

# Local Seed Business in the Context of Integrated Seed Sector Development

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## Abstract

Quality seed is a key input for agriculture, with a direct impact on agricultural production and productivity. Integrated seed sector development (ISSD) is an inclusive approach that recognizes and builds upon a diversity of seed systems in the sector. We use the ISSD approach to guide us in the design and implementation of seed sector interventions that are complementary to farmers' practices, with the main aim of increasing farmers' access to quality seed of superior varieties. In working with the ISSD approach, we recognize a number of guiding principles. In this paper, we describe these principles, and provide examples of how we work with the system of local seed business (LSB) in the ISSD programs in Ethiopia and Uganda. We recognize that LSBs offer an important service to communities by providing access to quality seed of crops and varieties that cannot be obtained reliably through other sources. The guiding principles help us to work towards the development of sustainable LSBs. Within the context of ISSD Africa we will continue to investigate and design interventions to address challenges in seed sector development, focusing on a select number of themes that are relevant to the LSB context.

## 1. ISSD and agricultural development

In many Sub-Saharan African countries, agricultural development is key to accelerating economic development and overcoming poverty. Increasing agricultural production and productivity is vital for food security, since it provides a source of food and generates income for smallholder farmers. Growth in agricultural production also stimulates growth in other sectors of the economy. Limited availability of, and access to, quality seed is often regarded as one of the main obstacles for increasing production and productivity levels.

Integrated seed sector development (ISSD) is an inclusive approach that recognizes and builds upon a diversity of seed systems in the sector. Rather than promoting linear, generic and/or independent development pathways, it promotes the complementary development of seed systems (Louwaars and de Boef 2012). We use the ISSD approach at the Centre for Development Innovation (CDI) of Wageningen University & Research Centre (Wageningen UR), and at the Royal Tropical Institute in Amsterdam (KIT), in collaboration with a range of international and national partners in Africa, to guide us in the design and implementation of seed sector interventions coherent with farmers' agricultural practices. We do this with the main objective of enhancing farmers' access to quality seed of superior varieties to contribute to food security and economic development. Superior varieties refer to both improved and local varieties favored by farmers.

In working with the ISSD approach, we have identified a number of guiding principles that help us in the design of seed sector interventions. These principles are as follows:

- foster pluralism and build programs upon a diversity of seed systems;
- work according to the structure of the seed value chain;
- promote entrepreneurship and market orientation;

- recognize the relevance of informal seed systems;
- facilitate interactions between informal and formal seed systems;
- recognize complementary roles of the public and private sector;
- support enabling and evolving policies for a dynamic sector;
- promote evidence-based seed sector innovation.

In this paper, we illustrate these principles with examples of how we work with the system of local seed business (LSB) in the national ISSD programs of Ethiopia and Uganda. These two programs specifically support farmers' groups in their development into LSBs, i.e. autonomous seed entrepreneurs, who produce and market quality seed for local markets at the professional level (see also those papers in the conference proceedings by Amsalu *et al.* and Mastenbroek *et al.*).

## 2. ISSD guiding principles: Supporting the development of LSBs in Ethiopia and Uganda

### 2.1. Foster pluralism and build programs upon a diversity of seed systems

This is our first guiding principle. In order to work with the ISSD approach we need to understand and acknowledge the coexistence of the seed sector's multiple seed systems. Seed systems can be characterized on the basis of the domains in which they operate (public, private, informal, formal, mixed); the type of crops involved (food crops, cash crops); the type of varieties used (local, improved, exotic, hybrid); and the type of seed quality assurance mechanisms (informal, truthfully-labelled, guaranteed/standard, quality declared seed, certified), and seed dissemination mechanisms (local exchange, seed fairs, agro-input distribution schemes, agrodealers), in operation. In reality, farmers gain access to seed from different seed systems, e.g., they may save their own seed of sorghum; access seed potatoes through community-based seed production schemes; buy hybrid maize seed from national seed companies, or onion seed from international seed companies. Each seed system has its own values and limitations and requires a unique approach towards strengthening it.

The ISSD programs in Ethiopia and Uganda strive for the development of LSBs. Using non-program jargon, the programs support farmers' groups in the process of developing their organizations into community-based small business enterprises for the production and marketing of quality seed. The programs recognize the specific niche for these LSBs in providing farmers with access to quality seed of those crops and varieties that have high local demand and are often extremely important for local food production and cultural practices, but are ignored by the larger private and/or public companies because the demand and profit margins are too small. The LSBs provide a service to the community in making affordable quality seed of these crops and varieties available and accessible (MacRobert 2008); when seed production and seed quality control are conducted at local level, the costs normally associated with seed transportation and centralized seed certification are reduced.

### 2.2. Work according to the structure of the seed value chain

A seed value chain covers the process of activities from plant genetic resource management, variety development, early generation seed production, and seed multiplication to seed distribution and marketing. We map the operators, service providers and the institutions of the enabling environment in specific seed chains, which differ between crops, but most significantly between different seed systems. The objective is to design strategies to enhance the efficiency of the seed value chain. The importance of farmers as seed users and drivers of the chain is emphasized.

In Ethiopia, we consider the seed production and marketing activities of LSBs through a value chain perspective. One key intervention area of the program is that of supporting LSBs in their

identification of strategic linkages to important input and service providers, and to markets that sustain the organization in its business operation and control. We facilitate linkage between LSBs and agricultural research centers for gaining access to new varieties and early generation seed as an input for commercial seed production. We also support LSBs in the process of identifying and supplying their products to different seed buyers and markets. Local partnerships are established, through memoranda of understanding with local governmental and non-governmental organizations, for the effective and efficient division of responsibilities in support of local seed business plans.

Since the ISSD program in Uganda only started in 2013, our focus has been on understanding seed value chains of crops with local demand. Crops such as bean, groundnut, cassava, rice and potato emerged as crops with potential for LSB seed production. For these crops, value chain analysis is in progress with the aim of supporting farmers' groups in linking with actors higher up the value chain. Linkages between agricultural research, public breeders, government extension service providers, agro-dealers and farmers are created through various multi-stakeholder forums.

### **2.3. Promote entrepreneurship and market orientation**

The value chain approach is linked to the guiding principle of promoting entrepreneurship and market orientation. We see entrepreneurship as a way of making a business out of seed production and distribution, and/or related seed services. We focus on entrepreneurship since, by its definition, it is market oriented and an important incentive for sustainable development. Entrepreneurship and market orientation can be promoted in both formal and informal seed systems, for private as well as public actors in the seed value chain.

In ISSD Uganda and Ethiopia, we see LSBs as community-based seed production models implemented by entrepreneurial farmers, who see business opportunities in the production and marketing of quality seed, fulfilling a niche in the market. In Ethiopia, a PhD study examines the market orientation of LSBs and investigates the commercial sustainability of the LSB model.

In Uganda, the program recently conducted a household survey on access to seed, and developed seven seed value chain studies for respective seed commodities to reveal farmers' contemporary sources of seed, and to identify which crops and varieties have clear market demand. Findings relate to the types of seed that farmers within and outside the community are willing to buy, what price they are willing to pay, and how stable the demand is. We realize that the farmer-saved seed system is the biggest 'competitor' to LSBs, as the farmers are highly effective in disseminating promising varieties. Care has to be taken that distribution of free seed by the government and its development partners does not bypass local business initiatives, and that the development of a market-oriented seed sector is promoted.

### **2.4. Recognize the relevance of informal seed systems**

Despite all past public and private efforts in seed sector development, informal seed systems continue to dominate in most developing countries, supplying more than 80% of the total seed used by farmers. Farmers rely on the farmer-saved seed system, in which seed production is integrated into crop production for many locally important crops, as seed is simply not available through other sources. Informal seed systems are key for smallholder farmers in relation to food security and promoting resilience in the face of increasing uncertainty.

Local seed businesses form an important bridge between the formal and informal systems. Linked to public breeding programs, LSBs are a vector for introducing improved varieties to farmers, who, in turn, save, recycle, share and exchange seed. In Ethiopia, seed producer cooperatives, have played a pivotal role in introducing the highly productive teff (*Eragrostis tef* (Zucc.) Trotter) variety called *Kuncho* to farmers; access to this new variety through LSBs has meant that farmers have been able to widely disseminate the germplasm of this promising variety through various informal channels. Since LSB members are also farmers, who maintain and exchange their own saved seed, they possess key market intelligence for commercializing promising seed technologies. Informal systems house

considerable knowledge on genetic resource management and use that can be used to identify which genetic traits are preferred within the community, and are most suitable for local agro-ecological conditions; and to understand traditional farming practices (De Boef *et al.*, 2013).

In Uganda, the distance to agro-input dealers, the questionable reputation of seed supplied by the formal sector; and the non-availability of the requested variety, provide significant motivation to farmers to buy seed from LSBs. At the same time, the market survey showed that the lack of access to credit to buy quality seed and other agricultural inputs deters farmers from becoming customers of LSBs.

## **2.5. Facilitate interactions between informal and formal seed systems**

Farmers and formal sector professionals may be linked in various ways through different components of the seed chain. For example, in genetic resource management the systems may be linked through supporting community biodiversity management (CBM). In variety development, professional breeders and farmers may interact through participatory variety selection (PVS). In seed production, farmers' seed management practices may be strengthened through seed advisory services and linkage to formal research and seed technology development centres. In seed dissemination, informal and formal systems may be linked through the establishment of local seed outlets in farming communities.

In ISSD Ethiopia, PVS has become common practice in local seed business (Mohammed *et al.*, 2013). Participatory variety selection is a practical means of developing the crop variety portfolios of LSBs. Diversity in their portfolios has proven paramount to success and sustainability; the knowledge and capacity required to produce and market a wide range of products suitable for local production systems that are dynamic and challenged with uncertainty keeps them competitive in their business. Producing seed of vegetatively propagating and self-pollinating crops, which the farmers themselves can also easily reproduce, requires that LSBs have access to a continuous influx of new varieties that are not yet on the market.

## **2.6. Recognize complementary roles of the public and private sector**

Different stakeholders in the sector have different objectives and interests in seed sector development, but also complementary roles to play; the same applies to the public and private sector. Generally speaking, two main forces are at play: development-led and market-led seed value chain operation. The public sector follows a development agenda on seed and food security, focusing on the production of quality seed of improved varieties of the main food crops. The private sector strives for efficiency and effectiveness in product development for maximizing profit, and thus has a generally good understanding of what the market demands. It is the government's role to create an enabling environment for quality seed production by integrating food security and economic development objectives.

In Ethiopia, public organizations are quite dominant in the seed sector, making use of considerable state and donor investments in the governance and coordination, as well as the operation, of seed value chains. They are also faced with many challenges, and are limited in their capacities to implement activities effectively and efficiently. Supporting the emergence of local private enterprises, including those of farmers' organizations, can complement, strengthen and optimize the utilization of public resources. An emerging private sector shares in the capital investment and risks taken by the Ethiopian Government and its development partners. Furthermore, refocusing the existing allocated budget to support emerging enterprises like LSBs in a more demand driven way can, in turn, lead to greater market orientation in the delivery of quality seed to smallholder farmers. As opposed to public organizations taking the lead in producing seed for the local market, LSBs are well positioned to do so in an entrepreneurial way. This is evident in how public-funded input and service delivery in Ethiopia assists LSBs in producing and marketing locally preferred seed products at a price still affordable to the smallholder farmer.

In Uganda, breeding is almost exclusively carried out by the public sector. For commercial crops, the Alliance for a Green Revolution in Africa (AGRA) encourages public breeders and private companies to collaborate in the production of Foundation seed. Particular varieties are allocated to specific seed companies, which produce agreed quantities of Foundation seed under the supervision of the breeder. The ISSD program has adopted a similar approach for food security crops that have a lower commercial value and are not interesting for the private sector. One LSB has started producing Foundation seed for other LSBs to multiply commercially.

## **2.7. Support enabling and evolving policies for a dynamic sector**

With ISSD we aim to make seed policies more coherent with the practices and realities of farmers, and advocate for enabling and evolving policies that support a dynamic sector. Policy frameworks should support the strengthening of multiple seed systems and not strive single-mindedly towards one general presupposed norm or ideal. Appreciating the dynamics of the agricultural sector, these policies need to be able to accommodate changing circumstances (Louwaars *et al.* 2013).

In Ethiopia, the recently approved Seed Proclamation and the amended Proclamation on Plant Breeders' Rights (in draft) recognize the interests and importance of both formal and informal seed systems. Currently, the ISSD Ethiopia programme is working on the development of technical guidelines for quality declared seed (QDS), as a less intensive, less costly, and more decentralized system of seed quality control. Quality declared seed should provide LSBs with an alternative means to ensure the quality of their products at a lower cost, thereby increasing the availability of quality seed in the market at a more affordable price. As in Ethiopia, discussions are taking place between different stakeholders in the Ugandan seed sector on how to include the informal seed systems in national seed policy, and how to acknowledge the value of seed produced by LSBs through a formally recognized, albeit more decentralized, system of external quality control.

## **2.8. Promote evidence-based seed sector innovation**

Last, but not least, through the ISSD approach we promote evidence-based seed sector innovation, supported by multi-stakeholder seed sector innovation platforms at various levels. We support research and studies that provide evidence for the design and implementation of seed sector interventions. We facilitate stakeholder partnerships to jointly experiment with innovative approaches towards solving key seed sector bottlenecks. Accordingly, knowledge institutes are natural partners in ISSD.

Through the coordination role of five universities in ISSD Ethiopia, the program easily links research and innovation to practice and policy in the seed sector. One example relates to the involvement of Wageningen University Marketing and Consumer Behaviour Group, which assisted in the development of a framework of critical success factors for local seed business, based upon the seminal works of Cooper (1999). Cooper analyzed the critical success factors that set successful businesses apart from their competitors. Complemented by De Boef *et al.* (2010), who analyzed the principles of robustness within seed systems, indicators were developed, and the framework was used in LSB baseline and subsequent monitoring studies, providing an evidence basis for developing joint action plans (Subedi and Borman 2012).

## **3. Conclusions**

ISSD programs aim to strengthen different seed systems and support the development of a vibrant, pluralistic, and market-oriented seed sector. By cultivating an enabling environment for innovation and the coexistence of different seed systems, a wider range of farmers and seed entrepreneurs can benefit. Increased access to quality seed will support food and nutritional security and economic development through agriculture. We use the guiding principles as a tool to help us in the design of such effective seed sector development programs.

In the ISSD Ethiopia and Uganda programs, the guiding principles help us to work towards the development of sustainable LSBs that provide an important service to communities by improving their access to quality seed of crops and varieties that cannot be obtained reliably from other sources. Currently, a PhD student is researching the market orientation and sustainability of the LSB model in different contexts. We are also in the process of designing an ISSD program for Ghana, with a strong emphasis on informal seed systems.

At a continental level, the ISSD Africa program (ISSD Africa 2012; 2013) has assessed the seed sectors of eight countries (Burundi, Ethiopia, Ghana, Mali, Malawi, Mozambique, Uganda and Zambia), using consultants and national task forces. The assessments identify bottlenecks obstructing integrated seed sector development, but also opportunities for promoting entrepreneurship across a number of seed value chains in the seed sector. Here, the system of LSBs was evaluated in several different contexts. The results are published in briefing notes aimed at informing policymakers and practitioners of the realities faced by farmers in gaining access to quality seed.

By applying the ISSD approach, the ISSD Africa program will continue to investigate and design interventions for challenges in seed sector development, focusing on a select number of themes. These themes include: (i) addressing common challenges in promoting entrepreneurship in seed value chains; (ii) promoting access to varieties in the public domain; (iii) matching global policy commitments with national realities; and (iv) supporting seed sector development in the context of the African Seed and Biotechnology Programme (ASBP) of the African Union Commission, and the Comprehensive Africa Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD). All four of these themes are relevant to the LSB context, whether it be through creating an enabling environment with incentives for strengthening entrepreneurship in this system; ensuring that public investments in the development of improved seed technologies benefit the intended end users; or through combatting the counterproductive implementation of state policy commitments that are linear in their perspective on strengthening formal seed systems, regarding themes i. through iii., respectively. With special emphasis on the process towards national CAADP compact ratification, targeting such significant investments in African agriculture, and aiming to achieve annual productivity increases of no less than 6%, cannot be achieved without a strategic outlook on the development of seed systems and the contribution that smallholder farming systems can play in transforming this sector.

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