

Promoting Integrated Seed Sector Development



WHY does the seed sector demand an alternative approach?

Ineffectiveness of the linear model

In the 1970 and 1980s, public seed programmes in most developing countries targeted the dissemination of quality seed of improved varieties, assuming that the informal seed system and local varieties would gradually disappear. The approach used in those programmes directed the seed sector along a fixed pathway, from informal systems to economically viable commercial seed systems. To be successful, governments had to take the necessary policy measures, i.e. facilitate or promote investment and ensure regulation. The public sector, and also major seed programmes, guided the transfer of the seed sector to the next development stage, from informal to fully commercial. The linear model has been the dominant model in agricultural development for the past four decades, but it has reaped meagre success in Africa and in many other developing countries in Asia. Major crops and farming systems still lack quality seed and improved varieties, limiting contributions to the required increase in productivity and production. The informal seed system remains dominant, despite being ignored by both seed programmes and policies.

Inadequacy of the privatization approach

In the 1980s and 1990s, seed policies followed the general economic trend of structural adjustment, which forced the transformation of public seed units into private or public market and profit-oriented seed enterprises. This transformation resulted in a shift in focus of the sector and most programmes towards just a few commercially interesting crops, most notably maize (hybrid) seed for commercial farmers. The public breeding programmes that continued to operate have become weakened and are limited in their capacity to disseminate their varieties to farmers upon release.

It is important to note that those crops which are commercially less interesting are often vital for the food and nutritional security of both poor farming and urban households, and for enhancing resilience through crop and farming system diversification. These crops are not addressed by the formal seed sector; a disconnection emerges in addressing food security based on diversity of crops and varieties and increasing in productivity and production through few major food crops and a limited portfolio of varieties. Although crops breeding of many other crops continues, the carriers of the technology, i.e. seed programmes or entrepreneurs, are non-existent, which has created a missing link in seed value chains for crops that are important for food and nutritional security.

The transformation of the seed sector, from development- to market-orientation, proved much more difficult than expected, largely because the shift in driver (to that of profit in the seed value chain) needed for such a transition was lacking for many crops. In development-oriented seed chains, it is the breeding component that drives the chain. Seed production and marketing are necessary to introduce new varieties to as many farmers as possible, thus there is a continuous demand for structural funds and public investments associated with national- or locally-based seed production companies or dissemination systems.

In commercial seed systems, the marketing component (guided by the potential for profit) leads in the chain. Even though the basic components of the seed value chain are the same, the drivers are different or even opposite, as illustrated in Figure 1. Insufficient appreciation of this difference, and of the similarities, between development and market orientation in seed value chains is one of the fundamental reasons why attempts to commercialize the public seed production infrastructure have failed in many developing countries. The resulting gaps in seed value chains need to be addressed when aiming for food security.

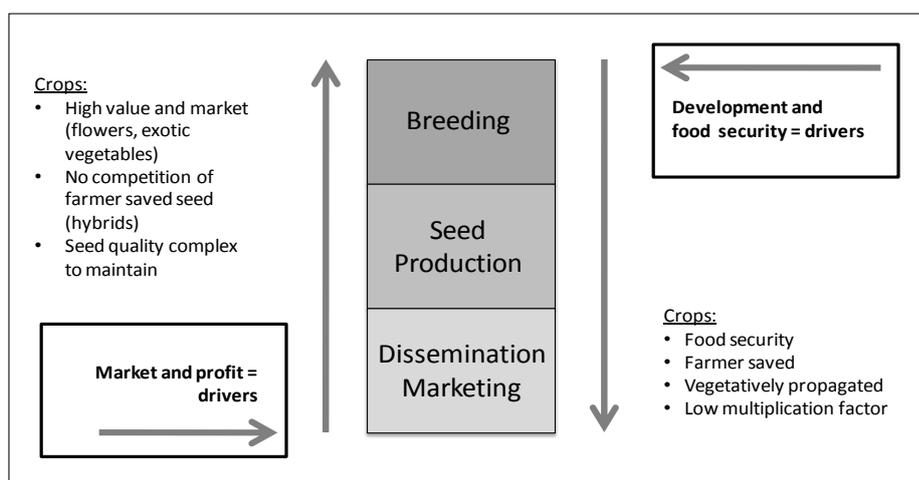


Figure 1. Development and market orientation of the seed value chains
(Source: Louwaars & de Boef, 2012)

Integrated approach

Contemporary lessons propose replacing the singular (single crop, and single, linear, formal and commercial) approach, which can also be referred to as the “hybrid maize model”, with an integrated or pluralistic approach to seed sector development (ISSD). This approach better matches the complex and diverse reality of farming and seed systems in developing countries. ISSD builds upon the strengths of informal (i.e. farmers’ and community-based) and formal (i.e. public and private) seed systems. It further promotes the establishment and strengthening of a range of regionally, nationally, and locally operating seed companies and commercial seed producers, that are commercial and autonomous in their seed production and commercialization, but continue to depend for their varieties on public breeders. At the same time, ISSD acknowledges the continued important role that informal seed and community-based seed systems play; it realizes that these systems will continue to exist and continue to play a significant role in food and nutritional security, poverty alleviation and resilience, and therefore require appropriate attention in seed sector development programmes and policies.

WHAT is an integrated seed sector development approach?

Recognize farmers’ knowledge and genetic resources

The agricultural systems of millions of smallholders in developing countries are based on farmer-saved seed, and informal seed exchange and markets. These seed systems provide more than 80% of the total seed demand for farmers, as endorsed by the World Bank in its 2008 report, which once again placed food and seed security high on the development agenda. Farmers are familiar with the seed they grow themselves, and they know that the variety is adapted to local conditions and preferences. The continuum of sowing, saving, experimenting and exchanging seed in their social seed network contributes to maintaining local crops and varieties in a dynamic manner. ISSD recognizes the importance of farmers’ knowledge, innovations and use of on-farm genetic resources in promoting the seed sector. ISSD connects the goals of food and nutritional security with resilience and the conservation of plant genetic resources for food and agriculture.

Strengthen interactions between formal and informal systems

The linear model separates the informal and formal systems in which knowledge and genetic resources are managed and used, and focuses only on the functioning of formal systems. Most seed programmes and policies aim to enhance the performance of formal seed systems. The lack of recognition of informal seed systems and their diversity and complexity means that opportunities to increase seed quality and security, as well as access to valuable genetic resources and varieties for smallholders’ farmers, are lost. Moreover, the most dominant seed systems are ignored in

this linear approach to seed sector development, thus operating beyond the reality. Using the ISSD approach in seed sector development recognizes the effectiveness of both formal and informal systems, explores their similarities, and seeks ways to enhance the overall sector performance, thereby including all systems, and not simply replacing one with another. ISSD constitutes a concerted effort, integrating various participatory and market oriented strategies, to ensure that proper interactions are promoted in every component of the seed value chain, and secure long-term sustainability, as visualized in Figure 2.

Develop a pluralistic, market oriented and entrepreneurial seed sector

ISSD provides opportunities for different development pathways for a range of seed entrepreneurs in dissimilar seed systems and seed value chains. It aims to make seed programmes and policies more coherent with the practices of farmers and entrepreneurs. It focuses on market orientation and entrepreneurship in the seed value chain. It explores the degree of involvement and effectiveness of public, civil and private (national-international) stakeholders in assuming responsibilities in seed value chains, thereby taking a pluralistic approach to strengthening the seed sector.

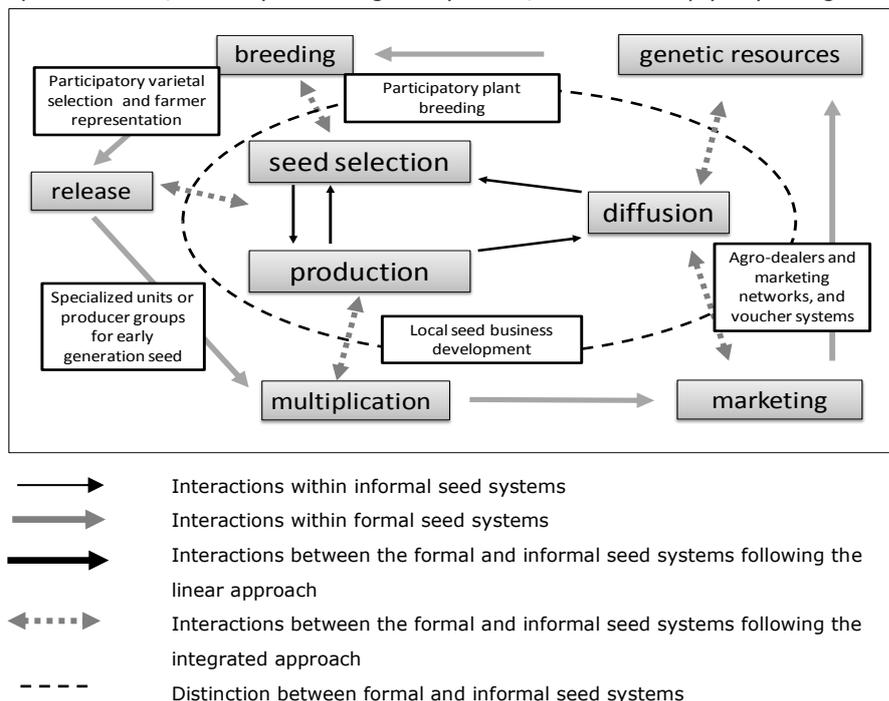


Figure 2. Formal and informal seed systems in an integrated setting including examples (Source: Louwaars & de Boef, 2012)

Embed evolutionary pathways in seed systems

One key aspect of the linear approach that is maintained in the ISSD approach is that certain seed systems or seed value chains following similar pathways may evolve differently over time. For example, in situations where local seed businesses expand beyond the level of the community and thus evolve to operate at a more a district, provincial or even national level, as is currently taking place in Ethiopia. Another example is from Nepal, where community-based seed producers' groups, supported by non-governmental organizations (NGO) provide capacity-building for establishing local seed businesses. In Ethiopia, a number of seed entrepreneurs who had previously been solely producing seed as out-growers for the government seed production and marketing programme, over a period of four years, became more autonomous in their operations, thereby creating a new seed system that had not existed before. This demonstrates the fact that the evolutionary and dynamic aspects are also strongly embedded in the ISSD approach.

HOW does an integrated approach guide the process of designing seed sector programmes: An overview of national seed sector assessment (NSSA) as methodology

The integrated approach to seed sector development promotes the understanding of the current sector, gathering of information and reaching a thorough understanding of the situation; then, based on evidence and ensure multi-stakeholder consultative processes, it promotes designing strategies for enhancing the performance of the overall sector or of specific seed systems or seed value chains. A National Seed Sector Assessment (NSSA) is the overarching methodology that contributes to the recognition of the ISSD approach with its multiple seed systems, variation for crops, value chains and enabling environments in every country, . The focus of the NSSA is to support the design

process by involving seed stakeholders in raising their awareness on the approach and its potential; to explore the pathways that recognize farmers' knowledge and genetic resources in informal seed systems; to strengthen the interactions between informal and formal seed systems; and to promote market orientation and entrepreneurial seed sector programmes development. NSSA has been used in ISSD Africa programme countries viz. Burundi, Ethiopia, Ghana, Malawi, Mali, Mozambique, Uganda and Zambia. The methodology consisted multi-stakeholder processes as described in steps 1 to 6, and specific analytic tools which are embedded in the field appraisals process as described in step 3. A concise overview of NSSA methodology is illustrated in Figure 3.

Step 1: Establishing a national multi-stakeholder team

A national team with representatives from different seed stakeholders is established. First it should include representatives of ministries or public organizations engaged in the seed sector, including agricultural universities or faculties. Secondly, the team should include representative of umbrella associations of the following groups: commercial seed companies, agro-input dealers, civil society organizations and farmers' organizations. Of key importance in the selection of members is their experience in the seed sector, as well as their interest in being involved in the process, and in subscribing to the ISSD guidelines. This multi-stakeholder representation supports an unbiased pluralistic approach to strengthening and supporting the seed sector. An independent coordinator should be identified to organize the team, and coordinate the seed sector analysis and the subsequent steps in the overall assessment.

Step 2: Understanding the ISSD concept and formulating the analysis plan

During an initial meeting, the team members discuss and develop a common understanding on the concept of ISSD, based on the terminology used during the national seed sector assessment (NSSA). They further develop a detailed methodological process using various tools. The team identifies key stakeholders for interviews or focus group discussions, and compiles a list of key publications related to on-going seed programmes that will be addressed through a desk study.

Step 3: Conducting field appraisals

The team organizes field appraisals, focusing on the following five specific components of the national seed sector. Consultants or researchers are responsible for leading the field appraisal process. The analysis is conducted through key informant interviews and focus group discussions, with the aid of a specific checklist. The consultants/researchers use a series of matrices to analyse and interpret the information gathered, which they then process into a first draft report on the NSSA. The report is then shared with the national team for further elaboration and subsequent endorsement. Details of the five components of the analysis are provided here below.

- **Seed systems analysis (SSA):** It provides basis to identify the different types of seed systems, their characteristics and importance within a seed sector. The details use of SSA tool is described in technical notes issue no 2.
- **Seed value chain analysis (SVCA):** SVCA provides information to understand the functioning of seed operators, service providers and enabling environments. The details use of SVCA tool is described in technical notes issue no 3.
- **Seed intervention landscape analysis (SILA):** In this component, various stakeholders in the SVC, seed systems and their programmes analyse how their roles and responsibilities are affecting and influencing the seed sector. The details use of SILA tool is described in technical notes issue no 4.
- **Seed enabling environment analysis (SEEA):** The different seed systems and the various seed value chains are analysed in this component, to see how strongly they are influenced by national/international seed policies and implementing strategies, legislative and regulative frameworks, the multi-stakeholder governance system of the seed sector, and the economic environment. The details use of SEEA tool is described in technical notes issue no 5.

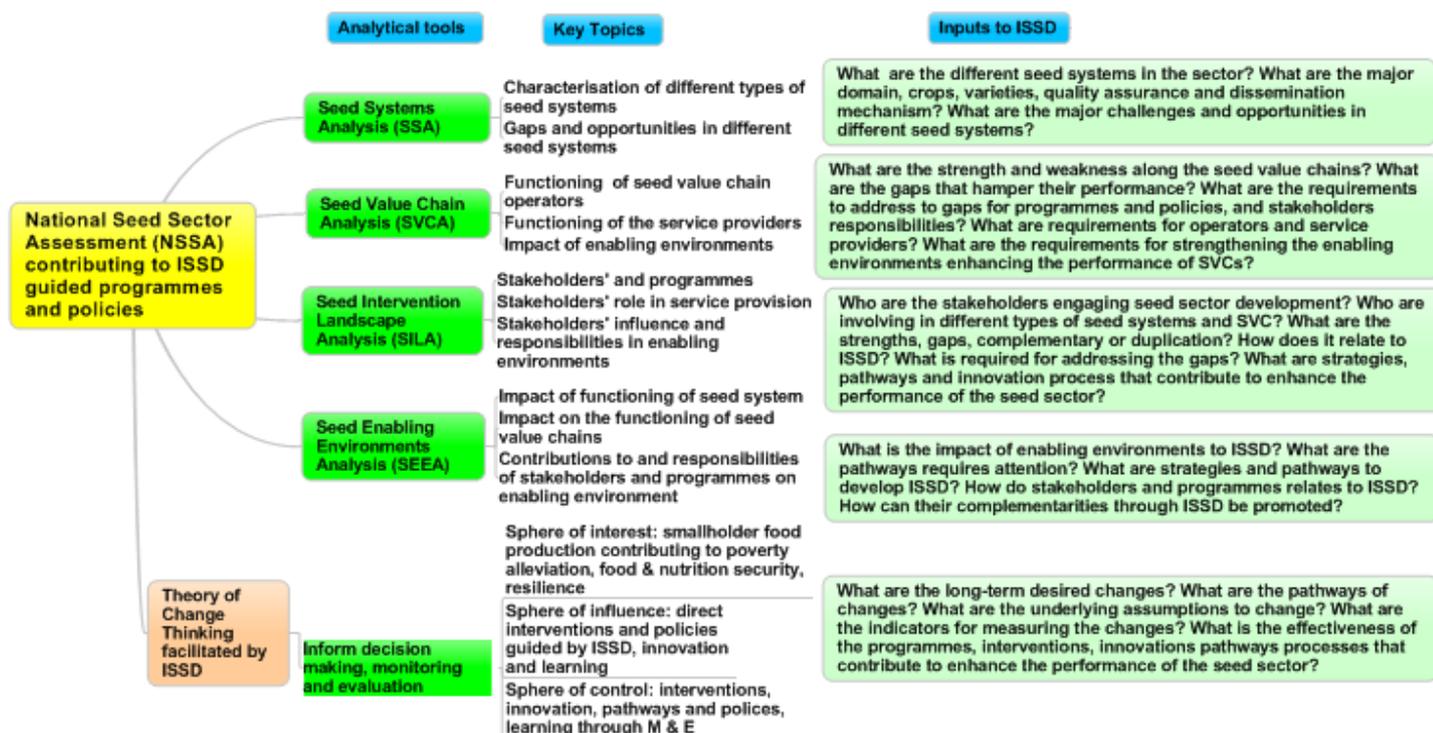


Figure 3. An overview of the national seed sector assessment (NSSA) process guided by ISSD

Step 4: Validating the analysis report in a series of round-table meetings

The first draft report includes the results of assessment of step 3, and serves as evidence-based input for a series of roundtable meetings. During these consultative meetings, the information gathered in the analysis is triangulated, and further awareness is created amongst stakeholders on the purpose of using the ISSD approach, and on the kind of insights that can be gained on the performance of the sector, and accompanying programmes and policies. The aims of the round-table meetings include the following:

- to further discuss and characterize the seed systems
- to consolidate the understanding of existing seed programmes (public, donor, NGO, others)
- to explore how those programmes strengthen the various different systems and seed value chain
- to identify potential gaps in the seed systems or components of seed value chains that have not yet been addressed
- to explore the status of seed policies and reflect upon their coherence with the distinct seed systems and seed value chains

The meetings could involve different representative groups of stakeholders, for example:

- Public sector roundtable meeting: comprising representatives of ministries and their relevant departments, research institutions, quality control seed services, seed extension services, or public seed companies/organizations
- Private sector roundtable meeting: involving representatives of the private sector that are active in the seed value chain, such as seed companies, seed producers, seed traders, input providers and financial institutions
- Civil society and seed programme roundtable meeting: comprising representatives of NGO-supported or donor-funded seed programmes, with activities related to seed sector development, extension, seed production, seed relief, seed marketing, etc.

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- Farmers' organizations roundtable meeting: involving farmers who are engaged in activities related to seed production and marketing

Step 5: Informed decision-making, monitoring and evaluation guided by 'theory of change thinking': In this component, a framework is developed for desired long-term change, pathways of change, underlying assumptions and indicators for measuring change, in order to enhance the performance of the seed sector in contributing to the food and nutritional security and resilience for smallholder farmers. The details of this step is further described in technical note issue no 6.

Step 6: Consolidation and strategic actions: Following the series of round table meetings, the multi-stakeholder team consolidates the outcomes of the steps 3 to 5 and finalizes the analysis report. A critical step is to identify potential follow-up actions for promoting seed sector development based on the analysis. The series of round table meetings can be concluded with a national seminar, in which the outcomes of the analysis and subsequent consultative process can be shared with key officials from relevant ministries, various representative associations, decision-makers in various public organizations, and donor organizations. The purpose is to present the outcomes, raise awareness on the ISSD approach, and share the insights gained during the analysis; and, where required, discuss any follow-up actions that are identified by the multi-stakeholder team. The fact that the analysis is evidence-based, and the outcome is endorsed through a two-step consultative process, ensures the legitimacy of the outcome. Thus, the ISSD approach will create momentum for more targeted interventions at policy and programme levels.

WHAT lessons can be learned?

ISSD provides an integrated view of the roles of the seed sector in agricultural development in the widest sense. Some examples show how ISSD guides us in understanding a very diversity reality in dissimilar countries.

- Mali liberalized its seed market following the structural adjustment. Although public seed agencies and service providers remain associated with community-based seed production that are often supported by donors, seed marketing is now carried out through local agro-dealers and NGOs.
- Ethiopia transformed its public seed production infrastructure into the originally monopolistic and public Ethiopian Seed Enterprise, which currently competes mainly with other public entities. This has resulted in a highly centralized seed distribution system and the virtual absence of direct seed marketing by the seed producing enterprises and private sector.
- South Sudan aims to transform seed relief into a viable national industry, and agriculture into a business. Therefore it promotes the link between relief and local seed producers.
- Zambia privatized its public seed company, which, together with international seed companies, benefits from subsidized public input (hybrid maize) programmes that have a narrow crop portfolio, involving varieties inherited from the public seed company's original links with public breeding institutions.
- Nepal's seed sector has as major gains open-pollinated varieties (OPV) of maize. However, liberalization has led to the uncontrolled high flow of imported seed of exotic varieties, and consequently to a reduction in the use of local vegetable genetic resources and the Nepalese seed system.

ISSD basically provides a framework into which countries as diverse as those examples can fit their own particular situations, evolving developments, and specific policy considerations. As such, ISSD provides guidance to development partners in public, private, and civil society, as well as donor organizations, to identify gaps and opportunities for strengthening the diversity of seed systems, or for making strategic choices.

- In Ghana, various stakeholders in seed value chains, such as seed producer associations, private seed companies, agro-input dealers, public research organizations and universities, are involved in designing a national seed programme to professionalize and promote entrepreneurship within an integrated seed sector.

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- In Ethiopia, the ISSD programme, which is currently being implemented, is supporting local seed businesses to become self-reliant and market oriented farmers' seed producers.

ISSD can help circumvent clashes between those who promote the development of the seed system associated with globally operating commercial seed companies, those who focus on promoting local-level seed entrepreneurship, and those who focus their efforts on promoting agro-biodiversity to enhance resilience through the informal and community-based seed systems, and even those who promote investment by global seed companies in developing countries. ISSD-based seed policies allow governments to prioritise their investments and those of their development partners.

- The new Seed Proclamation recently endorsed by the Ethiopian parliament is guided by ISSD and creates room for private sector involvement in the seed sector, while maintaining food security and agricultural development as central and driving policy pillars.

The ISSD approach further provides a basis for regulatory frameworks that support diversified seed systems, notably through seed laws, plant variety protection laws, and biodiversity laws, and creates several options within each for implementation. In this context, it is encouraging that the African Seed and Biotechnology Programme (ASBP) of the African Union pursues an integrated approach towards enhancing capacities for seed policy development and implementation, strengthening linkages between informal and formal seed sectors, and encouraging public private partnerships to promote the development of local seed enterprises in achieving food security and sovereignty in Africa. In this way, the ASBP encourages the use of ISSD within national, regional and continental discussions concerning the role of seed and the development pathways to strengthen the sector within a wider development agenda.

Reading materials

- De Boef, W.S., Subedi, A., Peroni, N., Thijssen, M.H., O'Keeffe, E. (Eds.), 2013. Community biodiversity management: promoting resilience and the conservation of plant genetic resources. Routledge, Abingdon.
- Louwaars, N.P., De Boef, W.S. (2012). Integrated seed sector development in Africa: a conceptual framework for creating coherence between practices, programs and policies. *Journal of Crop Improvement* 26, 39-59.
- Louwaars, N.P., De Boef, W.S. and Edeme, J. (2013). Integrated seed sector development in Africa: a basis for seed policy and law. *Journal of Crop Improvement* 27: 186-214.
- Integrated seed sector development in Africa – programme webpage, hosted by Wageningen University and research centre, at URL www.wageningenur.nl/en/show/Integrated-seed-sector-development-in-Ethiopia.htm

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Technical note

This technical note is the result of a collaborative project of the Centre for Development Innovation (CDI) of Wageningen University & Research centre (Wageningen UR), the Netherlands and the Royal Tropical Institute (KIT), Amsterdam, the Netherlands. The series of ISSD Technical Notes were produced as a result of the involvement of the authors in the Integrated Seed Sector Development Programme in Africa, which is currently being implemented in the context of the African Seed and Biotechnology Programme (ASBP) of the African Union Commission, with partners in Burundi, Ethiopia, Ghana, Malawi, Mali, Mozambique, South Sudan, Uganda, and Zambia, whose input has been extremely valuable to the development of the current technical note. The ISSD Africa programme is primarily financed by the Ministry of Economic Affairs and the Ministry of Foreign Affairs of the Netherlands Government, and is being implemented by a partnership coordinated by the CDI of Wageningen UR.

Citation

Subedi, A. and De Boef, W.S; with Audet-Bélanger, G., Gildemacher, P. and Heemskerk, W. (2013). Promoting Integrated Seed Sector Development. ISSD Technical Notes Issue no 1. Centre for Development Innovation, Wageningen UR & Royal Tropical Institute, Amsterdam

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Annex 1: Main steps and guiding questions for national seed sector assessment (NSSA) guided by ISSD

Main steps and actions	Issues and questions to be addressed
<p>Step 1 Establishing a national multi-stakeholders team</p>	<p>A national team with representatives from different seed stakeholders is established, which comprises following:</p> <ul style="list-style-type: none"> - Government or public sector: Relevant departments of agriculture ministries or public organizations engaged in the seed sector, - Higher education: Agricultural universities or faculties - Private sector: representatives from the associations of the commercial seed companies and agro-input dealers, - Civil society: Civil society organizations - Farmers organizations: seed producers groups or their association representatives - An independent coordinator should be identified to organize the team, and coordinate the seed sector analysis and the subsequent steps in the overall assessment.
<p>Step 2 Understanding the ISSD concept and formulating the analysis plan</p>	<p>The coordinator will facilitate to organize initial meeting with national seed sector assessment team with following objectives:</p> <ul style="list-style-type: none"> - Share the concept of ISSD and develop common understanding on the various terminologies used during the assessment - Develop a detailed methodological process and identify suitable tools for data collection - Identifies key stakeholders for interviews or focus group discussions - Compiles a list of key publications related to on-going seed programmes
<p>Step 3 Conducting field appraisals</p>	<p>The team organises field appraisals through key informant interviews and focus group discussions, with the aid of a specific checklist. Following five analytical components conducted in appraisal studies:</p> <p>Seed systems analysis (SSA)</p> <ul style="list-style-type: none"> - What are the different seed systems in the sector? What are the major domain, crops, varieties, quality assurance and dissemination mechanism? What are the major challenges and opportunities in different seed systems? <p>Seed value chain analysis (SVCA)</p> <ul style="list-style-type: none"> - What are the strength and weakness along the seed value chains? What are the gaps that hamper their performance? What are the requirements to address to gaps for programmes and policies, and stakeholders responsibilities? What are requirements for operators and service providers? What are the requirements for strengthening the enabling environments enhancing the performance of SVCs? <p>Seed intervention landscape analysis (SILA)</p> <ul style="list-style-type: none"> - Who are the stakeholders engaging seed sector development? Who are involving in different types of seed systems and SVC? What are the strengths, gaps, complementary or duplication? How does it relate to ISSD? What is required for addressing the gaps? What are strategies, pathways and innovation process that contribute to enhance the performance of the seed sector? <p>Seed enabling environment analysis (SEEA)</p> <ul style="list-style-type: none"> - What is the impact of enabling environments to ISSD? What are the pathways requires attention? What are strategies and pathways to develop ISSD? How do stakeholders and programmes relates to ISSD? How can their complementarities through ISSD be promoted?
<p>Step 4 Validating the analysis report in a series of round-table meetings</p>	<p>Organise a series of roundtable meetings with public sector, private sector, CSOs and their seed programmes and farmers organizations. The key aim of the round-table meetings are to share and validate the results of field appraisal with focus on:</p> <ul style="list-style-type: none"> - Further discuss and characterise the seed systems - Consolidate the understanding of existing seed programmes (public, donor, NGO, others) - Explore how those programmes strengthen the various different systems and seed

	<p>value chain</p> <ul style="list-style-type: none"> - Identify potential gaps in the seed systems or components of seed value chains that have not yet been addressed - Explore the status of seed policies and reflect upon their coherence with the distinct seed systems and seed value chains
<p>Step 5 Informed decision-making, monitoring and evaluation guided by 'theory of change thinking</p>	<p>Based upon the results of round-table meetings a framework is developed for inform decision-making, monitoring and evaluation. Key questions that guide to formulation of a framework are:</p> <ul style="list-style-type: none"> - What are the long-term desired changes? What are the pathways of changes? What are the underlying assumptions to change? What are the indicators for measuring the changes? What is the effectiveness of the programmes, interventions, innovations pathways processes that contribute to enhance the performance of the seed sector?
<p>Step 6 Consolidation and strategic actions formulation</p>	<p>Following the series of round table meetings, the multi-stakeholder team consolidates the outcomes in national seminar with key officials from relevant ministries, various representative associations, decision-makers in various public organizations, and donor organizations. This seminar will identify, number of priority strategic actions, gaps and opportunities, areas of partnership and collaboration leading to evidence based ISSD programme or policy formulation or specific interventions in seed systems or seed value chains.</p>