required for exportation and possibly local regulations apply or are expected in order to compete against international imports. Without these, products cannot meet approvals and market expansion may be limited.
- It is difficult for processors to test their products for hygiene and nutritional contents.
- New product development is limited by lack of process knowledge and access to equipment for pilot runs.

## Packaging

- Packaging quality is acknowledged to be a significant differentiator in the market. However, equipment is expensive and difficult to operate.
- Technical advice on packaging options is lacking and leads to poor quality packaging.
- The latest trends in packaging are not known or understood.
- As with product standards, packaging standards need to be supported and the quality of labeling improved.

## Marketing

- The sales skills of companies and market knowledge to access more lucrative markets is lacking and this limits market access.
- Significant market opportunities exist but cannot be accessed because of individual companies lacking the critical mass to deliver on large orders.
- Market requirements and new market identification are often not well understood and this results in new product/new market opportunities being missed.
- Brand recognition is limited because of size and company credibility.
<table>
<thead>
<tr>
<th><strong>Facilities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Entrepreneurs are lacking storage space for both raw materials and processed products, including a cold chain system.</td>
</tr>
<tr>
<td>➢ Entrepreneurs require some process facilities to undertake test or specific production using equipment they do not own.</td>
</tr>
<tr>
<td>➢ Access to office space to process contracts, identify markets, and make contact with potential suppliers and customers is required to increase credibility.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Business Management Knowledge</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Entrepreneurs need coaching, mentoring, and training to improve their business management skills.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Linkage Needs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ General linkages between entrepreneurs and their representative associations and other organizations, including both the government and private sector, are inadequate to leverage support.</td>
</tr>
<tr>
<td>➢ The value chain from the producers to the wholesalers and distributors is not adequately and efficiently organized.</td>
</tr>
<tr>
<td>➢ Access to relevant information is scarce.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Finance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Access to finance is a limiting factor for growth entrepreneurs who are not able to receive financing for equipment or long term working capital. This is one of the key reasons why there is a gap between a significant number of small Level 2 and a limited number of Level 3 enterprises. The “funding gap” generally exists between $30,000 to $50,000 and $500,000. Smaller amounts are available from family, friends, and fools or from microcredit lenders, but as entrepreneurs look for financing above $30,000, banks become more apparent sources of funds. However, their collateral requirements are usually onerous and in some cases 150 percent of the loan amount is required to cover not only the loan repayment in the case of default, but also the administration cost recovery. Secondly, many of the entrepreneurs are women. In this case, the appetite for loans is hindered by an aversion to risk that may impact negatively on the family and there are issues with collateral ownership. Women are less likely to access loan finance.</td>
</tr>
</tbody>
</table>
The AIC seeks to address the gaps in the current service offering identified above. The next section, Section 6, presents in detail the AIC business model, which has been developed in order to respond to the gap in current service offering by notably leveraging existing organizations and initiatives when implementing the AIC.

### The Seasonality Challenge

Not all horticulture products produced in Senegal are available all year long (see Annex 2 for a table presenting the seasons of the horticulture products). The seasonality creates difficulties for the processors because of the following: a) their limited capacity to buy sufficient volumes because of credit constraints; and b) the short duration of life of the raw materials coupled with limited availability of climate controlled storage space, limited knowledge of condition requirements and preservation knowledge, skills and equipment, and lack of knowledge about value addition opportunities.
6.0 SENECALESE AGRIBUSINESS INNOVATION CENTER BUSINESS MODEL

The AIC is a new model for promoting the growth of a competitive value adding horticulture sector in Senegal. It aims to accelerate the growth of value adding processing enterprises through technology and marketing innovation, with the purpose of having a demonstration effect that can catalyze take-up of these innovations across the horticulture sector. This, in turn, will lead to significant job creation in the processing sector and beyond (studies indicate that for every job created in processing, the multiplier effect in the economy is 2.85), as well as increases in income at the processing and farmer levels. The projected impact of the AIC is discussed in further detail in Section 11 below.

As discussed, the AIC is a targeted effort to accelerate the growth of a domestic value-adding sector, focusing on select horticulture value chains where there is a demonstrated demand and where primary production already yields high quality raw materials.

The AIC will provide clients with a comprehensive service offering designed to position them for growth into new markets and products (see Figure 8 below).

<table>
<thead>
<tr>
<th>NEW MARKET</th>
<th>Support new market access</th>
<th>Expand new product markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXISTING MARKET</td>
<td>Strengthen product/market position</td>
<td>Encourage new products</td>
</tr>
<tr>
<td>EXISTING PRODUCT</td>
<td></td>
<td>NEW PRODUCT</td>
</tr>
</tbody>
</table>

Figure 8: Positioning Enterprises for Growth
6.1 SECURING CLIENTS

As discussed, the highest impact—and the highest likelihood of sustainability of the AIC—can be achieved by targeting Level 2 and 3 enterprises (see Section 5.1) that demonstrate an understanding of market demand, target the local and national markets, and have access to a minimum level of equipment. The enterprises, thus, have a foundation that positions them for growth into new markets or products.

A detailed selection process will need to be prepared in order to select the enterprises. While this will be the mandate of the management team during start-up phase, a number of points are pertinent:

1. Enterprises will need to have a growth focus.
2. Entrepreneurs will need to demonstrate strong entrepreneurial traits that can be assessed through psychological testing.
3. Enterprises will have a track record indicating success and will demonstrate competitive advantages in some ways.
4. The market potential of enterprises will need to be good to allow growth activities.
5. The enterprise should be fundable either via direct commercial loan or through a seed fund raised to support selected enterprises.

Selection will follow a process of application, assessment, review, and capacity building. Finally, a selection panel will assess the merits of each enterprise. This panel will include representation from a financial institution, as well as a professional with sufficient market knowledge in the specific product market to assess the market potential of the product.

Successful enterprises will be required to formally and legally commit to the conditions of service, including payment regimes and conditions.

6.2 SERVICE OFFERING

The AIC will provide clients with a comprehensive service offering designed to position them for growth into new markets and products. Such services can be broadly grouped into 1) marketing, 2) advice, 3) finance, and 4) facilities, and include business coaching, market research, marketing and procurement facilitation, technology identification, technical training and access to processing technologies, and financial services, including a small fund.

In addition, the AIC will play an active role in promoting successful introductions and marketing and technology innovations in order to stimulate broader take-up across the horticulture sector. It will also actively communicate policy and regulatory constraints faced by high growth potential value adding horticulture processors to government officials, financing constraints to the financial sector, and skills and research needs to academia and research institutes. In this way, the AIC will help strengthen the overall innovation and
entrepreneurship ecosystem affecting the ability of the entrepreneur to succeed in the marketplace.

This service offering is depicted in the figure below. It also illustrates how the AIC will integrate and build upon existing institutions and competencies. The relationship with partner organizations is discussed further in Section 6.4 below.
In dark green are the AIC operated pieces. In white are the activities carried out in partnership with the stakeholders identified in the call out boxes.

*Figure 9AIC Service Offering 16*
Below further describes each of these pillars, outlining the core services to be provided.

6.2.1 PILLAR 1: MARKET

Any initiative focused on enabling the growth of agribusiness enterprises must start with the market. Interviews with enterprises revealed that this is often the core area where assistance is first needed, yet there is an apparent gap in such service offerings. This Pillar is likely where the AIC will have to invest most in building up internal capacity as opposed to being able to engage partners.

<table>
<thead>
<tr>
<th>Pillar 1: MARKET</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities</strong></td>
<td></td>
</tr>
<tr>
<td>➢ Assist companies to identify, target and test new markets and new products. The AIC will offer market trend analyses and educate companies about latest trends that could improve their packaging.</td>
<td></td>
</tr>
<tr>
<td>➢ Assist companies with market research to assess opportunities and to position themselves in the market with current and new high value products.</td>
<td></td>
</tr>
<tr>
<td>➢ Seek out large deals and contract with a collective in order to meet volume requirements.</td>
<td></td>
</tr>
<tr>
<td>➢ Assist associations and enterprises in the identification of and access to inputs and supplies, such as appropriate produce, consumables, logistics services and equipment (for example, establishment of contracts between farmer and processor for adequate supply of appropriate quality at good pricing).</td>
<td></td>
</tr>
<tr>
<td>➢ Facilitate procurement of common commodities in bulk for resale to processors. Items such as jars, bottles, or bags can be resold in this manner, giving both AIC and processor an advantage.</td>
<td></td>
</tr>
<tr>
<td>➢ Offer packaging advice to entrepreneurs that will enhance packaging outcomes and increase market competitiveness.</td>
<td></td>
</tr>
<tr>
<td>➢ Assist companies to identify, target, and conclude sales deals by walking with them in more lucrative markets.</td>
<td></td>
</tr>
<tr>
<td>➢ The AIC could potentially establish a group brand, if companies are in agreement and agree to follow a series of rules and standards to ensure that the brand value is not eroded through poor processing, packaging, and distribution practices.</td>
<td></td>
</tr>
<tr>
<td>➢ Potential services could also include facilitation of trade show activities; “plan-o-gram” support for market positioning in new markets (for example, shelf depiction); and support for certification (for example, Fairtrade or organic).</td>
<td></td>
</tr>
<tr>
<td><strong>Financial details</strong></td>
<td><strong>AIC will charge royalty fees on turnover.</strong></td>
</tr>
</tbody>
</table>
6.2.2 PILLAR 2: ADVICE

The Advice Pillar includes training, coaching on advice on business, technical, and regulatory issues. Specific service offerings envisioned are outlined below. In this Pillar a range of partners can be engaged. The most significant investment in the AIC’s capacity will likely be in creating a strong mentoring, coaching, and partner network.

<table>
<thead>
<tr>
<th>Pillar 2: ADVICE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities</td>
<td>Provide focused support in accounting, business strategy, sales, market development, and others. This support will be provided by a limited internal staff and outsourcing to specified experts, such as mentors and coaches.</td>
</tr>
<tr>
<td></td>
<td>Negotiate and facilitate access to specialized equipment for new product development and testing.</td>
</tr>
<tr>
<td></td>
<td>Facilitate processing technology improvements, hygiene improvements, standardization, testing, and access to the latest processing knowledge. This will be provided by a limited internal staff and outsourcing to specific experts delivering technical training.</td>
</tr>
<tr>
<td></td>
<td>Assess packaging standards and labelling for both local and international markets.</td>
</tr>
<tr>
<td></td>
<td>Create a network of support organizations that will be able to support entrepreneurs in areas such as registration, regulatory compliance, export promotion, sector development, advocacy, R&amp;D linkages, North/South linkages, financing, and network support organizations.</td>
</tr>
<tr>
<td></td>
<td>Work with local institutions to identify and meet local standards and with local consumers to identify standards that must be met.</td>
</tr>
</tbody>
</table>

Financial details | AIC will charge royalty fees on turnover.
6.2.3 PILLAR 3: FINANCE

As discussed above, finance is a key constraint for growth in the horticulture sector. It is, therefore, critical that the AIC can offer financial services to its clients.

A seed fund of $2.5 million is proposed. The motivation for establishing a seed fund is two-fold:

The purpose of the seed fund would be to make unsecured loans at near commercial rates to businesses where due diligence indicates the following:

1. A viable market exists that is accessible to the entrepreneur
2. The business assessment indicates that the business has the potential for growth
3. The entrepreneur has a high entrepreneurial quotient
4. The entrepreneur and their business are accepted for support by the AIC

The impact would be to advance loans against business and entrepreneur potential without the need for collateral. The rationale is that growth entrepreneurs with good businesses and ongoing deep support from the AIC will be able to pay off their loans without defaulting. This underlies the very premise of the AIC—an organization that can identify growth entrepreneurs and support them to expand their businesses.

Assets acquired with funding will remain the property of the fund until paid off.

The seed fund is set at $2.5 million to allow adequate funding of entrepreneurs in the AIC support programme within a three-year growth cycle. Payback amounts are then pooled for funding entrepreneurs in subsequent years on a rotating basis.

The goal of the seed fund is not to replace banks or other financial institutions. Instead it is aimed at demonstrating that deep ongoing support and financing can combine to develop growth businesses. As such, banks will be asked to join the initiative with small amounts of loan financing that is matched to the seed fund, thereby reducing their own exposure, while reaping the benefits of having clients supported on a day-to-day basis. It is hoped that this will encourage greater SME lending over time as banks begin to understand the SME environment.
The fund will in all likelihood be managed by a local financial institution that may or may not itself participate in lending alongside the fund. Some commercial banks (for example, CBAO) and other financial institutions (for example, FPE) have expressed a new interest in investing in agribusiness SMEs, so the seed fund could be managed by such an entity.

**Why Loans, Not Grants or Equity?**

Loans, rather than grants or equity, are preferred for the following reasons:

- **Equity** is a complex intervention from a management perspective and at the loan size that is envisaged ($50,000 to $100,000) it makes more sense to provide loans.  
  The reason for this is that most of the Level 2 businesses earn about $15,000 per month. Assuming that there is an operating profit (OP) of 20 percent, that means their businesses are worth about $36,000 in operating profit per annum with a valuation of about $60,000 to 100,000. In this case, an equity investment of $50,000 would take a large amount of equity away from them (in this example about 80 percent at the lower valuation through to 50 percent at the higher valuation). International experience has shown that incubators should not take anything more than 10 to 15 percent (in fact 5 to 10 percent is preferred) because if there is second round investment, this eats away quite dramatically at their remaining equity. Worse still could be the dilutions that may accompany second and third round equity deals—we could classify the AIC’s shares as preference shares or class them as not subject to dilution, but it starts to get very complicated and it is widely acknowledged that investors prefer simplicity. The exit potential for equity is also likely to be limited and lengthy, thus tying up funds not allowing recycling.  
  In the case of Level 3 businesses, as they demonstrate bigger earnings, the AIC might get some reasonable percentage out in an equity deal, but the exit potential will still be a main concern and the AIC would tie up cash quite quickly in this case.

- **Grants** do not encourage sustainable business and in the case of the Level 2 and 3 processors, these are at the level to afford a reasonable interest bearing loan. Their struggle is to get banks to believe in them.

- **“Reimbursable grants”** could be an interesting scheme to encourage innovation, that is, if they succeed the enterprises pay the grant back, if they do not succeed, they do not pay back. The reimbursable grant could also be made a “matching grant” so that the company will lose some of its own money if they fail. Matching funding helps to remove the stigma of “free money,” which often generates negative feedback as it is seen as having less value. In either case, the upside of succeeding is much higher than the amount of the grant, so there is an incentive to succeed. This could be explored in more depth when incubatees test new products.
6.2.4 PILLAR 4: FACILITIES

Investing in facilities and equipment is costly and risky. The stakeholder consultation process considered the establishment of a physical processing facility (a small demonstration facility or a large full-scale production premise). Access to equipment is problematic and the provision of equipment in a facility would be advantageous. However, in the case of Level 2 processors, the initial requirement is not necessarily for a production line or advanced equipment, but for incremental improvement with the injection of small, yet vital, pieces of equipment, such as heat sealers.

The gender of the processors and their current processing practices further mitigated against providing a central facility. Women entrepreneurs, who constitute the majority of the Level 2 and Level 3 processors, may find it difficult to move to a central facility given their other responsibilities (such as child rearing) and their operations.

As enterprises advance, specific equipment would, however, be needed that may not be immediately affordable to enterprises (for example, pasteurizers).

On this basis, the AIC will at the initial stages provide facilities—or access to them—as follows:

<table>
<thead>
<tr>
<th>Pillar 4: FACILITIES</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Activities**       | ➢ A product and technology demonstration center will be made available through AIC partners.  
➢ A process and packaging facility with limited processing equipment will be made available through AIC partners.  
➢ The AIC could procure demonstration packaging equipment for use by Level 3 enterprises for product development and testing. This will enable processors to ensure high quality packaging that allows better market assessment of new products.  
➢ The AIC will link with local institutions to facilitate testing (for example, microbiological tests or pH), lab facilities will, hence, be made available through AIC partners.  
➢ The AIC will offer a limited number of meeting rooms and shared office equipment for entrepreneurs. |
| **Financial details** | AIC will charge royalty fees on turnover. |
6.3 PHASING ENTERPRISE SUPPORT

As discussed, the AIC will focus on Level 2 and Level 3 enterprises. However, within these levels, a development continuum exists.

There is a need to support the development of the following.

1. Level 2 enterprises to strengthen their current market position through a focus on:
   - Improved process training (for example, hygiene, shelf life, or storage)
   - Improved business management (for example, costing and pricing, marketing, sales, or human resource management)
   - Improved procurement processes
   - Access to finance for working capital and some basic equipment purchases

2. Level 3 enterprises to expand product/market opportunities through a focus on:
   - New product development (including capacity improvements to facilitate this)
   - Improved and expanded process capabilities
   - New market development (including capacity improvements to facilitate this)

Thus, the services of the AIC will be phased in order to focus on meeting specific goals to allow a gradual development of the agribusiness entrepreneurs. Further description of the phased approach to enterprise development is provided in Annex 11.

6.4 LEVERAGING PARTNERS

The AIC service offering outlined by nature requires a partnership-based model. As depicted in Figure 1, some of the services of the AIC will be outsourced to competent existing entities, while other competencies will be developed internally to AIC. This will allow the AIC’s services to be delivered by the most appropriate organizations, leverage existing expertise, networks, and overheads, while reducing duplication of existing activities.

Other opportunities for partnership include engaging the few larger-scale companies, which currently import products that can be competitively processed in Senegal in developing a local supply chain. This represents a win-win opportunity for the importer and the local producers. One such large company has already expressed keen interest in such a partnership. Similarly, a local bank is at the cusp of developing new financial products for agribusiness SMEs and is interested in partnering with the AIC to reduce the level of risk associated with lending to such enterprises.

Organizations that have expressed an interest in partnering in the AIC to date include the following: Accelerated Growth Strategy (SCA); Banking Company of West Africa (CBAO); Economic
Promotion Fund (FPE); Gaston Berge University; the Horticulture Association; Institute of Food Technology (ITA); Kirène; Ministry of Mining, Industry, Agro industry and SMEs; Research Institute for Development (IRD); Training Center for Careers in the Food Industry (IAA); and University of Thières.
7.0 GOVERNANCE

InfoDev's experience in its network of over 400 business and technology incubators indicates a) that the governance framework is critical and b) that a public-private partnership offers the highest likelihood for success. In a public-private model, government (who has a public good role), academia (which has a teaching, research, and often a commercialization focus), and the private sector (which has a profit motive) all work together to advance each of their own interests and collectively contribute to growth.

The AIC model, unlike many others, is designed for near cost recovery and so it must be driven in a “Public Mission/Private Management” model. As will be discussed below, there is a large “public good” element, thus justifying the $150,000 per annum needed in on-going public support. The full involvement of the government is also critical for the AIC to succeed in bringing formality to the sector and to tap into and contribute to the design of government support programs (for example, export promotion, trade missions, or tax incentives). Other public sector organizations, such as research centers (which provide equipment and knowledge) will be a key success factor of the AIC.

While it is not possible at this stage to determine final representation, the following organizations are indicative of potential partners who could constitute an initial steering committee and potentially Foundation representatives (see discussion of implementation approach in Section 8):

- CBAO or alternative bank
- FPE
- Gaston Bergé University in Saint Louis
- IAA
- IRD
- ITA
- Ministry of Mining, Industry, Agro industry and SME
- SCA
- University of Thiès
- Representative of an existing incubator initiative (for example, Omar Cissé from CTIC; Mbarou Mbaye)
- Two associations representing the Level 2 and Level 3 enterprises
- Two respected private sector individuals with an understanding of the private sector (for example, Alexandre Alcantara of Kirène)
Management Board

The Foundation may constitutionally only meet once a year for an Annual General Meeting. In the interim, the AIC needs strategic inputs from a small group of up to three representatives elected by the Foundation members.

It is suggested that this be comprised of a government representative and two private sector representatives. They should serve for a term of at least two years.

Their function is to meet monthly to assess progress made by the AIC and to recommend future direction to the AIC manager. Their role is neither to run the AIC nor to have any operational role.

Investment Committee

Investment Committee will primarily focus on investments using the seed fund that will be created. The committee will be comprised of three Foundation representatives of whom two representatives will differ from the representatives on the Management Board. The purpose of having a common member of the Investment Committee and the Management Board is for continuity and communication.

The Investment Committee overseas both direct and indirect financial issues of the AIC, including financial policy and procedure and enterprise selection, respectively. In the case of the latter, a subcommittee with additional representatives can be created.

In all cases, a term of two years of service is recommended.
As indicated in the discussion of governance above, the AIC should be owned and operated by a set of Senegalese stakeholders. Therefore, the design and implementation approach is devised to a) cultivate local ownership and b) build the local capacity necessary to plan, resource, and execute the AIC successfully. Once implementation funding is secured, infoDev would normally provide technical support over a three to five year period to assist the local team and partners, gradually decreasing its assistance, while the capacity of the team increases.

In order to cultivate local ownership and commitment, even if donor financing can be secured for the full amount of upfront investments required, infoDev requires that local stakeholders contribute a percentage of the total start-up cost. The funding made available by international donors is then structured as seed financing and is intended to help start the center and get it to the stage of generating revenues that can cover the ongoing operating expenses. The implementation phase only starts when the necessary local co financing has been secured.

To kick off the implementation stage, infoDev typically convenes an interim Board of Directors (BOD) or initial steering committee (as indicated above) comprising of public and private sector representation to oversee the planning stage. The BOD would include organizations in Senegal who contribute to the success of the AIC in the form of cash or in-kind contributions (such as by providing access to lab facilities or equipment or making available staff profiles needed by the AIC), along with a client representative. Throughout the feasibility assessment and business planning process a number of entities expressed interest in partnering. These entities are thus candidates for interim BOD membership. The BOD would select a chairman to lead the deliberations. InfoDev would not be a formal member of the BOD, but rather an advisor, guiding the BOD as to the actions needed on the basis of international good practice in implementing an AIC-type intervention. The BOD then derives and monitors an action plan.

There are two options for implementing the AIC: 1) creating a new not-for-profit foundation registered in Senegal; or 2) advertising a bid to host the AIC, to which local organizations can apply.

**Creating a new not-for-profit:** Donors typically require that their funds are disbursed to and managed by an entity that has a financial management track record demonstrated by independent audits. Therefore, it is not feasible to create a new organization and immediately receive implementation funds. In similar cases, including when infoDev helped to set up the information and communication technology incubator in Senegal, a new foundation was created, but a board member with a track record received the funds on behalf of the foundation under the condition that all
assets associated with the incubator would be transferred to the new entity once it had acquired the necessary human resources and systems. There is also explicit mention in the agreement with this partner that all strategic decisionmaking must be endorsed by the foundation’s BOD. This arrangement has worked well.

**Selecting a host for the AIC:** The alternative solution is to advertise a bid to host the AIC. The advantage of this option is that the AIC theoretically becomes a seamless extension of that organization’s existing service offering. The risk of this approach is that the governance system of the host organization may not be conducive to successful operation of the AIC. For example, infoDev has experienced a publicly funded entity that hosted an incubator de facto refused to engage the private sector in strategic deliberations, thus significantly impacting the success of the incubator. Another example included significant restrictions on whether and under what conditions private companies could be hosted on the premises.

Based on the stakeholder mapping conducted, infoDev would recommended adopting the option of creating a new not-for-profit entity registered as a foundation under Senegalese law, provided that a board member with sufficient financial management track record and operating capacity can be identified.

At the planning and implementation stage, infoDev's role is to provide the technical guidance to plan, resource, and operate the AIC successfully. With a strong commitment to building local institutional capacity, infoDev will thus harness its experience, agribusiness incubation training program, and international network of innovation and entrepreneurship professionals across the world to guide the BOD and the AIC management through important milestones, such as developing and executing a governance framework, client selection process, services and marketing, and monitoring and evaluation.

As discussed in the Financial Plan (see Section 10), donor financing can be channelled through infoDev. In this case, infoDev would have the fiduciary oversight of the funds. InfoDev’s Agribusiness Program Implementation Team would execute implementation oversight, project management, and monitoring and evaluation to ensure timely and successful program delivery. The project would in this case be executed via contractual grant agreements between infoDev and the AIC partners.

The figure below shows the staged roll-out plan for the AIC. The first year of implementation activities (Year 0) will be a critical time of securing requisite funding, identifying and contracting partner institutions, establishing the Center’s structure, and making key hires. The majority of the AIC programs will begin with the opening of the AIC in the fourth quarter of the first year and scale-up over the first years of AIC operations.
Figure 10AIC Year 0 Implementation Timeline

Interim Board formed
Donor funding secured
Local co-financing secured
Facilities secured
Facilities refurbished
Project plan completed
Legal structures established
Incubator manager hired
Business plan v.1
Partnership agreements
M&E system developed
Staff hired
Marketing
Marketing
Client negotiation
Opening ceremony
Programs begin
9.0 IMPLEMENTATION REQUIREMENTS

Below follows a quick outline of the key human and physical resources required to implement the AIC successfully. Key requirements for the location are also provided.

9.1 STAFFING

Assuming that effective partnerships can be developed to execute many of the foreseen service offerings, the staffing needs of the AIC are minimal. At full implementation, the AIC is expected to have 10 core staff as follows:

- Manager
- Market Analyst
- Market Development Manager
- Food Processing Expert
- Technical Manager (Packaging)
- Financial Manager
- Accountant
- Business Advisor (2)
- Receptionist/Administrative Assistant

The staff composition may be modified as implementation proceeds, the partnership make-up changes, and the AIC gains experience with the extent of assistance the enterprises need in any given area.

Annex 8 describes the responsibilities of the staff roles as outlined above, as well as the key qualifications required for each.
9.2 FACILITY AND INFRASTRUCTURE REQUIREMENTS

The AIC facility requirements are approximately 500 square meters of office space and meeting rooms. The facility will need to accommodate 10 staff members in offices of between 15 and 25 square meters, and include a training room to allow group training and small workshops. It will also need meeting facilities where clients can interact with potential buyers, suppliers, and others in a professional environment. A kitchen and lounge area will encourage social interactivity among entrepreneurs, which is essential for their development.

A small information center should also be established to encourage broader sector development and to help develop a future pipeline of entrepreneurs. This information center could consist of a hot desk area with access to Internet facilities and computers, and various publications that can assist entrepreneurs to develop their business interests.

It is not envisioned that the facility will not have any processing equipment on site as this will be situated at one or more partner facilities, such as IAA, ITA, or universities.

9.3 LOCATION

The location of the AIC is critical. The AIC must be located in an area that fulfills the following criteria:

1. Is within about 50km of a large number of the target clientele
2. Is within an area that allows economical procurement of raw materials, processing equipment, processing infrastructure, and packaging
3. Is convenient from a logistics perspective
4. Is near sources of expertise (for example, technical, business, R&D, and others).

The map below provides a picture of the comparative advantage of the nine main production zones of horticultural products in Senegal.
The country’s leading horticultural production zone, the Niayes region (the coastal zone between Dakar and Saint Louis), provides the best example of integrated use of favorable factors of production and marketing. The region’s climate is adequate for off-seasonal production. Geographically, the region is close to Dakar where transport and port infrastructures exist for exports. Moreover, the region has a good reputation for highly organized producers’ associations.

The Dakar-Thiès region is characterized by its proximity to production areas of comparative advantage (Niayes and Mbour) and processing areas and stakeholders. It is also located on the strategic transportation axe of the country: the region is linked to the rest of the country, the Western Africa region, and international markets by the road, the sea, and the air.

On the basis of the criteria outlined, a potential location area for the AIC could be in the Dakar region between central Dakar and Thiès, with potential satellite centers in St. Louis and possibly Casamance.

17 Source: PDMAS.
10.0 FINANCIAL PLAN

The AIC is designed to become 80 percent financially sustainable after six years—which is defined as covering the ongoing operating expenses of the AIC through earned revenues. An initial investment of $8.7 million is required to fund the first six years of operation. This includes 4.5 million for operational costs, $2.5 million for a revolving loan/loan guarantee fund that is needed to support early investments in the SME sector and $1.7 million for implementation support and trust fund management.

The income generating component for the incubator is a mix of royalty fees on turnover and finance raising fees. The model requires an annual 5 percent fee on turnover and a 1 percent fee on finance raised to bring it to 80 percent financial self-sustainability (with depreciation charges included). In informal discussions with Level 2 and Level 3 entrepreneurs, respondents acknowledged the need to pay for services, and they did not reject idea of royalties of up to 10 percent on turnover. The income figures factor in that only 80 percent of the funds will be collected given that failures and improper activities will occur.

The royalty fee is set against income needs of the AIC and the ability of the clients to pay it. Modelling an increase in turnover of 30 percent and an improvement of 10 percent in both gross and operating profits indicates that the net profit will still exceed pre-support net profits after payment of a 5 percent fee. The rationale is that support will improve financial well-being while the client is in the AIC (even with a royalty fee) and that upon leaving, the client will reap full benefits.

The calculations detailed in Annex 10 are based on conservative assumptions outlined in Annex 9.

The figures provided below are all expressed in U.S. dollars and are dependent on successful negotiation of partnership arrangements. For example, the analysis below assumes that the AIC will not have to invest in its own equipment demonstration center, but that this can be provided through access to partners’ facilities.

10.1 BUDGET YEAR 1-5

It has been foreseen a Year 0, which will be the planning year before clients start coming in the AIC. During Y0, expenses will be incurred. For example, salaries of five staff members (a CEO, a processing expert, a financial manager, a business advisor, and an administration assistant) are necessary to do the preparatory work before the clients are enrolled in the AIC program. The number of staff will increase progressively with the number of clients supported, starting with five staff in Y0 to reach 10 staff from Y3, which will mean working on a standard of one professional staff member for seven to ten clients.

An allocation for communications and marketing expenses is required, because of infoDev’s commitment to a demonstration effect. A monitoring and evaluation scheme is critical to
ensure the success of such an initiative. Hence, an allocation for communications and marketing as well as for monitoring and evaluation activities has been budgeted within the main budget lines presented below.

In the budget overview provided below, “Overheads” are defined as phone, Internet, ICT support and website development, postage, photocopying, stationery, printing, outreach motor vehicle expenses, advertising & PR, accounting, audit & legal, insurances, functions and launch, staff training, travel, and subscriptions/library.

![Figure 12: Expenditure (US$) by Category in Each Year](image)

(Note that the seed fund is reflected as the initial disbursements over three years)
Figure 13 Total expenditure (US$) by Category

Table 1AIC’s Budget from Y0 to Y5

<table>
<thead>
<tr>
<th>Category</th>
<th>Yr0</th>
<th>Yr1</th>
<th>Yr2</th>
<th>Yr3</th>
<th>Yr4</th>
<th>Yr5</th>
<th>Total</th>
<th>% of Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staffing and Overheads</td>
<td>300,000</td>
<td>500,000</td>
<td>600,000</td>
<td>600,000</td>
<td>600,000</td>
<td>600,000</td>
<td>3,200,000</td>
<td>45%</td>
</tr>
<tr>
<td>Mentoring &amp; Advisory</td>
<td>0</td>
<td>30,000</td>
<td>90,000</td>
<td>110,000</td>
<td>110,000</td>
<td>110,000</td>
<td>450,000</td>
<td>6%</td>
</tr>
<tr>
<td>Building Rent and Services</td>
<td>70,000</td>
<td>70,000</td>
<td>70,000</td>
<td>70,000</td>
<td>70,000</td>
<td>70,000</td>
<td>420,000</td>
<td>6%</td>
</tr>
<tr>
<td>Depreciation &amp; Provisions</td>
<td>60,000</td>
<td>60,000</td>
<td>60,000</td>
<td>60,000</td>
<td>60,000</td>
<td>220,000</td>
<td>520,000</td>
<td>6%</td>
</tr>
<tr>
<td>Seed Fund</td>
<td>0</td>
<td>720,000</td>
<td>820,000</td>
<td>820,000</td>
<td>100,000</td>
<td>0</td>
<td>2,460,000</td>
<td>30%</td>
</tr>
<tr>
<td>Implementation Support</td>
<td>150,000</td>
<td>150,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
<td>500,000</td>
<td>7%</td>
</tr>
<tr>
<td>Totals by Year</td>
<td>580,000</td>
<td>1,530,000</td>
<td>1,690,000</td>
<td>1,710,000</td>
<td>990,000</td>
<td>1,050,000</td>
<td>7,550,000</td>
<td></td>
</tr>
</tbody>
</table>

The figures quoted are conservative in income and liberal in expenditure to reduce the risk of shortfalls.
10.2 SUSTAINABILITY

The model seeks to achieve 80 percent financial sustainability within six years. The cost recovery model is justified by the capacity and willingness of the target enterprises to pay to the AIC 5 percent of their monthly turnover and a 1 percent fee on finance raised. The remainder 20 percent in ongoing financing will be sought from local sponsors, including government and corporations. This amount is less than the tax revenue that can be collected from the enterprises over five years.

The financing required to initiate this AIC will be provided for the first five years with income generated during this period being banked. The front-loading of the external investment allows the management to focus on the development of the AIC. It also allows the model to be changed, if it becomes clear after two years that the income generation targets are not likely to be met. Changes can be made before the AIC needs to rely on its own income generating streams in later years.

10.3 FUNDRAISING PLAN

The concept and proposal will be presented and discussed with key donors that are active in Senegal and in agribusiness and women’s programs.

Donors that have participated in discussions and who may be approached include the following:

- AFD
- AFDB
- Canadian, Italian and Spanish Co-Operation
- GIZ
- Government of Finland
- Government of Senegal
- IFC
- USAID
- World Bank

The Fund for Economic Promotion (FPE) and BCAO, a commercial bank, have been approached to consider a seed fund, direct investments, and a loan guarantee scheme. Both have expressed interest in reviewing the proposal and in further discussions.

In all cases, this is an exciting opportunity for funders who support private sector development given the significant socioeconomic impact, the gender focus, and the fact that the model seeks self-sustainability, while strengthening local associations under the guidance and support of a cross-sector stakeholder base.
11.0 RESULTS AND IMPACT

The raison d’être of the Agribusiness Innovation Center is to advance the competitiveness of horticulture processors, so as to increase their growth, and thereby increase jobs and incomes. More broadly, infoDev is interested in learning lessons from this intervention that can inform the design of future initiatives in Senegal and beyond. A detailed monitoring and evaluation framework will be developed to measure performance (for instance, in relation to “progress made towards the financial sustainability of the AIC”), outcomes (for instance “the number of women entrepreneurs who have benefited from the AIC”), and impacts, such as job creation and increases in incomes. The key targets over the six-year project period are summarized in the table below and elaborated upon in Sections 11.1 and 11.2.

Table 2AIC Outcome & Impact Indicators

<table>
<thead>
<tr>
<th>CLIENT BUSINESSES</th>
<th>195 growth-oriented businesses supported over 6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Production of transformed products multiplied by 7.5 times over 6 years</td>
</tr>
<tr>
<td></td>
<td>Additional $32 million turnover generated in 6 years</td>
</tr>
<tr>
<td>FARMERS</td>
<td>139 new jobs created over 6 years</td>
</tr>
<tr>
<td></td>
<td>Addition $4.5 million in income in 6 years</td>
</tr>
<tr>
<td>EMPLOYMENT</td>
<td>5,000 jobs created over 6 years</td>
</tr>
<tr>
<td></td>
<td>80% jobs created for women</td>
</tr>
<tr>
<td>TAX REVENUES</td>
<td>Additional $1.3 million over 6 years and an additional $250,000 for the following years</td>
</tr>
</tbody>
</table>

Below further discusses the impacts expected.

11.1 OUTCOMES

As discussed, more than 195 enterprises will directly benefit from the services offered by the AIC. These entrepreneurs will increase productivity dramatically by cutting waste, implementing quality controls, and maximizing processing times with the availability of modernized processing equipment. Working with the various institutional partners, innovations will be made to develop new processing equipment that suits the needs of entrepreneurs. The development of more efficient fruit-paste-cutting machinery is one example that will be recognized quickly.
The AIC will also expand existing opportunities to raw materials not yet commercialized. Baobab, cashew apples, moringa, and many others represent an assortment of raw materials not currently being maximized because of a lack of processing equipment, innovation, and consumer awareness. Entrepreneurs will be encouraged to focus on these value-chains and will develop extensive, value-added food products with new technologies and interventions.

Innovations will also be made with regard to the distribution models used by the entrepreneurs involved. During the interviews, most companies agreed that while production and efficiency was a major issue, so too was the distribution models, which were often inadequate for the entrepreneurs to service their customer base. From small-scale, localized distribution to partnering with large national and international distribution firms, the innovations put forth in this area will have a tremendous impact on the entrepreneurs and their ability to increase local, domestic, and international markets.

Finally, the public-private partnership model proposed will contribute to increased dialogue and concrete common initiatives to further the agribusiness sector in Senegal. InfoDev and SCA did this successfully in the information and communication technologies sector, when convening key public and private sector actors to establish CITIC (the ICT Incubator in Dakar) and hopes to replicate that success in the agribusiness sector.

### 11.2 SOCIAL AND ECONOMIC IMPACT

The social impact of AIC interventions will be felt across the agribusiness sector, including farming, ancillary, and supportive services. The impacts will be felt with women, youth, and the unemployed/underemployed. Technical skills will make managerial staff more marketable in both Level 2 and Level 3 companies, and improved quality control training will open new markets to farmers and suppliers. Though difficult to quantify, the forecast to multiply the production of each Level 2 and Level 3 entrepreneur’s business by one and a half times will most certainly have direct and indirect social and economic impacts.

Employment creation is the most direct, and easily recognized, impact. With the growth forecasts listed above, companies within the AIC program are expected to double within the first three years of participation. The potential direct impact in terms of job, enterprise, and wealth creation has been captured in the tables available in Annex 9. **Over a six-year period, it can be expected that the AIC will have created more than 5,000 jobs. It is expected that 80 percent of these new jobs will be created for women.**

Over a six-year period, the AIC will directly support **195 sustainable growth-oriented enterprises**. It is to be expected that these enterprises will generate an additional **$32,386,500** in turnover over this same time period.
By more than doubling the output of SME producers, their input purchases should double, as well, thus having a **significant impact on farmers' incomes**. Using mango juice processing as an example, projections indicate that because of the AIC, mango farmers will experience an increased demand for fresh mangoes of 80,000 to 2,000,000 fresh mangoes, representing an additional $4.5 million over six years. Similar numbers can be extrapolated for other products also.

An additional **increase in the demand for ancillary products and supportive services** is also expected. These products and services include the following: glass, plastic, and cardboard packaging; graphic design services; printing; transportation services; and laboratory analysis. An increase in demand for these products and services will directly impact the unemployment and underemployment of personnel in each sector. Finally, the majority of Level 2 companies employ SME distributors (local entrepreneurs who distribute consumer packed products via pushcarts). At present, entrepreneurs using these services generally employ between 15 to 30 such “distributors.” During discussions with entrepreneurs involved in the focus groups evaluated, each highlighted the possibility of doubling the consumer distribution. Consequently, it can be assumed that each Level 2 entrepreneur will increase the number of micro-distributors they use by double. This figure does not take into account the increase in demand for the pushcarts, which are all make locally by metal and wood craftsmen.

Federal taxation gains are another critical area of economic impact. It is estimated that one-third to one-half of all Level 2 companies are not fully registered with the Senegalese government, and consequently are absent in the federal taxation programs. The Senegalese General Tax Authority could recognize a significant increase in tax revenue with the AIC working with companies to ensure federal registration and compliance. With a streamlined company registration process, more agribusiness companies, currently operating outside of the formalized system, would register with the federal government, and **tax revenue would increase federal revenue by approximately $1.3 million in the first six years**, given the analysis of participating companies. Every subsequent year, enterprises served by the AIC will yield about $250,000 in additional tax revenues, while the ongoing public investment required totals $150,000 per annum. If one includes the tax revenues created after the enterprises have left the AIC, and the tax revenues from other enterprises that take-up the technology and marketing innovations demonstrated by the AIC, the impact on tax revenues will be even greater.

### 11.3 Monitoring and Evaluation

The baseline data of the clients of the AIC will be recorded at the time the client enters the AIC. Assessment of impact should be undertaken independently every three years at the instigation of stakeholders, drawing upon data from the AIC’s monitoring and evaluation system and combining this with qualitative information gathered from stakeholder interviews.
and client case studies (and with data obtained from independent surveys of clients and graduates, if the AIC’s data is flawed or seen as inadequate and socio economic data). The information will be used to make judgments about the following.

- The overall socioeconomic impact flowing from the client businesses, making use of input and output multipliers in terms of employment, wage rates, and sales revenues.
- The cost effectiveness of the AIC intervention, noting that 10 years of support is required before significant impacts will be evident, as it takes time for businesses to grow and have an impact.
- Impacts on the business environment, in particular improved culture of entrepreneurship, improved early stage financing mechanisms, and improved regulations.
- Performance against the objectives of the AIC. A range of qualitative and quantitative measures can be used to evaluate performance, related to both internal processes and outcomes. These organizational indicators will also be used as a basis for development of KPIs for staff so as to ensure alignment of incentives. The key performance indicators are discussed further in Annex 12.
## 12.0 Risks & Mitigators

The table below captures a comprehensive risk and mitigation plan.

### Table 3AIC’s Risks and Mitigation Plan

<table>
<thead>
<tr>
<th>Risk</th>
<th>Impact</th>
<th>Likelihood</th>
<th>Mitigation</th>
</tr>
</thead>
</table>
| Failure of clients to reach growth targets | Financial model underperforms/reputational damage | Medium | · Realistic modeling  
· Good phasing  
· Extensive linkages  
· High caliber management  
· Good selection procedures  
· Presence of growing markets |
| Significant delays in implementing the AIC model: The expected funding is not received. Change in the political context. Inability to hire the right manager. Partners do not come around the table. Need to build the capacity ourselves. | Objectives not met within timelines and funders and stakeholders withdraw | Medium | · Improved communication with and between stakeholders  
· Agreement with all funders on timing of financial contributions and application  
· Support of key government officials |
| Market assessment failure | Market might get saturated and prices might get affected | Medium | · To further examine market opportunities when developing the AIC’s business plan  
· Consequently potentially broaden the scope of the AIC’s intervention areas (e.g. including honey, or herbs.)  
· Final AIC’s business plan should reflect the balance between the center’s focus |
<table>
<thead>
<tr>
<th>Issue</th>
<th>Cause</th>
<th>Rating</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to attract sufficient clients</td>
<td>Funding model underperforms</td>
<td>Medium</td>
<td>• Excellent marketing activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Demonstration of benefits to companies</td>
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<td></td>
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<td></td>
<td>• Modest targets of intake per annum</td>
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<td></td>
<td></td>
<td></td>
<td>• Accurate market assessment</td>
</tr>
<tr>
<td>Companies do not stay/pay</td>
<td>Financial strain on model</td>
<td>Medium</td>
<td>• High caliber management</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Ratio of 1:10 management staff to clients</td>
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<td></td>
<td></td>
<td></td>
<td>• Value added services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Contracts (fees and participation)</td>
</tr>
<tr>
<td>Management failure</td>
<td>Inadequate service provision</td>
<td>Medium</td>
<td>• Adequate funding for high caliber management</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Good board to attract high caliber management</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Selection of high caliber management</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• infoDev TA</td>
</tr>
</tbody>
</table>
| Model flaws               | Failure to reach targets | Medium | Ongoing model review annually as part of business planning  
|                          |                          |        | High caliber management  
|                          |                          |        | Board assistance in review and refinement |
| Board failure            | Inadequate leadership/governance | Low   | Board selection  
|                          |                          |        | Board training  
|                          |                          |        | High caliber incubator management  
|                          |                          |        | infoDev TA |
| Funders fail to support full cycle | Inadequate funding | Low | Donor consortium and coordination  
|                          |                          |        | Pre-implementation funding agreements |
13.0 CONCLUSION

Senegal has a tremendous agribusiness potential. The country has a rich variety of agricultural products and produces mainly fruits and vegetables. The horticulture sector presents many opportunities for developing agribusinesses. However, horticultural products remain largely unprocessed and not valorized. More coordination among the stakeholders notably in terms of innovation and financing support is needed to scale up the potential of small- and medium-scale processors for a robust agribusiness innovation ecosystem.

The establishment of the Agribusiness Innovation Center model in Senegal will serve to plug these critical gaps and accelerate the development, deployment, and transfer of agribusiness innovation. The business support services of the center include the following: a dedicated staff; business coaching and mentoring; an enabling environment facilitating networking and linkages with relevant stakeholders; and access to finance through the facilitation of a seed fund and commercial loans. Coordination among the existing agribusiness market players is a key success factor and will be one of the AIC’s main objectives.

The AIC will require an initial public investment of $8.7 million ($4.5 million for operation; $2.5 million seed capital fund and $1.7 million for implementation support). The AIC would be expected to reach 80 percent financial sustainability in year 6 (with depreciation charges) on the basis of fees charged to the client enterprises; an annual 5 percent fee on turnover and a 1 percent fee on finance raised.

The stakeholder engagement process has already built a strong coalition of partners and identified a pipeline of potential incubatees that will allow the AIC to hit the ground running and produce tangible impacts over the first six years. Pending the success and outcomes of the AIC’s programs, the Center’s direction, scope, and scale (and business plan) will evolve over time with the guidance from a strong management team and board.

Agribusiness-led growth has great potential to contribute to sustained economic development by enabling the development of sustainable innovative small- and medium-scale enterprises. The topic is currently on top of the donors’ agenda. The timing is right to capture the momentum on this issue and develop a leading and world-class institution in Senegal from which lessons learned will be applied globally.
ANNEXES

ANNEX 1: CONCLUSIONS OF INFODEV GLOBAL GOOD PRACTICES ASSESSMENT ON AGRIBUSINESS INCUBATION

In 2011, infoDev conducted a study of 10 agribusiness incubation programs located in 8 countries. The full study—as well as video documentaries of incubation programs in the mountainside of Java, Indonesia, and rural South Africa, as well as rural areas of Brazil, Chile and Mexico—can be found at http://www.infodev.org/en/Article.800.html.

Examples of the results generated by these programs include the following:

- Fundación Chile has spearheaded the development of the salmon industry that in a span of just slightly more than 10 years has been able to grow by a factor of 1,000 and contributed to $2.2 billion exports and more than 35,000 jobs.
- The efforts of Technoserve in Mozambique and Fundación Jalisco in Mexico have led to the upgrading of entire subsectors, such as poultry, cashew nuts, and blueberries.
- CENTEV-UFV in Brazil has developed a new model for commercialization of agricultural research in Brazil. It has cultivated such successes as a biotechnology business specializing in a fungus that protects plans from parasitic nematodes, a product that could help reduce the yearly $100 billion losses in world agriculture.
- Timbali Industrial Incubator in South Africa has transformed the life of poor women into assertive entrepreneurs in the highly competitive flower business.
- ABI-ICRISAT in India has supported the growth of successful biotech companies.
- IAA-IPB in Indonesia has promoted the growth of zero-stage enterprises owned by women into successful, competitive, and growing medium enterprises.

The table below provides a snapshot of the quantifiable outputs of these incubators vis-à-vis the public investment in them. The age of the incubators and the vastly different scale of investments must be taken into account when reviewing these results. It should also be noted that the “ROI” calculation does not take into account backward linkages—that is, while the calculations would include a processor who increased his/her sales by x, the increased income of the farmer who was able to sell more produce to the processor has not been taken into account. Neither has the impact on “copycats,” which adopted the production practices that were demonstrated and started or scaled their own businesses. Nevertheless, the calculations provide some indication of what results are achievable.
<table>
<thead>
<tr>
<th>Incubator</th>
<th>Graduates</th>
<th>Average Sales of Enterprises ($ million)</th>
<th>Nr. Of Years the Incubator Has Operated</th>
<th>Initial Investment in Incubator ($ million)</th>
<th>Total Sales of Graduated Enterprises ($ million)</th>
<th>“ROI” Enterprise Sales/Initial Investment in Incubator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundación Chile</td>
<td>85</td>
<td>5</td>
<td>30</td>
<td>50</td>
<td>425</td>
<td>2.3</td>
</tr>
<tr>
<td>CENTEV</td>
<td>24</td>
<td>2.5</td>
<td>16</td>
<td>0.7</td>
<td>60</td>
<td>60.4</td>
</tr>
<tr>
<td>Fundación Jalisco</td>
<td>4</td>
<td>1.25</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>IAA-IPB</td>
<td>38</td>
<td>0.21</td>
<td>16</td>
<td>0.3</td>
<td>7.98</td>
<td>18.7</td>
</tr>
<tr>
<td>Timbali</td>
<td>140</td>
<td>0.03</td>
<td>8</td>
<td>2.8</td>
<td>4.2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Not all the programs reviewed had been equally successful. In one case, an incubator focused on commercialization of domestic R&D had not yet achieved successful market entry. The review of the 10 programs, therefore, provided powerful insights into models that can be adopted, as well as factors that are critical to success.

It became evident that many viable models exist for agribusiness incubation. Selection of a model depends on the stakeholders’ core objectives, combined with the unique characteristics of the local business environment and the amount and nature of the funding available to initiate the incubation activity. A commonality of the case studies assessed in this report was that most were structured as public-private partnerships. Beyond that, there were significant differences. The report identifies three types of agribusiness incubators: (i) agribusiness sector/value chain incubators; (ii) agricultural research commercialization incubators; and (iii) technology transfer incubators. Within each type, there are significant differences in terms of public-private partnerships, affiliations, target clients, business models, and organizational design.

Based on the literature review and the case studies conducted, it appears that the success of agribusiness incubators in creating sustainable and competitive enterprises relies upon six factors. These factors include the ability of the business incubator to effectively—

1. Help the entrepreneur manage the risks associated with an agribusiness enterprise through a combination of technology, institutional, and networking strategies
2. Understand the value chain affecting the success of the enterprise and assisting the enterprise with positioning itself in the value chain by linking farmers and enterprises to meet the demand of consumers for stable, quality, and affordable products
3. Identify and demonstrate innovative business propositions so as to catalyze broader sectoral take-up
4. Adapt the focus and business model of the incubator, and strategically scaling it up in response to market opportunities and market failures
5. Promote pro-active business orientation that actively identifies market opportunities
6. Support incubation design basics: leadership with a business mindset and excellent agricultural market knowledge (preferably with agribusiness experience), a lean staff complemented by strong partnerships, an institutional framework that provides sufficient flexibility allowing for learning by doing, strong capital structure, and dense networks — including effective linkages with sector leaders.
The seasonality of horticulture products produced in Senegal poses challenges for agro-processors’ ability to stay in operation year-round. The “seasonality challenge” is exacerbated by the lack of adequate storage facilities, knowledge of preservation and processing techniques, and market opportunities, as well as inadequate access to capital and equipment. The table below illustrates the seasonality of the main horticulture products produced in Senegal.

<table>
<thead>
<tr>
<th>PRODUCE</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
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<td>TOMATO</td>
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<td>BISSAP</td>
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<td>SWEET POTATO</td>
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<td>PAPAYE</td>
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</table>

BLACK=Core Production Season  
YELLOW=Production Season, but Limited Supply
ANNEX 3: DIFFERENTIATION OF MARGIN AND ADDED VALUE RATES OF PROCESSED PRODUCTS

Products derived from fruits grown in Senegal can have vastly different margins as illustrated in the table below. Limited market knowledge prevents agro-processors from making informed decisions as to what products they should produce to maximize their income generating potential.

<table>
<thead>
<tr>
<th>PRODUITS</th>
<th>BISSAP</th>
<th>DITAKH</th>
<th>MANGUE</th>
<th>PAIN DE SINGE</th>
<th>MAAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gammes</td>
<td>Boisson (sachet de 25 cl)</td>
<td>Sirop (bouteille de 1 l)</td>
<td>Poudre (sachet de 250 gr)</td>
<td>Confiture (bocal de 800 gr)</td>
<td>Boisson (sachet de 25 cl)</td>
</tr>
<tr>
<td>Prix de vente (en FCFA)</td>
<td>100</td>
<td>1400</td>
<td>450</td>
<td>800</td>
<td>100</td>
</tr>
<tr>
<td>Marges (FCFA)</td>
<td>51</td>
<td>459</td>
<td>179</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>Taux de marge</td>
<td>51%</td>
<td>33%</td>
<td>40%</td>
<td>3%</td>
<td>32%</td>
</tr>
<tr>
<td>Taux de valeur ajoutée</td>
<td>54%</td>
<td>42%</td>
<td>41%</td>
<td>5%</td>
<td>33%</td>
</tr>
<tr>
<td>Taux de valeur ajoutée moyen</td>
<td>36%</td>
<td>31%</td>
<td>26%</td>
<td>58%</td>
<td>24%</td>
</tr>
</tbody>
</table>

19Pape Ndary Niang. 2006. Etude de la filière sénégalaise de transformation artisanale de fruits et légumes – Analyse de la chaîne de valeur, rapport provisoire. Dakar: PAOA.
## ANNEX 4: TECHNOLOGY PRIORITIZATION PER HORTICULTURAL PRODUCT

<table>
<thead>
<tr>
<th>Product</th>
<th>Peel</th>
<th>Pulping</th>
<th>Cutting</th>
<th>Pasting</th>
<th>Juicing</th>
<th>Concentration</th>
<th>Powdering</th>
<th>Gas drying</th>
<th>Solar drying</th>
<th>Jam &amp; Jellies</th>
<th>Marrakesh Paste</th>
<th>Pickles</th>
<th>Sauces</th>
<th>Syrups</th>
<th>Juice</th>
<th>Dry Cut</th>
<th>Dry Powders</th>
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<tbody>
<tr>
<td><strong>PRODUCE</strong></td>
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</tr>
<tr>
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<td></td>
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<td></td>
<td></td>
<td>Y</td>
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</tr>
</tbody>
</table>

**Technology Prioritization per Horticulture Products**
ANNEX 5: HORTICULTURE SECTOR VALUE CHAIN

A study carried out in 2006 on craft transformation of fruits and vegetables in Senegal provides a most comprehensive picture of the stakeholders involved in the horticulture sector in Senegal and their interaction.²⁰

The diagrams present the successive steps within the value chain highlighting the relationships among the stakeholders at different levels: production, procurement, transformation, and distribution:

- Production is carried out by “Producteurs / Exploitants” (in red).

- Harvesting is done by “Collecteurs / Cueilleurs” (in red and purple—on the left hand side of the diagram).

- The export of raw materials is done via industrial exportation units (in green) or dealers (in light blue)—on the left hand side of the diagrams.

- Raw materials are sold on rural markets to be consumed as fresh products or to the “Bana-banas” that will sell them to retailers (in orange) on urban markets (in purple) that are also provided with products from importation—on the right hand side of the diagrams.

- Products are processed by “Transformatrices” (in green) that sell their products to distributors (in light green) or directly to final consumers (in red).

²⁰Idem
La cartographie de la filière des produits agricoles étudiés se présente ainsi :

![Diagramme des filières agricoles sénégalaises de la mangue et du Bissap](Image)

Source : Enquêtes de marché, PNN, 2006

La cartographie de la filière des produits forestiers non ligneux étudiés se présente ainsi :

![Diagramme des filières forestières sénégalaises non ligneuses du Bouy, D handshake et Maad](Image)

Source : Enquêtes de marché, PNN, 2006
ANNEX 6: PROFILE OF ENTERPRISES SURVEYED

As part of the feasibility assessment, infoDev conducted a face-to-face interview-based survey of agro-processors.

Approximately three quarters of the 59 enterprises involved in the survey were located in the central region and one quarter in the North. This is believed to reflect the higher concentration of processing enterprises in the area between Dakar and Thiès.

More than three quarters of the companies interviewed had been in existence for longer than three years, while only 10 percent were recently established companies. This may be a function of their visibility for selection but the number of processing companies decreases from Dakar to Thiès and then to Saint Louis, where approximately half of the enterprises were in start-up phase.

In terms of personnel, all of the surveyed enterprises employ 15 people or less. Three quarters of the enterprises rely on temporary or seasonal workers.

In terms of revenues and profits, based on the data declared by the enterprises, almost 75 percent of them generate both while the remaining 25 percent are impacted negatively by poor sales or lack of profits or both.
ANNEX 7: THE ENABLING ENVIRONMENT FOR AGRIBUSINESS

As discussed in Section 3.2 and illustrated in the diagram below, a vast range of stakeholders affect the ability of processing companies to succeed.

The role of government, research institutes and financiers with respect to creating a conducive enabling environment for agribusinesses in Senegal is discussed in further detail below.

➢ The Role of the Government

The Senegalese Government finalized its Accelerated Growth Strategy in January 2007, which intends to help address cross-sector issues related to the investment climate and promote five specific sectors that are perceived by the government to have the highest comparative advantage for Senegal:

- Agribusiness
- Tourism
- Telecommunications and new technologies
- Textiles
- Fisheries
Linking production to marketing and trade, the SCA provides detailed measures to diversify agricultural and agrofood produce in domestic, regional, and international markets. The SCA also provides the basic principles for creating an investment-friendly business environment, a prerequisite to private sector development through the following:

- On the short term, to boost a growth cycle and to improve the competitive potential of the agribusiness sector.

- On the medium term, the objective of the SCA is to enable a modernized and dynamic sector, capable of adapting itself to the changing conditions of globalized supply chains (on both domestic and export markets). At this stage, the maintained growth should rely on a critical mass of performing enterprises and industries and an institutional and legislative framework enabling private investments.

The government of Senegal has directed a number of actions toward the development of commercial agriculture, including the following: making structural investments with donor support, such as building specialized infrastructure (post-harvest, storage and logistics); and improving the judicial framework. In addition, the Programme de Développement des Marchés Agricoles du Sénégal (PDMAS), an IDA-financed project, has focused on the expansion of agribusiness across the country through substantial investments in improved domestic market conditions, support to nontraditional agricultural exports, and demand-driven irrigation infrastructure.

However, as found in a 2008 study and validated through interviews in the feasibility assessment process, “(G)aps (still) exist between government strategies and the needs of the private sector. Despite recent improvements in the government’s capacity to formulate agricultural trade and industrial policies, neither has been able to fill the gaps and create an effective value chain for producers, exporters and food processors to enable them to link the provision of agricultural inputs, production, processing, logistics and marketing.”

The AIC will aim to contribute to strengthening select value chains and enable on-going dialogue between the public and private sector.

- **Research Institutes**

Several institutes in the country are dedicated to strengthen the knowledge, skills, and competences of agribusiness stakeholders, notably agribusiness processors:

- Institute of Food Technology (ITA) delivers training to entrepreneurs in processing technologies and focuses on developing and testing new products with pilot equipment.

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• Training Center for Careers in the Food Industry (IAA) supports young people and professionals to improve their processing and equipment maintenance capacity with pilot equipment.
• Technical College of Thiès—Research and Innovation Center provides training to technicians on agribusiness processing and equipment maintenance.

➢ Sources of Finance

To date, access to finance for agribusinesses—producers and processors—has been a challenge. Only a few organizations currently provide financial support to agribusinesses, namely:

• National Agricultural Credit Fund of Senegal (CNCAS) may finance investments and running costs via short and medium-term credit lines directly provided to entrepreneurs.
• Microfinance institutions provide limited loans and credit lines through cooperatives under less demanding conditions than commercial banks would.
• As far as commercial banks are concerned, their involvement in providing financial products to agribusinesses has been very limited to date. Nevertheless, they have recently expressed interest in developing a new business line that provides financial support services to small- and medium-size enterprises, notably in the agribusiness sector. The AIC will take necessary measures to facilitate this new trend.

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Donors’ Mapping

Based on 2008 data, donor support to agro-based private sector development in Senegal appears was allocated as follows:

- 75 percent—hard investment, including transport, energy and rural irrigation
- 3.8 percent—food security and rural development
- 8.5 percent—transforming production-focused agriculture to market-oriented agribusiness (that is, commercial agriculture)
- 6 percent—environmental protection

Donor support can further be depicted as illustrated in the diagram below.

---

When adopting a value chain approach to work on agro-based private sector development, donors tend to focus on the agricultural value chain as a whole, not necessarily on select agribusiness subsectors value chains.

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ANNEX 8: STAFF REQUIREMENTS

The table below illustrates the staffing profiles and roles needed to effectively deliver on the AIC as outlined. Depending on the existing competencies of the host organization of the AIC and the consortium of partners, some of these functions could potentially be outsourced.

<table>
<thead>
<tr>
<th>STAFF</th>
<th>MAIN ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AIC Manager</td>
<td>General management of the AIC, including day to day operational management and strategic planning</td>
</tr>
<tr>
<td></td>
<td>Interaction with key stakeholders, media, other organisations, and individuals to position the AIC as the premier support organisation for post-harvest agribusiness development.</td>
</tr>
<tr>
<td></td>
<td>Provision of business advisory services to entrepreneurs.</td>
</tr>
<tr>
<td></td>
<td>Fundraising (e.g., proposal writing or donor management.)</td>
</tr>
</tbody>
</table>

A seasoned business manager who has:

- a strong knowledge of SME development.
- agro industrial background, preferably having controlled significant enterprises (e.g., over $10 million turnover) for a minimum period of 5-10 years.
- strong experience in business management backed by relevant tertiary expertise
- good deal-making and negotiation skills.
- good people management skills.
- innovative, enthusiastic personality with strong leadership skills.
- an ability to transfer knowledge, conduct training, and facilitate human resource development.
2. Process Expert (hygiene, process, and others)
An expert in food processing with:
- ten years experience in general food processing.
- experience in process and product development.
- an ability to train and demonstrate to AIC type clients.
- Working on site with enterprises to improve quality and hygiene.
- Assisting enterprises to reduce waste and improve efficiencies.

3. Technical Manager (Packaging)
An expert in the technical aspects of food processing, specifically having:
- five to ten years of experience in the operation of vertical and horizontal form, fill, and seal machines using augur, volumetric cup, and multi-head weighers.
- knowledge of the formulation of packaging requirements, including materials, plate design, and reel material specifications.
- technical skills for troubleshooting routine problems (e.g., PLC programming; eye mark line-up; pneumatics; or electrical).
- skills in package design to improve marketing outcomes.
- an ability to train and transfer knowledge in operation of equipment and the technical and design aspects of packaging materials.
- experience in sourcing cost effective packaging machinery and consumables.
- Working with enterprises to identify appropriate packaging formats and materials.
- Assisting enterprises to acquire the correct packaging materials and packaging equipment.
- Assisting the enterprises to commission and operate the packaging equipment.
- Assisting enterprises in troubleshooting and repair and maintenance of the equipment.
- Guiding enterprises in branding color choices and others.
4. Market development manager
An experienced deal maker who can;
- undertake market assessments to identify new sales opportunities.
- move the sales cycle from initial market opportunity assessment to sales.
- Work with AIC clients to understand their products, product positioning and sales, and marketing strategies and to improve these where required.
- identify potential vendor relationships and negotiate favorable trade terms and identify, communicate, and manage the process required to deliver products on time, on target, on budget, and in compliance with requirements.
- identify raw material procurement opportunities and negotiate good deals for procurement.
- Working with enterprises to identify market needs and market requirements for current and future products.
- Sourcing deals for AIC clients.
- Sourcing procurement opportunities.

5. Financial Manager
A qualified financial manager with the ability to
- manage the accounts of the AIC.
- provide advisory services to the clients of the AIC.
- advise on general financial management.
- track the performance of the seed fund.
- General financial management of the AIC with reference to income and expenditure streams.
- Support and advisory to the enterprises in establishing and improving financial management practices.
- Strategic advice to the AIC Manager on service pricing and income generation.
- Support to the business advisors with specific and higher level structuring of deals and associated pricing and costing.
6. Business Advisor (x 2 in a phased appointment process)

An expert in business management with:

- general business skills gained with both academic and experiential learning.
- a higher degree and up to date understanding of managerial techniques.
- experience in guiding entrepreneurs through coaching and mentoring activities.
- specific areas of expertise are required in following: marketing, sales, strategy, operations, logistics (import/export practices); finance and accounting; and human resource management.

- Coaching and mentoring of enterprise staff
- Diagnostics and business analyses;
- Assistance with business system development in enterprises.
- Management of enterprises against agreed targets.
- Oversight of the financial management with special regard to use of funds rose.

7. Reception/Administrative assistant

A general assistant to manage the day to day administrative affairs of the AIC and with skills in:

- reception/guest relations.
- public relations/marketing.
- general administration, typing, and so on.

- General administration and reception activities.
- Handling marketing administration.
- Assistance in the development of public relations materials.
- Event coordination.
ANNEX 9: AIC’S PROSPECTIVE CLIENTS

The financial plan was built on an expected 75 companies supported per year (from year 3). The first two years of the AIC program will be dedicated to building the pipeline of enterprises to be supported. The deal flow seems realistic:

- In the region of Dakar / Thies / Pout, two associations of around 150 members each of level 2 enterprises have been identified. We assume AIC selects 30 Level 2 enterprises each year for a one-year program. Of these, only 20 will go toward year 2 programs and of these only 10 enterprises go into year 3 of the AIC program. The number of enterprises supported by the AIC decreases progressively as enterprises enter each yearly program.

- As far as Level 3 enterprises are concerned, the AIC will support five enterprises during year 1 and 10 enterprises each year thereafter for a one-year program. Of these, half go toward the year 2 program.

The deal flow of enterprises is captured in the table below:

<table>
<thead>
<tr>
<th>CLIENT NUMBERS PER YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>2</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<tr>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>
Deal Flow of AIC’s Enterprises

Companies enter the AIC for a three-year period (Level 2) and two-year period (Level 3).

Thus, the AIC takes in 30 Level 2 companies each year and over five years it admits 150 companies. For Level 3, it takes in an average of 10 companies each year (with the exception of five in the first year, this adds up to 45). So in total 195 NEW entrants are accepted.

For the second year of the Level 2 enterprise support program, only 20 of the 30 companies accepted in Year 1 are admitted to Year 2 and of these, only 10 move through to the third year. For level 3 companies only five of the initial 10 Year 1 admissions are accepted to go through to Year 2.

Thus for statistical purposes we have 195 companies supported of which 195 receive one year of support; 98 receive two years of support and three receive three years of support, as captured in the table below.

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>CUMULATIVE CLIENTS</th>
<th>TOTAL/PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
<td>PHASE</td>
<td>Year 0</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
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<tr>
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<td>3</td>
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<td>3</td>
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<tr>
<td>TOTAL</td>
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<td>0</td>
</tr>
<tr>
<td>NEW</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>CUMULATIVE</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
AIC’s Cumulative Client Enterprises

On the assumption that Level 2 turnover increases by 1.5x in Phases 1 and 2 (combined); and 1.5x in Phase 3 and Level 3 turnover increases by 1.5x; the table below captures the combined turnover of the supported enterprises.

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>PHASE</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<tr>
<td>2</td>
<td>1</td>
<td>0</td>
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<td>4875000</td>
<td>4875000</td>
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<td>2535000</td>
</tr>
<tr>
<td>TOTAL</td>
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<td>6825000</td>
<td>14521000</td>
<td>18281250</td>
<td>18281250</td>
<td>18281250</td>
<td>18281250</td>
<td>18281250</td>
<td>18281250</td>
<td>18281250</td>
<td>18281250</td>
</tr>
</tbody>
</table>

Combined Turnover of AIC’s Client Enterprises
A 10 percent royalty on turnover may reflect as approximately 50 percent of operating profit as it appears gross profits are around 50 percent and operating profits are around 20 percent, and this is not considered a viable payment. However, given that growth needs to occur to convince entrepreneurs to pay a royalty fee, if there is a 40 percent growth in turnover and an improvement in both gross profit and operating profit because of the interventions, a 5 percent royalty on turnover translates to around 18 percent of operating profit. This may be considered too high until it is realized that the increase in turnover, growth profit, and operational profit in absolute terms from the intervention are sufficient to not only pay the royalty but also to leave the entrepreneur with additional profit after the payment. In effect, entrepreneurs paying 5 percent of turnover who experience turnover growth and some efficiency gains are sacrificing slightly less than as the extra profitability they gain for the period of support. Thereafter, the gain is totally theirs and thus they are in effect, bartering their growth against the cost of support needed to achieve this.

This is depicted in a simple example below. This calculator highlights the benefit of agreeing to pay a percent of turnover and demonstrates just how far we can go with the percent before it turns negative for the entrepreneur. A percent royalty and with an increase in turnover you pay a certain amount. Then with an assumed Gross Profit and Operating Profit, you can see whether the entrepreneur gains or loses. Scenario 2 changes the percent Gross Profit and percent Operating Profit, because we assume that not only will our intervention increase turnover but also help internal efficiencies. This demonstrates how we can charge what may seem to be a high percent of Operating Profit without damaging the business.
**ANNEX 10: SETTING A ROYALTY FEE**

Royalty | 5.00%
---|---
Growth in turnover | 30.00%
GP % of turnover | 50.00%
OP% of GP | 18.00%

**SCENARIO 1. AN INCREASE IN TURNOVER WITH NO CHANGE IN GROSS PROFIT (GP) OR OPERATING PROFIT (OP) AS A % OF TURNOVER (i.e. increased turnover with no efficiency gain from intervention)**

<table>
<thead>
<tr>
<th></th>
<th>BEFORE</th>
<th>AFTER</th>
<th>Royalty fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>100.00</td>
<td>130.00</td>
<td>6.50</td>
</tr>
<tr>
<td>GP</td>
<td>50.00</td>
<td>65.00</td>
<td></td>
</tr>
<tr>
<td>OP</td>
<td>9.00</td>
<td>11.70</td>
<td></td>
</tr>
<tr>
<td>OP% of turnover</td>
<td>9.00%</td>
<td>9.00%</td>
<td></td>
</tr>
<tr>
<td>Royalty % of OP</td>
<td>0.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Gain in OP ($)       | 2.70    |
| Payment ($)          | 6.50    |
| Nett gain ($)        | -3.80   |

Royalty of 5.00% and growth of 30.00% confers additional income of -$3.80
SCENARIO 2. AN INCREASE IN TURNOVER WITH AN INCREASE IN GP and OP (that is, some efficiency gain from intervention)

<table>
<thead>
<tr>
<th></th>
<th>BEFORE</th>
<th>AFTER</th>
<th>Royalty fee</th>
<th>Royalty of 5.00% of OP and growth of 30.00% confers additional income of $6.34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>$100.00</td>
<td>$130.00</td>
<td>$6.50</td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>$50.00</td>
<td>$78.00</td>
<td>GP increased to original + 10% due to intervention</td>
<td></td>
</tr>
<tr>
<td>OP</td>
<td>$9.00</td>
<td>$21.84</td>
<td>OP increased to original + 10% due to intervention</td>
<td></td>
</tr>
<tr>
<td>OP% of turnover</td>
<td>9.00%</td>
<td>16.80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Royalty % of OP</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain in OP ($)</td>
<td>12.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment ($)</td>
<td>6.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net gain ($)</td>
<td>6.34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**ANNEX 11: PHASING OF ENTERPRISE SUPPORT**

Different types of support will be required, depending on the stage and targets of the client enterprises. Below provides an overview of how support could be phased for Level 2 and Level 3 companies.

**Level 2 Companies**

<table>
<thead>
<tr>
<th>EXISTING PRODUCT</th>
<th>NEW PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE 1: Strengthen product/market position</td>
<td>PHASE 2: Encourage new products</td>
</tr>
<tr>
<td>PHASE 2: Support new market access</td>
<td>PHASE 3: Expand new product markets</td>
</tr>
</tbody>
</table>

**Phasing of Support to be Provided to Level 2 Enterprises**

**Phase 1**

The context of Level 2 enterprises has been described previously and based on this: the AIC will initiate Phase 1 support to strengthen current activities with existing products in existing markets. Incremental improvements, both technical and managerial, will be the key focus in Phase 1. Improvements in procurement, processing technology, packaging and sales approaches could reduce costs, improve quality, and expand existing markets and strengthen these enterprises for later phases.

Phase 1 support would last for one year since it is seen as a “means to an end” in preparing Level 2 enterprises for accelerated growth.
Phase 2—New Markets

Phase 2 would use the advances made in better procurement, additional equipment availability, more hygienic and advanced processing, better quality packaging and branding and improved managerial capability to access new markets, such as small “supérettes” or distributors.

Phase 2 may progress very fast for some enterprises but the test of competitiveness (as a proxy for market acceptance of a good quality, available and well-priced product) will be measured by the consistency of demand over time. Hence, this phase may last six months to a year and it may also run concurrently with Phase 1 in some enterprise contexts.

Phase 2—New Products

Phase 2 will mark the product expansion phase and will signal a stable enterprise with adequate and constant income and with the resources and managerial skill to venture into new products. New products will require investment in product development, test marketing, packaging, and sales and this will be encouraged and supported in enterprises that have the capability to do this. Access to equipment to prepare new products will be facilitated through such existing organizations as ITA and IAA. This reduces investment risk and allows test marketing in known markets.

Since new product development and testing requires a focus on both product and packaging, and because there is a definite lack of good packaging equipment for Level 2 enterprises, and because consumer perception is a critical decider of purchase interest in Senegal, the AIC will procure, site, and make available suitable packaging machines for vertical form, fill, and seal activities (solids), label applicators (direct on package, date, and code stamping), and others.

Phase 2 activities may require a year of support to test reliability of test market outcomes. From a managerial and business expansion perspective, this represents adequate time for scale adjustment (for example, developing accounting or distribution changes that keep pace with growth).
Phase 3

Phase 3 activities represent the pinnacle of new growth with new products expanding into new markets. While these can be export markets, national distribution of new products offers significant potential in Senegal in all the product categories under consideration by the AIC.

Market expansion is a complex process, especially with new products as it taxes general management and finance, logistics, and marketing in particular. It can be a significant drain on resources and must be well managed. The AIC will offer support in collaboration with partners, such as export promotion agencies, financiers, and logistics linkages.

Phase 3 will begin in the third year for most companies and will be supported for at least a year.
Level 3 Companies

While Level 3 enterprises will be supported with all the interventions proposed for Level 2 enterprises, the needs differ in some areas and so the following additional interventions and phasing are proposed.

**Phase 1**

Unlike the approach proposed for Phase 1 interventions in the Level 2 enterprise category, it is more apparent that Level 3 enterprises have established markets and well-accepted products. Their stability extends into supply and distribution chains and their managerial capacity is more enhanced.

As such, Phase 1 for Level 3 enterprises will address their needs to focus on both new market expansion and new product development. The AIC will support new market access with existing products and encourage these enterprises to “experiment” with new products. In both cases, strong market research driven initiatives will underpin the move into each area to lower the risk of failure.
Access to the technical expertise and the equipment needed to succeed in this phase will be facilitated by the AIC.

Phase 1 is likely to require at least a year of support.

**Phase 2**

The final phase in support of the Level 3 enterprises will be to expand their new products into new markets. Given the enterprises' strength, managerial capability, and growth focus, this phase is likely to focus on either high-level import substitution and/or export markets with high quality, in-demand products in well-designed and composed packaging and with the necessary distribution channels defined and operational.

Phase 2 is likely to require one year of support.

In both phases, commensurate managerial and advisory service provision will be paramount to overcome the barriers to growth that are particularly apparent at this level and for growth within Level 3.
Key performance indicators are in 4 key performance areas (KPAs):

1. Customers
2. Financial
3. Human resources
4. Innovation

<table>
<thead>
<tr>
<th>Focus area</th>
<th>Indicator</th>
<th>Measurement</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>Customer satisfaction —also calling for suggestions for improvement</td>
<td>Bivariate client satisfaction survey with all resident and affiliate clients. A bivariate survey measures the satisfaction for particular service elements as well as the relative importance of each to the client. The 1st survey sets the baseline for subsequent improvement. Anonymity is important for honest feedback and will be achieved with a ballot box system, if clients do not want to email completed forms back to the incubator. Another alternative is a web-based survey conducted by a reputable and independent company.</td>
<td>Annual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workshop and event evaluation of satisfaction, content, and presenters.</td>
<td>Every workshop and event</td>
</tr>
<tr>
<td>Client Business Performance</td>
<td>Outcomes survey</td>
<td>Turnover —against actual targets form the model. Employment Wages paid Investment Business survival—expecting 80 percent of clients and graduates to survive for at least a</td>
<td>Annually and for five years after graduation</td>
</tr>
</tbody>
</table>
A five-year period after graduation (the monitoring period).

Business growth—by comparing the figures for the different years.

Formal client performance reviews, noting informal contact with clients on a daily and weekly basis is still crucial.

Frequency set on entry, but typically quarterly. More frequent for high tech.

<table>
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<tr>
<th>New clients, industry and type: service or technology</th>
<th>Clients entering the AIC compared to the targets.</th>
<th>Monthly and quarterly reporting to the board.</th>
</tr>
</thead>
</table>

| Graduation Clients graduating and period under support (average three to four years anticipated). | From client records with quarterly reporting to the board. |

| Financial Efficiency Budget versus actual and variance. | Quarterly reporting to board. |

| Human Resources Staff satisfaction Bivariate independent staff satisfaction survey —1st survey sets the base line for improvement. Anonymity is crucial and it will need to be conducted by a reputable independent company, ideally with a web-based survey instrument. | Annually |

| Innovation New programs Progress developing and implementing new programs. | Annual review of business plan and specified new projects. |
Once the board agrees to performance indicators, individual key performance indicators for each staff member will be negotiated with the staff member related to these organizational indicators.
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