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EARLY GENERATION SEED INVESTMENT PLAN GUIDE

October 2016

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EARLY GENERATION SEED INVESTMENT PLAN GUIDE

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FOREWORD

The United States Agency for International Development (USAID) Bureau for Food Security (BFS) Early Generation Seeds (EGS) program, acting through Development Alternatives, Inc.'s (DAI) Africa Lead II project, has utilized USAID Mission, BFS, and Bill & Melinda Gates Foundation (BMGF) partnerships to make significant seed system changes to break the bottlenecks on breeder and basic seed, primarily in Africa. Many projects fail to reach the great majority of smallholder farmers in Sub-Saharan Africa, particularly in the delivery of EGS. Other bottlenecks include poorly functioning national variety release systems; policies, regulations, and misplaced subsidies that limit access to improved varieties; and counterfeit seeds in seed markets.

The overall EGS effort, which began in 2014 and will continue through 2017, is carried out in a complex, dynamic environment involving the USAID and BMGF partnership, several international and bilateral donors, as many as 12 African governments, several African regional organizations, and a plethora of public and private stakeholders. Over the past two years, the USAID and BMGF partnership has explored, with a large number of noted U.S., African, and international technical experts, how to address constraints in EGS systems. This exploration led to the partnership's development of a methodology to analyze seed value chains, and to do this by specific market, crop, and economic dimensions. Applying this methodology leads to identifying actors and actions along the seed value chain that are required in order to produce an adequate supply of EGS on a sustainable basis. The methodology was vetted by technical experts from African regional organizations, research and technical agencies, and development partners.

USAID asked DAI through its Africa Lead Cooperative Agreement II to take this analytical methodology to the country level in selected Feed the Future countries, particularly in ways to change seed systems as they affect smallholders in the informal agriculture sectors. Africa Lead II selected and contracted with Context Network to execute EGS studies in Rwanda, Zambia, Kenya, and Nigeria, which were completed in August 2016, as well as a one-day EGS technical training in Addis Ababa, Ethiopia, on how to implement the study methodology, with researchers from 11 countries.

In addition to the four EGS country studies, the Context Network, with Africa Lead's guidance, was selected to complete three other deliverables which include (1) a synthesis of the Rwanda, Zambia, Kenya, and Nigeria studies, (2) a technical review of 11 EGS studies performed by in-country consultants in 2016, and (3) a generic investment plan guidance document to aid country seed platforms, composed of inclusive sets of stakeholders, with some of the tools to transform the findings of the EGS studies into investment plans.

This EGS Investment Plan Guide is intended to assist in-country stakeholders who are working to include appropriate public-sector funding for EGS in their country's National Agricultural and Food Security Investment Plan (NAFSIP). It provides approaches, resources, tools, useful advocacy approaches, and sample investment plan components for EGS funding under their country's NAFSIP. Whether that government funding is intended to support breeder seed development by that National Agricultural Research Institute (NARI), PPPs for the production of

foundation seed, or donor support for these and other functions, getting EGS investments into the country NAFSIP is the first step toward identifying a sustainable resource stream for those public sector functions required for a better functioning EGS system.

ACKNOWLEDGMENTS

This report was developed by a team at the Context Network led by Mark Nelson, a principal at the Context Network. The team included Mark Walton who conducted the stakeholder consultations and led the field research work for the Rwanda EGS Study and Dave Westphal who had the same responsibilities for the Zambia EGS Study. Robert Lowenthal, with analytical support from Jason Nickerson, was the Context Network manager for this EGS Investment Plan Guide.

The team is grateful for the support of DAI including David Tardif-Douglin, Charles Johnson, and Sonja Lichtenstein, as well as guidance from BFS Senior Food Policy Advisors, David Atwood and Mark Huisenga.

ACRONYMS

AU	African Union
BFS	Bureau for Food Security (USAID)
BMGF	Bill & Melinda Gates Foundation
CAADP	Comprehensive African Agricultural Development Program
CGIAR	Consultative Group for International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Center
DAI	Development Alternatives, Inc.
EGS	Early Generation Seed
FAO	Food and Agriculture Organization of the United Nations
FTF	Feed the Future
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ISSD	Integrated Seed System Development
M&E	Measurement and Evaluation
NAFSIP	National Agricultural and Food Security Investment Plan
NAIP	National Agriculture Investment Plan
NARI	National Agricultural Research Institute
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
PPP	Public-Private Partnership
QDS	Quality Declared Seed
SROI	Social Return on Investment
SSA	Seed System Analysis
WEAI	Women's Empowerment in Agriculture Index
USAID	United States Agency for International Development

TERMINOLOGY

Breeder seed: Breeder seed is produced by or under the direction of the plant breeder who selected the variety. During breeder seed production, the breeder or an official representative of the breeder selects individual plants to harvest, based on the phenotype of the plants. Breeder seed is produced under the highest level of genetic control to ensure the seed is genetically pure and accurately represents the variety characteristics identified by the breeder during variety selection.

Pre-basic seed: Pre-basic seed is a step of seed multiplication between breeder and basic seed that is used to produce sufficient quantities of seed for basic seed production. It is the responsibility of the breeder to produce pre-basic seed, and production should occur under very high levels of genetic control.

Basic seed: Basic seed, also known as foundation seed, is the descendent of breeder or pre-basic seed and is produced under conditions that ensure maintaining genetic purity and identity. When basic seed is produced by an individual or organization other than the plant breeder, there must be a detailed and accurate description of the variety the basic seed producer can use as a guide for eliminating impurities (“off types”) during production.

Certified seed: Certified seed is the descendent of breeder, pre-basic, or basic seed produced under conditions that ensure maintaining genetic purity and identity of the variety and that meet certain minimum standards for purity defined by law and certified by the designated seed certification agency.

Quality Declared Seed: In 1993 the Food and Agriculture Organization of the United Nations (FAO) produced and published specific crop guidelines as Plant Production and Protection Paper No. 117 Quality Declared Seed – Technical guidelines on standards and procedures. The Quality Declared Seed (QDS) system is a seed-producer implemented system for the production of seed that meets at least a minimum standard of quality but does not entail a formal inspection by the official seed certification system. The intent behind the QDS system is to provide farmers with an assurance of seed quality while reducing the burden on government agencies responsible for seed certification. The QDS system is considered by FAO to be part of the informal seed system.

Quality seed: In this report, the phrase quality seed is at times used in place of certified seed or QDS to describe a quality-assured seed source without specifying certified or QDS.

Commercial seed: Any class of seed acquired through purchase and used to plant farmers’ fields.

Formal seed system: The formal seed system is a deliberately constructed system that involves a chain of activities leading to genetically improved products: certified seed of verified varieties. The chain starts with a plant breeding or variety development program that includes a formal release and maintenance system. Guiding principles in the formal system are to maintain varietal identity and purity and to produce seed of optimal physical, physiological, and sanitary quality. Certified seed marketing and distribution take place through a limited number of officially

recognized seed outlets, usually for cash sale. The central premise of the formal system is that there is a clear distinction between "seed" and "grain." This distinction is less clear in the informal system.

Informal seed system: The informal system, also referred to as a local seed system, is based on farmer-saved seed or QDS. Varieties in the informal system may be variants of improved varieties originally sourced from the formal system, or they may be landrace varieties developed over time through farmer selection. There is less emphasis on variety identity, genetic purity, or quality seed. The same general steps or processes take place in the informal system as in the formal system (variety choice, variety testing, introduction, seed multiplication, selection, dissemination, and storage), but they take place as integral parts of farmers' production systems rather than as discrete activities. While some farmers treat "seed" as special, there is not always a distinction between "seed" and "grain." The steps do not flow in a linear sequence and are not always monitored or controlled by government policies and regulations. Rather, they are guided by local technical knowledge and standards and by local social structures and norms.

Improved versus landrace and local varieties: Improved varieties are the product of formal breeding programs that have gone through testing and a formal release process. A landrace is a local variety of a domesticated plant species which has developed over time largely through adaptation to the natural and cultural environment in which it is found. It differs from an improved variety which has been selectively bred to conform to a particular standard of characteristics.

INTRODUCTION

PURPOSE OF THE EGS INVESTMENT PLAN GUIDE

This EGS Investment Plan Guide document was developed as a resource to provide practical assistance to in-country stakeholders who want to present a case, and provide specific language and budget proposals, for greater government funding of those EGS functions that are likely to be funded only by the public sector. In Africa, the vehicle to make that case and seek that funding at the country level is through the five-year Comprehensive African Agricultural Development Program/African Union (CAADP/AU) sanctioned NAFSIP, as well as a new instrument under development, the CAAPD country spending plan. The purpose of this guide is to assist stakeholders make a case for, and provide specific documentation and elements for inclusion in, a NAFSIP line item or component to support appropriate public-sector EGS functions.

Each country and seed system is unique. As a result, the information and tool provided in this guide will have to be adapted to the specific country situation.

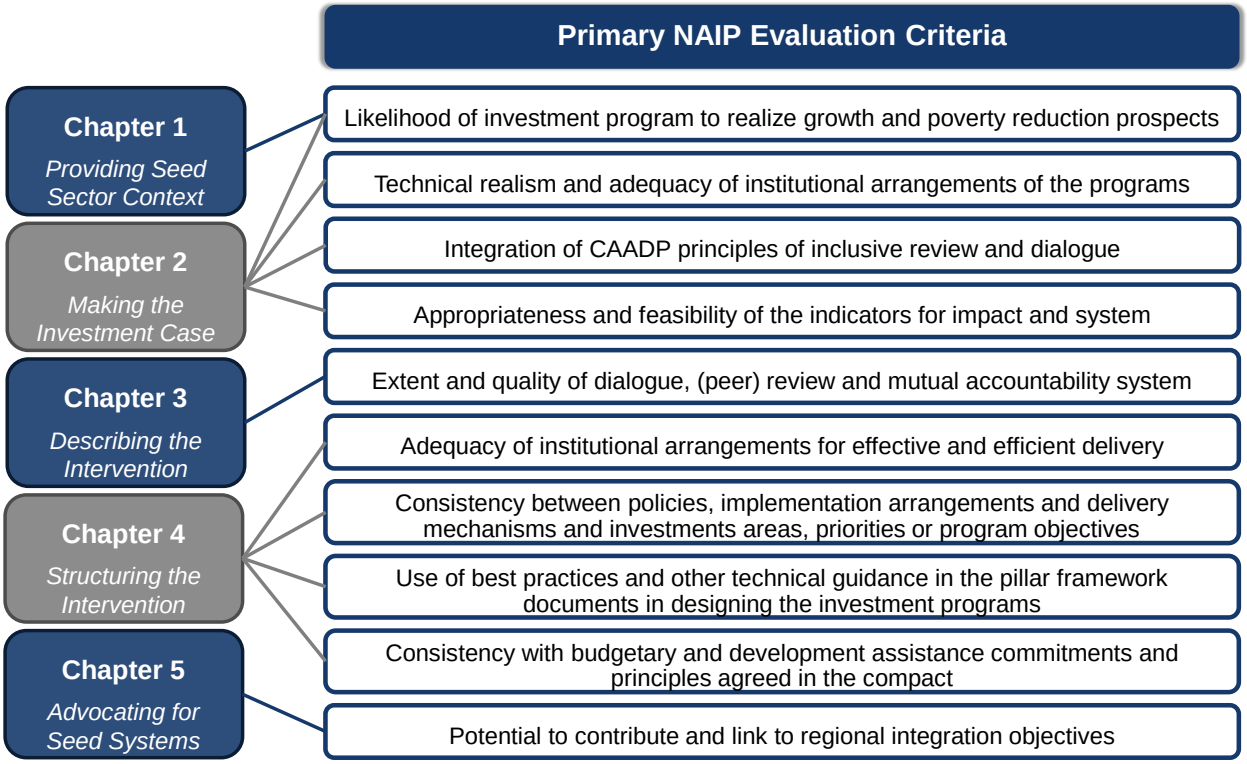
METHODOLOGY

Investment plans must take the criteria upon which they are evaluated into consideration. Since EGS investment proposals will nestle within sector-wide investment plans, the criteria used to evaluate the relevance and coherence of NAFSIPs can also be used to evaluate EGS seed interventions.

The EGS Investment Plan Guide subscribes to this methodology, and each of the five chapters link to an evaluation criteria used by the New Partnership for Africa's Development (NEPAD)[1] to evaluate NAFSIPs (Figure 1). The rationale for this is twofold: **(1) Stakeholder overlap:** The stakeholders, actors, and beneficiaries of the EGS seed investment plan and the national agriculture investment plan are largely the same. **(2) Easier integration**: The EGS investment plan is intended to fit within the National Agriculture Investment Plan (NAIP). By designing EGS investments that are sensitive to the same evaluation criteria as NAIPs, future integration is made easier.

[1] The technical agency of the African Union.

***Figure 1*: EGS Investment Plan Guide chapters mapped to NAIP evaluation criteria.**



Source: Adapted from NEPAD technical review criteria, contained in Chapter 3 of the CAADP Post-Compact Review Guidelines (2010).

Each chapter addresses a content area for inclusion in a seed system investment plan. Within each chapter are example analyses and links to supporting resources.

Chapter 1: Providing Seed Sector Context – offers guidance on how to describe the seed sector, including how to communicate seed system analyses, describe obstacles, and analyze stakeholders.

Chapter 2: Making the Investment Case – provides direction on analyzing an intervention's impact, and developing a results framework, including the selection of development indicators and realistic outcomes.

Chapter 3: Describing the Intervention – provides guidance on how to summarize the elements of the intervention, including key activities, stakeholder involvement, measurement and evaluation (M&E), and seed system-specific risk factors.

Chapter 4: Structuring the Intervention – outlines the program architecture, including its governance, funding sources, and relationships to both the public and private sectors.

Chapter 5: Advocating for Seed Systems – discusses the current position of seed systems within NAIPs and approaches to increasing public-sector support and private-sector investment.

CHAPTER 1: PROVIDING SEED SECTOR CONTEXT

The first section of an investment plan provides contextual background on the seed system intervention and lays a foundation for the investment case that will follow. This section should clearly articulate the problem within the current seed system(s), provide crop and seed system-level assessments, describe the obstacles impeding development, and identify key stakeholders.

1.1 PROBLEM STATEMENT

The problem statement is a concise summation of the socio-economic issue the EGS intervention is intended to address. It should be brief, direct, and specific, distilling where the problem is occurring along the seed system value chain, its magnitude, and how the problem has evolved over time. In developing a problem statement, the following questions should be considered:

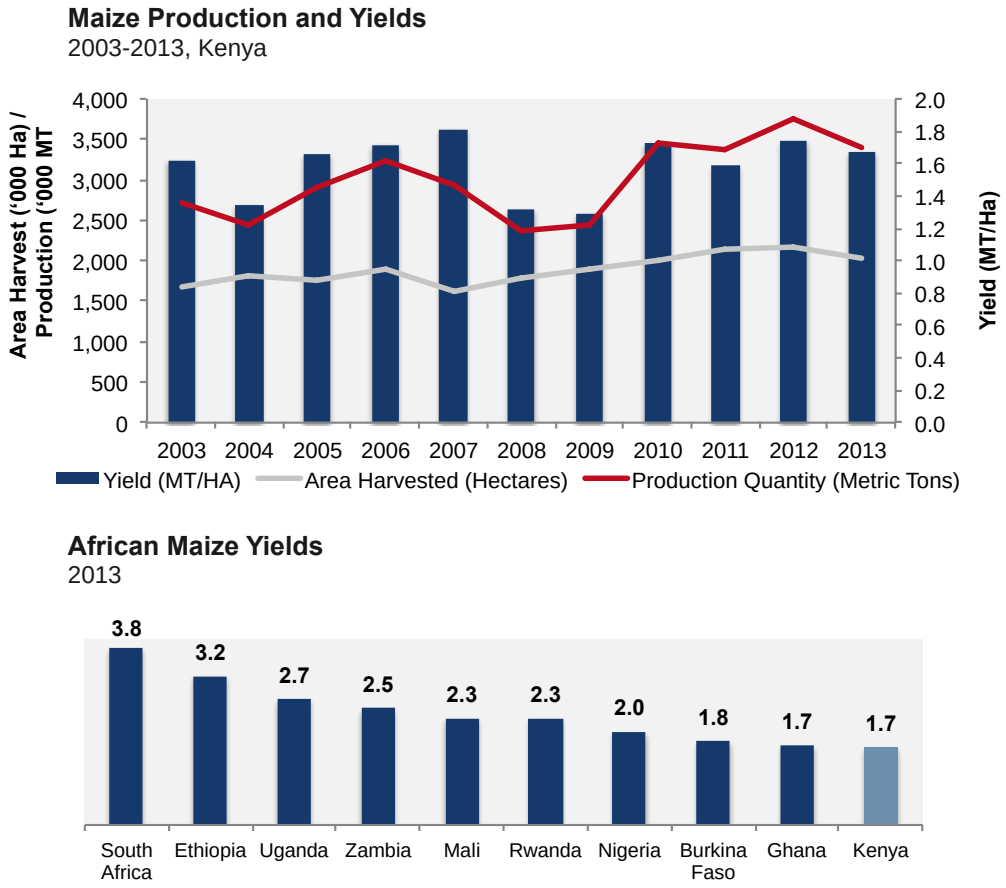
- What is the problem to be addressed?
- Why is it important to address the problem?
- How does the crop's seed system contribute to the problem?

1.2 CROP-LEVEL ANALYSIS

SUPPLY

Supply-side analysis should include historical data on yields, area under cultivation, and overall production volumes. Inter-country yield comparisons provide valuable points of reference to understand productivity. Figure 2 provides an example of how historical production trends and multiple country yield comparisons can be visualized.

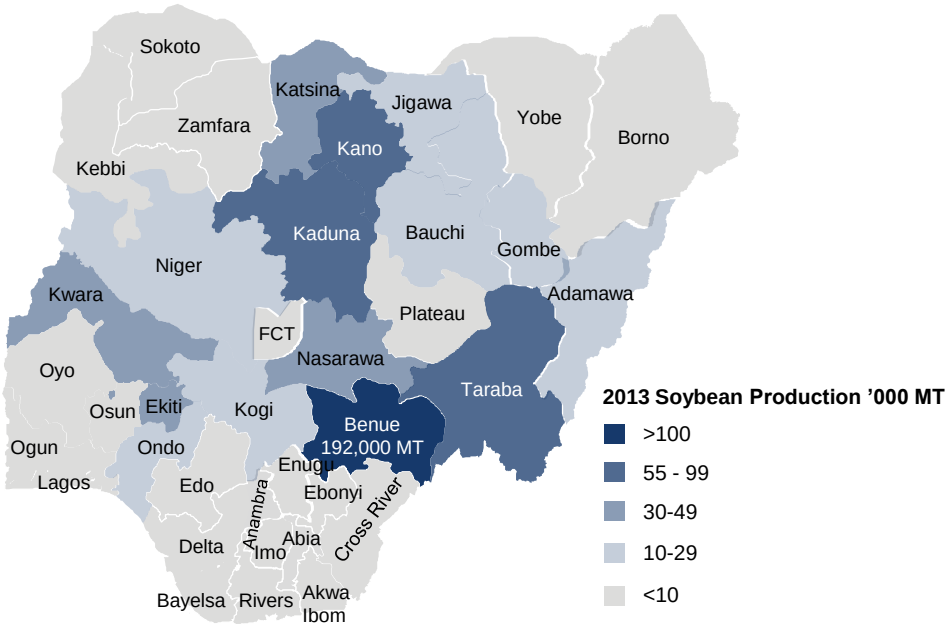
***Figure 2*: Sample production and yield analysis.**



Source: Kenya EGS Country Study (2016) sourced from Kenya Country Stat, 2013 (data extracted in March 2016).

Production analysis can be taken a step further by examining regional contributions within the target country. Certain regions contribute more to production totals than others, and the factors behind that variability can be explored through narrative and supporting diagrams. For example, Figure 3 maps soybean production volumes across regions within Nigeria.

***Figure 3*: Sample mapping of country production sources (soybean in Nigeria).**

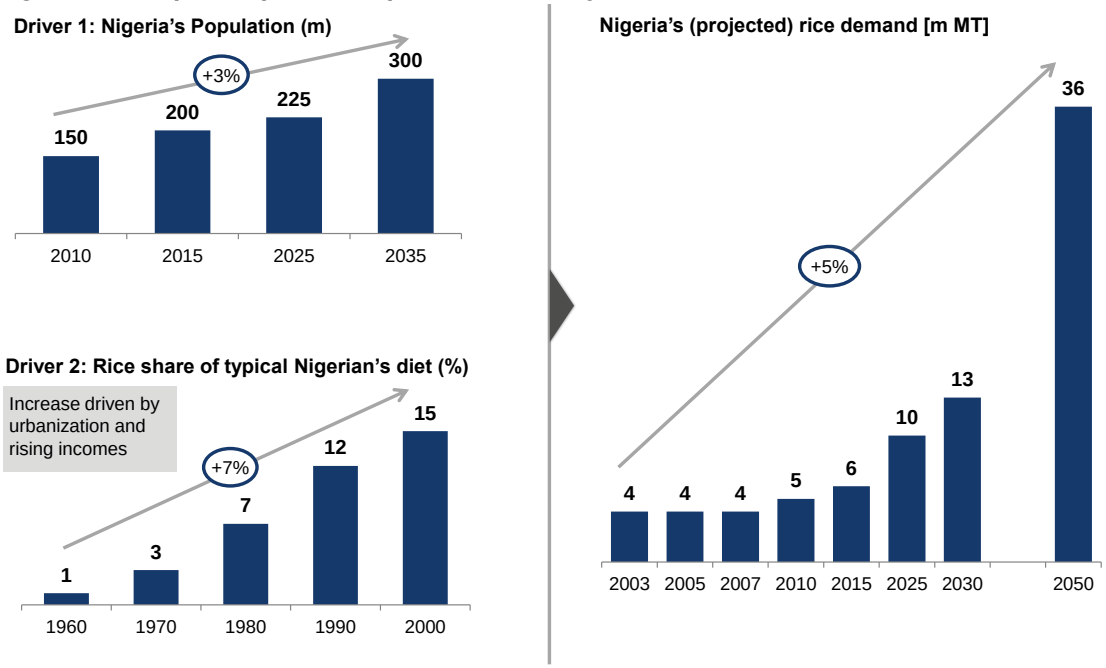


Source: Agricultural performance survey of wet season in Nigeria, NAERLS, 2013.

DEMAND

Crop consumption trends provide an indication of the crop's increasing or waning importance within the country. When crop consumption growth exceeds population growth, the crop's importance is expanding and demand for EGS is likely to expand as well. Figure 4 highlights the growing importance of rice in Nigerian diets and the effect on future demand.

***Figure 4*: Sample crop consumption trend analysis.**

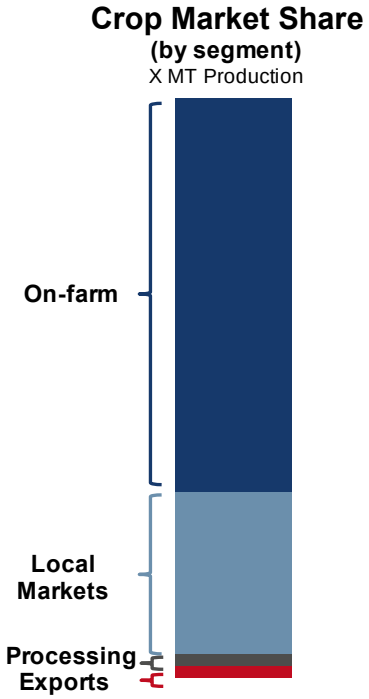


Source: Federal Ministry of Agriculture and Rural Development – ATA.

Identifying the sources for a crop's demand can provide valuable insights into its role in society. The elements of crop demand generally include categories such as on-farm consumption, rural and urban markets, livestock feed, processing, and export. For example, the importance of a crop like groundnut for food security within a country might be highlighted by its high rate of on-farm consumption.

Stacked bar charts, like the one in Figure 5, can be used to show the current elements of a crop's demand. In many cases, a proposed seed system intervention will have an impact on the share of demand from different sources. For instance, if an intervention focuses on increasing processors' involvement in varietal trait selection, it is likely that demand share will shift from on-farm consumption to processing, and perhaps export.

***Figure 5*. Sample demand source summary – groundnut example.**



	Segment Description	Segment Needs
On-farm consumption	• Estimated to be at least 80% for on-farm consumption and farmer-saved seed	• Confectionery, not too oily • Less labor needs for harvesting (digging requirements) • Disease and drought tolerance • Yield
Local markets	• Local shop owners who buy groundnut to be sold to farmers who do not save seed, as well as households that do not grow groundnut	• Confectionery, not too oily
Processors	• Key processors include A, B, and C • Processors have outgrower model that provide inputs to growers	• While no specific preferences is communicated to growers, high O/L ratio and oil content preferred for peanut butter production • Low levels of aflatoxin
Exports	• Small informal exports continue as traders buy groundnut and then transport to Country A • Balance of exports go to Country B	• Durable shells that don't crack in transport • Low levels of aflatoxin • Confectionery, not too oily

Source: Zambia EGS Country Study (2016).

1.3 SEED SYSTEM ANALYSIS

DOMINANT SEED SYSTEMS

Farmers use a variety of seed systems to acquire their seeds, and these systems are broadly characterized as either formal or informal. The formal seed system is distinguished by its established, quality-assured linkages from breeder seed production to commercial seed sale. Conversely, the informal system exists outside of regulatory purview and is usually locally organized and farmer-led (e.g., farmer-saved and traded seed). While a crop's seed is rarely acquired from a single source (e.g., all from international seed companies or all farmer-saved), there is typically a dominant source.

The Seed System Analysis (SSA), which was developed by Integrated Seed System Development (ISSD), can be used to evaluate the dominant seed systems for a crop within a country. The SSA methodology follows a two-step process. In step one, the prevailing seed systems are characterized based on facets such as the relevant domains of seed systems (public, private, informal), key crops, varieties in use (landraces, local varieties, NARI-released), and value-chain operators. In step two, stakeholders are convened for roundtable meetings to define the country's seed systems. Figure 6 provides an example of the form this analysis could take.

***Figure 6*: Sample dominant seed system summary.**

	Farmer-Saved	NGO / Cooperatives	Parastatal	Private International Companies	Private Local Companies
Type of crops	Local food and cash crops	Food crops	Major food and cash crops	Primarily maize	Food and cash crops
Crops	Banana Common bean Cassava Cowpea Groundnut Maize Millet Pigeon pea Rice Sorghum Soybean Sweet Potato	Common bean Groundnut Pigeon pea Maize	Banana Cowpea Maize Rice	Maize	Common bean Groundnut Maize Pigeon pea Sorghum
Types of Varieties	Local varieties	Improved, open pollinated varieties (OPV)	Improved maize varieties (Hybrid and OPV)	Improved varieties (Hybrids for maize)	Improved varieties
Quality Assurance System	Farmer-selected	Certified and farmer-selected	Certified	Certified	Certified
Seed Distribution	Farmer-saved, exchange, barter, and local markets	Local markets, distribution through government, some distribution through agro-dealers	Distribution through government and agro-dealers	Distribution through agro-dealers	Distribution through agro-dealers

Source: USAID, Kenya EGS Country Study, prepared by The Context Network for Africa Lead (2016).

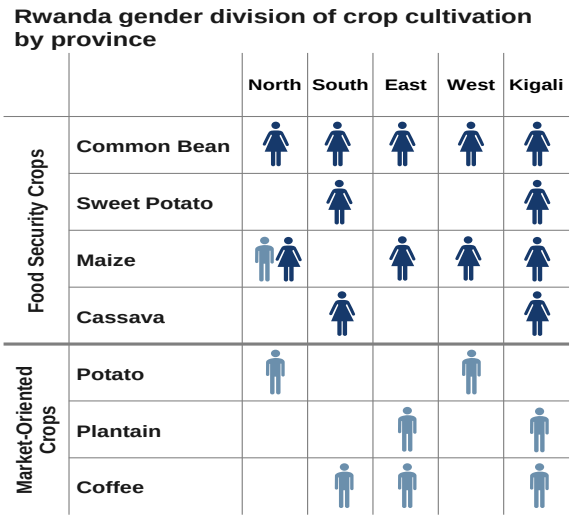
GENDER PARTICIPATION

Increasing the role of women in agriculture is important for social equity, food security, and economic development. Further, gender-sensitive approaches to agricultural development are emphasized by CAADP and by donors, including Feed the Future (FTF) and BMGF.

The Women's Empowerment in Agriculture Index (WEAI) is the first-ever measure to directly capture women's empowerment and inclusion levels in the agricultural sector (FTF, 2015). It tracks women's agricultural engagement in five areas: production, resources, income, leadership, and time use. The tool can be used to guide the development, monitoring, and evaluation of gender-inclusive seed interventions. Links to numerous WEAI resources, including baseline studies, manuals, and training materials are provided in section 1.6.

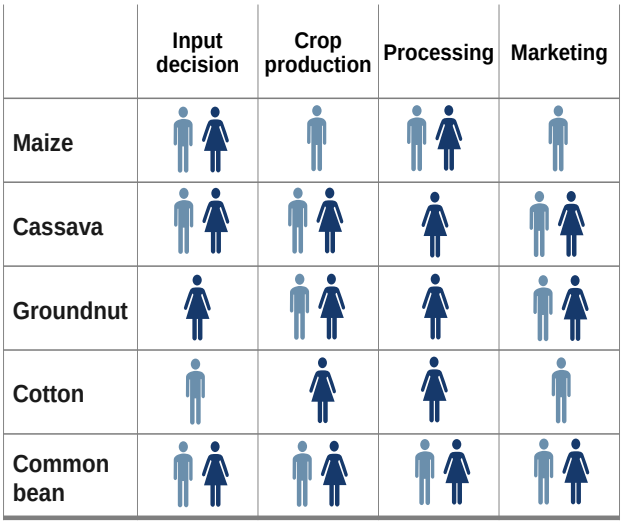
Examples of how gender production analysis can be summarized is provided in Tables 1, 2, 3, and 4. These tables help make clear the gender gap in market-oriented crop cultivation seed and are useful in developing seed investments that can be tailored to increase the impact on women and children in terms of nutrition, food security, and easing their labor responsibilities.

***Table 1:* Gender roles in crop production in Rwanda.**



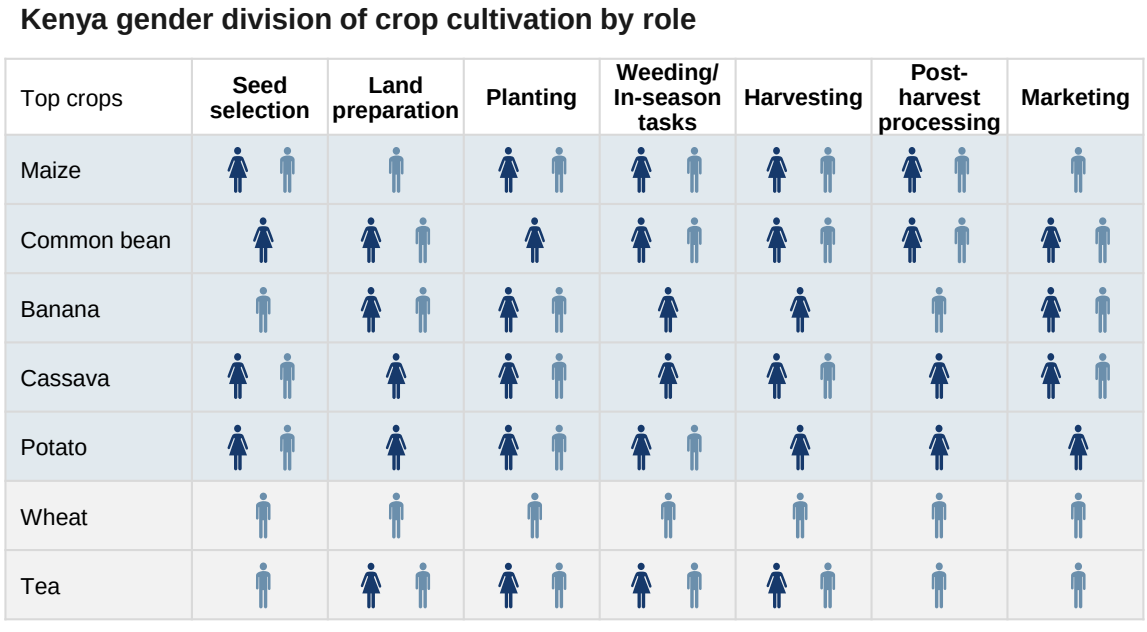
Source: MINAGRI (2010) sourced from World Bank (2015), World Bank (2015).

***Table 2:* Gender roles in crop production in Zambia.**



Source: Expert analysis based on field interviews, FTF Impact Evaluation of Groundnut Value Chain in Zambia (2015), Hamazakaza et al. (2014), Mofya-Mukuka et al. (2013), and Ross et al. (2012

***Table 3:* Gender roles in crop production in Kenya.**



Source: Context expert analysis, Katungi (2010).

***Table 4:* Gender roles in crop production in Nigeria.**

		Maize		Rice		Soybean		Yam	
									
North	Production	**98%**	2%	**90%**	10%	**95%**	5%	*N/A*	*N/A*
	Processing	10%	**90%**	20%	80%	10%	**90%**	*N/A*	*N/A*
	Marketing	**85%**	15%	**90%**	10%	**90%**	10%	*N/A*	*N/A*
South	Production	**70%**	30%	**60%**	40%	86%	14%	**80%**	20%
	Processing	10%	**90%**	20%	**80%**	*N/A*	*N/A*	50%	50%
	Marketing	**90%**	10%	**60%**	40%	*N/A*	*N/A*	**80%**	20%

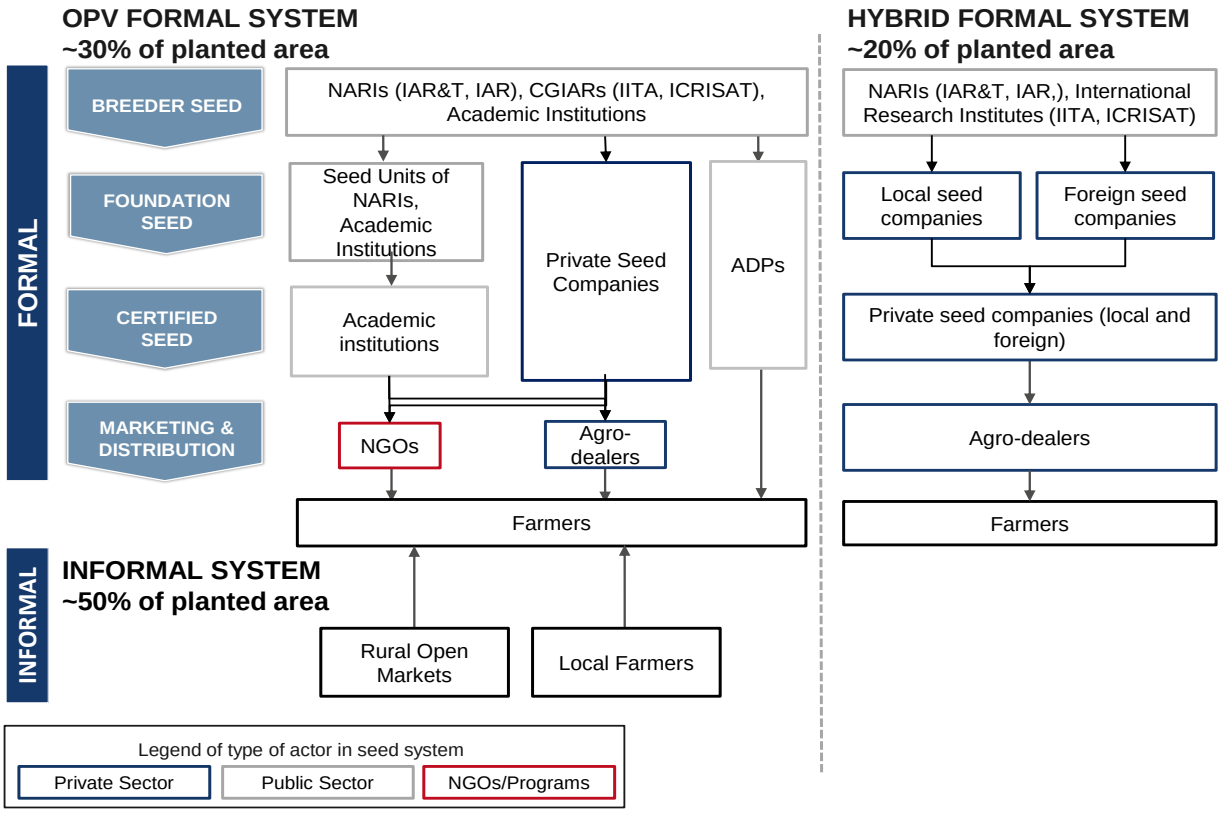
N/A=Not applicable

Source: Estimating Gender Differentials in Agricultural Production in Nigeria (2012).

STRUCTURE OF EGS VALUE CHAIN

Within any seed system, multiple steps and stakeholders are involved in getting seed into the hands of farmers. Diagraming the production and distribution pathways of a crop's seed with a process flow diagram (Figure 7) helps clarify the current value chain.

***Figure 7*: Sample seed system process flow chart.**



Source: USAID, Nigeria EGS Country Study, prepared by The Context Network for Africa Lead (2016).

ADOPTION OF IMPROVED VARIETIES

The release and adoption of improved varieties can be analyzed to provide insight into farmer varietal preferences, breeder responsiveness to farmer preferences, seed accessibility, and perceptions of economic utility. Varietal releases can be summarized, with points of differentiation such as potential yield and key characteristics presented in columns. An example of a varietal release table for common bean in Rwanda is provided in Table 5.

***Table 5*: Sample varietal release table.**

Improved Climbing and Bush Bean Varieties
Select Examples of Recently Released Varieties

	Pedigree Code	Maturity *day*	Potential Yield *MT/Ha*	Size	Color	Key Characteristics
Climbing	RWV 3006	110	3.8	Large	White	Bio-fortified, export market
	RWV 2872	108	4.2	Large	Sugar	Regional market, income
	RWV 3316	115	4.0	Large	Red	Bio-fortified, nutrition
	Gasirida	100	5.0	Large	Purple	Popular markets, culinary traits
	CAB 2	115	5.0	Medium	Navy	Bio-fortified, fast cooking
	RWV 2070	105	5.0	Large	Khaki	Marketable, taste
	RWV 1129	102	4.0	Large	M/moja	Bio-fortified, early, marketable
	Gasirida	100	5.0	Large	Purple	Popular markets, culinary traits
	MAC 9	85	3.7	Medium	Calima	Marketable
	MAC 44	84	3.8	Medium	Calima	Bio-fortified, marketable
Bush	RWR 2245	75	2.0	Medium	Calima	Bio-fortified, marketable
	SER 16	75	2.5	Small	Red	Drought tolerant

Source: “Scaling Up Bean Seed Production in Rwanda”, Musoni, Augustine, Butare, Louis, Mukankubana, Domitille, Rwanda Agriculture Board.

Farmers’ perceived value of improved varieties is a strong indicator of increasing adoption rates. When the increased purchase price of improved seed is not perceived as being offset by higher yields or selling prices, demand remains stagnant. Perceived value can be assessed through farmer interviews and surveys. Figure 8 provides an example of the perceived cost of production analysis.

Figure 8: **Sample farmer cost perception analysis.**

Formal vs. Informal Market on Variable Cost Basis Example: Groundnut Variety

Formal Market Cost/Ha Certified Seed Production Costs		**Informal Market Cost/Ha** Informal Seed Production Costs		**Informal Market Cost/Ha** Saved Seed Production Costs	
Seed Cost (Basic)	$300	Purchase Open Market	$150	Recycled Seed	$0
Fertilizer	$250	Fertilizer	$190	Fertilizer	$130
Pesticide	$88	Pesticide	$48	Pesticide	$25
Planting & harvesting	$664	Planting & harvesting	$510	Planting & harvesting	$210
Labor general	$400	Labor general	$308	Labor general	$208
Transportation	$20	Transportation	$20	Transportation	$0
Inspection/lab/ germination fees	$45	Inspection/lab/ germination fee	$10	No Inspection	$0
Other variables	$500	Other variables	$415	Other variables	$175
Total Variable Cost	**$2,267**		**$1,651**		**$748**
Estimated Yield Kg/Ha	*1,500*		*1,350*		*1,270*
Estimated Cost USD/Kg	**$1.51**		**$1.22**		**$0.58**

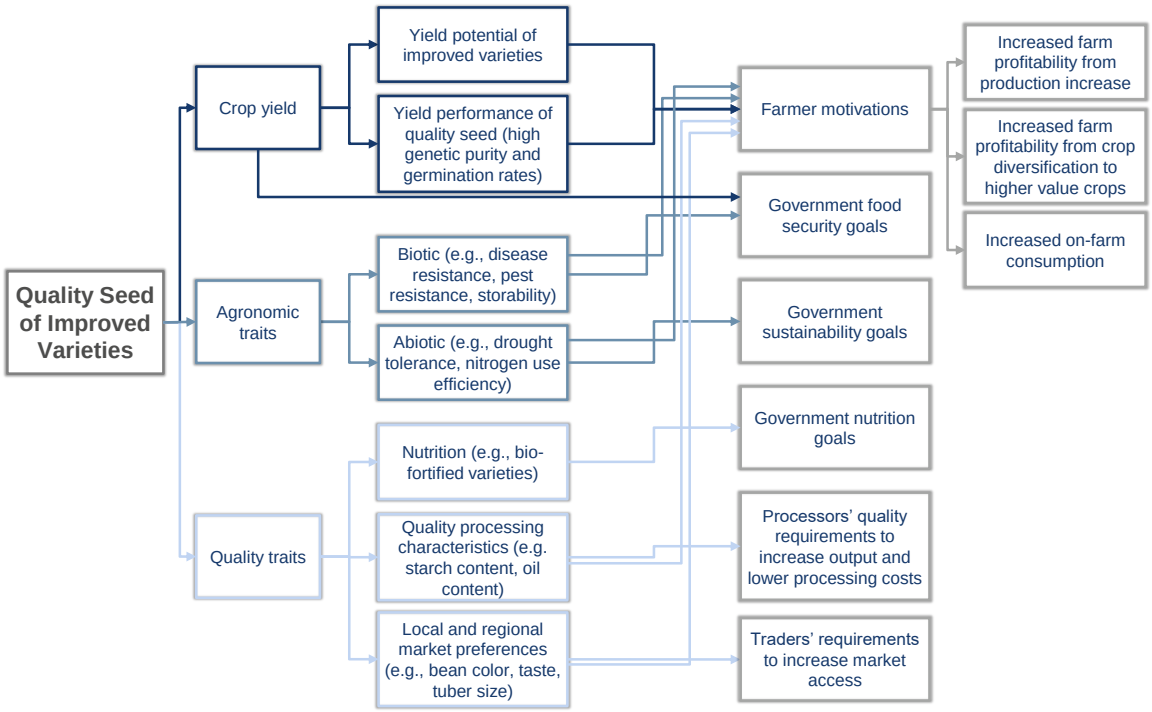
Perceived Cost Difference = ~3x

Source: USAID, Zambia EGS Report, prepared by The Context Network for Africa Lead (2016).

EGS DEMAND VARIABLES

Demand variables differ by crop and country. However, there are several commonalities within value chains that help explain how EGS can address both farmer and private-sector needs, as well as country-level goals. Figure 9 maps these variables starting with the potential benefits of quality seed of improved varieties, which can include crop yield, agronomic traits, and quality traits.

Figure 9: **Map of demand variables.**



Source: USAID, EGS Studies Synthesis Report, prepared by The Context Network for Africa Lead (2016).

CROP YIELD

There are many factors that influence farmer yield, including quantity, timing, and quality of inputs, which include high-quality improved seed, fertilizer, and crop protection, as well as the best agronomic practices associated in crop production. While these factors are interrelated and must be combined to maximize yield, quality seed of improved varieties can increase yield in two key ways. The first benefit stems from the greater yield potential of improved varieties, due to advances in breeding, compared to older improved varieties or landraces.

The other yield benefit is derived from the quality of commercial seed produced within an EGS system. A well-functioning EGS system has quality assurance protocols in place that ensure the seed that is produced has high levels of genetic purity and germination rates that safeguard the yield potential of improved varieties. In certain crops, saving seed leads to yield degeneration caused by disease pressure, poor production practices, or cross pollination. While it's difficult to quantify exactly how significant yield degeneration is from saving seed, some crops are more vulnerable than others. In the case of saving hybrid seed, yield decline is the most significant due to the inherent requirement that male and female lines must be grown in isolation.

Increasing crop yields has the potential to benefit farmers in two important ways: increased profitability and improved food security. Profitability increases could be achieved by a farmer growing more on the same area (assuming the associated cost increases don't offset the increased revenue). Additionally, a farmer could grow the same volume but use less land due to increased yield, allowing the farmer to grow a more profitable crop with the rest of his or her land. The other possible benefit of increased yield is for farmers to become more food secure.

TRAITS

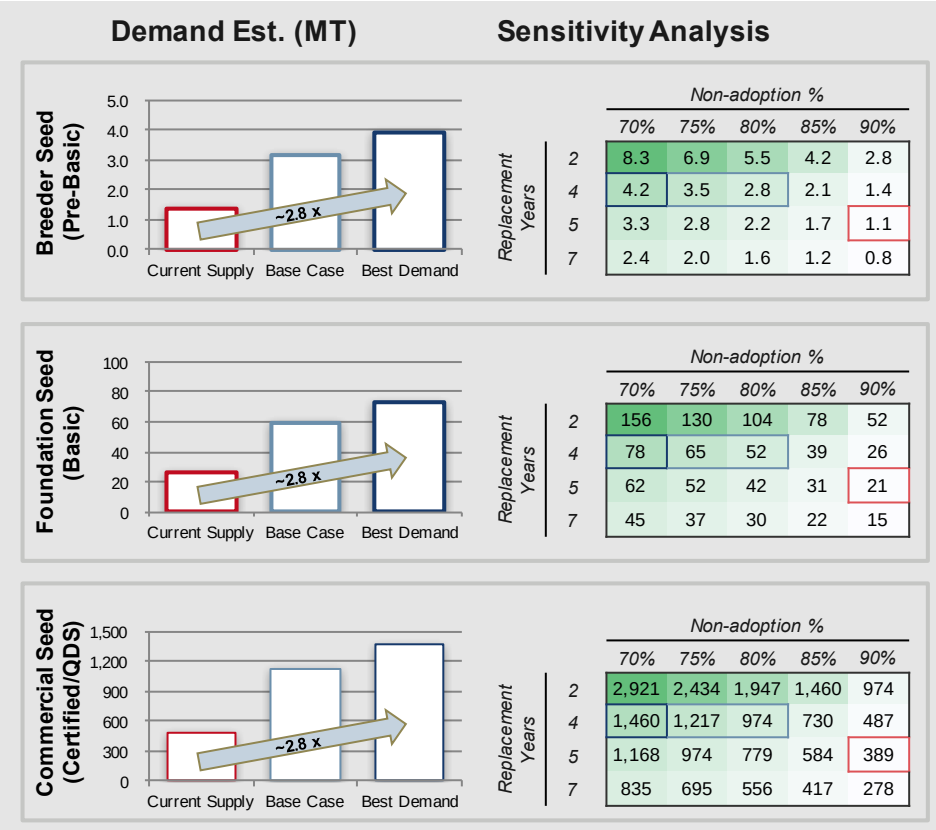
Beyond yield, demand for EGS may also be influenced by breeding for specific traits for improved varieties. There are many types of traits specific to the agronomic challenges a farmer faces as well as the opportunities to address specific quality traits demanded by farmers, processors, and consumers.

- **Agronomic traits:** They appear in the form of biotic traits such as disease and pest resistance or suitability for longer term storage. Abiotic traits could include improved tolerance to drought or improving nitrogen use efficiency. While these traits don't increase the yield potential of an improved variety, they can protect yield from agronomic stresses and allow lower input costs (e.g., nitrogen use efficiency). Additionally, some of these traits could be aligned with government and sustainability goals. For example, if a government aims to reduce crop protection, a variety with disease or pest resistance could reduce the reliance on fungicides or insecticides.
- **Quality traits:** Improved varieties can also have quality traits for nutrition (e.g., bio-fortified varieties) which could help realize government-quantified nutrition goals and also improve the well-being of families. Quality traits can also serve processors' needs (e.g., cassava varieties with high starch content). In Nigeria, for example, starch processors demand cassava with high starch content because it improves the efficiency of, and lowers the cost of, their processing operations. In some cases, processors will pay farmers higher prices for cassava that reaches their required starch levels. There are also quality traits that meet local or regional market preferences, such as specific colors and taste preferences of common beans or the tuber sizes of potato.

SUPPLY AND DEMAND POTENTIAL

An important step in supporting the proposed intervention is quantifying the supply-demand imbalance. For food and cash crops in developing market seed systems, EGS demand commonly outstrips supply. Therefore, what matters is the magnitude of the supply-demand imbalance. For example, while two crops might both be assessed as having "high" demand, the current EGS supply situations could be markedly different. One crop might have enough supply to satisfy 80% of potential EGS demand, while the other's supply may only satisfy 5% of potential demand. In the absence of credible EGS supply and demand data, informed assumptions (based on research and stakeholder interviews) can be used to develop demand forecasts. Key inputs to forecast EGS demand include seed replacement rates and the percentage of the market that adopts improved seed. An example of EGS demand forecasting is provided in Figure 10.

Figure 10: **Sample EGS demand forecast.**



Source: USAID, Zambia EGS Report, prepared by The Context Network for Africa Lead (2016).

Demand forecasting is subject to variability because of the assumptions made in its calculation. Figure 10 illustrates how sensitivity analysis can be incorporated to show the impact of independent variables (e.g., the frequency at which farmers repurchase seed, and the percentage of farmers who adopt improved seed at all) on demand (the dependent variable).

SEED SYSTEM MARKET MATURITY

In the 1990s, both the International Food Policy Research Institute (IFPRI) and the International Maize and Wheat Improvement Center (CIMMYT) developed similar frameworks to classify the maturity levels of seed systems (Morris, 1998 and IFPRI, 1991). Both of these frameworks classified seed systems into four maturity levels which include (1) Pre-industrial, (2) Emergence, (3) Expansion, and (4) Maturity. Both of these models were based on a linear approach along a fixed pathway of seed sector development, which is limiting as it doesn't take into account the diversity of crops and seed systems even within one country (Louwaars, de Boef, Edeme). However, these approaches are useful for crops such as hybrid maize in which a formal system is required. Recent work by ISSD has focused on a more pluralistic, crop-specific approach to seed sector development.

A general assessment of the maturity of the seed system(s) should be made, which involves comparing particular aspects of the current seed system with those same aspects in an ideal future state. Points of differentiation that can be used to perform such a seed system maturity assessment include:

- Private-sector involvement in seed production, certification, and processing
- Governmental participation across the three production stages (breeder, basic, and commercial)
- Share of formal versus informal seed systems
- The rate at which farmers adopt high-quality seeds
- The rate of new varietal development by national research institutions
- Scope and efficacy of seed quality-assurance systems

COST OF PRODUCTION

The cost of EGS production greatly impacts the system's ability to scale up, and understanding it is critical to developing a realistic and achievable plan for increasing EGS supply. To calculate cost of production in the absence of reliable data, estimates from seed system experts, seed producers, and farmers can be used. A sample table estimating the fixed costs, variable costs, and profit margin for each stage of EGS production is provided in Figure 11.

Figure 11: **Sample cost of EGS production analysis.**

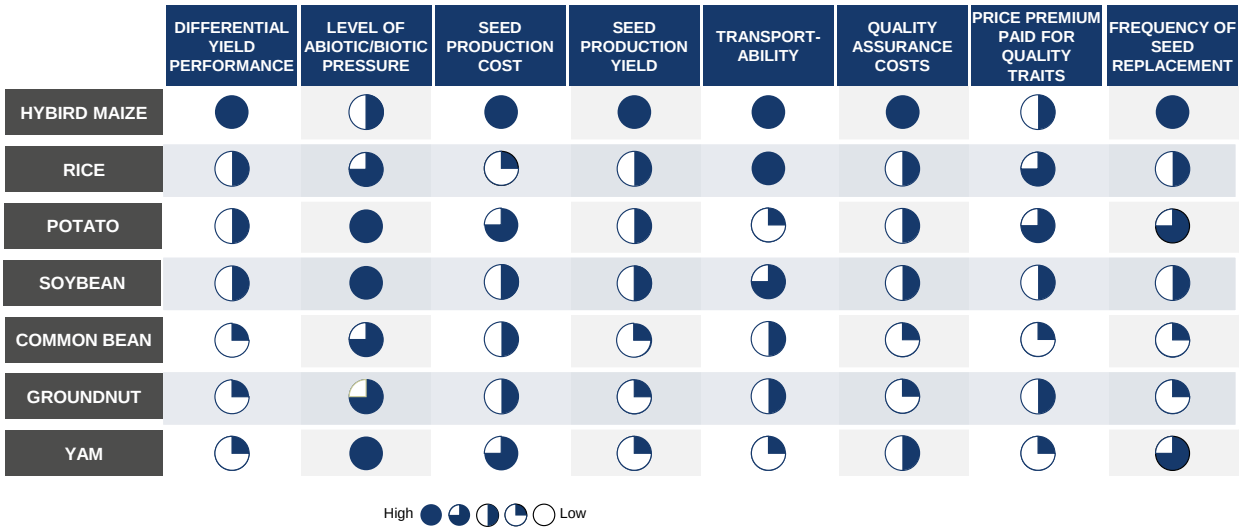
	Pre-Basic/ Breeder Seed	Assumptions	Basic Seed	Assumptions	Commercial/ Quality Seed	Assumptions
Demand MT	0.4		10		249	
Variable Cost $ per Ha	$1,310	*Seed cost and fertilizer applications are both approximately 17% of total variable costs*	$1,178	*Breeder seed represents approximately 15% of total variable costs*	$814	*Planting/harvesting and fertilizer costs are each ~25% of total variable costs*
Fixed Cost $ per Ha	$8,972	***Breeder salaries ~$7,600***	$959	***Breeder salaries ~$425***	$493	***No breeder salary allocation; labor in variable costs***
Total Costs	$10,282		$2,137		$1,384	
Margin	*$1,028*	*10% base assumption*	*$214*	*10% base assumption*	*$138*	*10% base assumption*
Cost + Margin $ per Ha	$11,310		$2,351		$1,522	
Cost + Margin $ per Kg	$7.54	***1,500 Kg/Ha yield***	$1.57	***1,500 Kg/Ha yield***	$1.01	***1,500 Kg/Ha yield***

Source: USAID, Rwanda EGS Report, prepared by The Context Network for Africa Lead (2016).

OPPORTUNITIES TO IMPROVE MARGINAL ECONOMIC VALUE

Identifying the variables of marginal economic value is an important first step in understanding how to improve a crop's profitability. Figure 12 provides an example of the analysis of how sources of marginal economic value can be evaluated across crops.

Figure 12: **Potential sources of economic value of improved varieties.**



Source: USAID, EGS Studies Synthesis Report, prepared by The Context Network for Africa Lead (2016).

MARKET ARCHETYPE

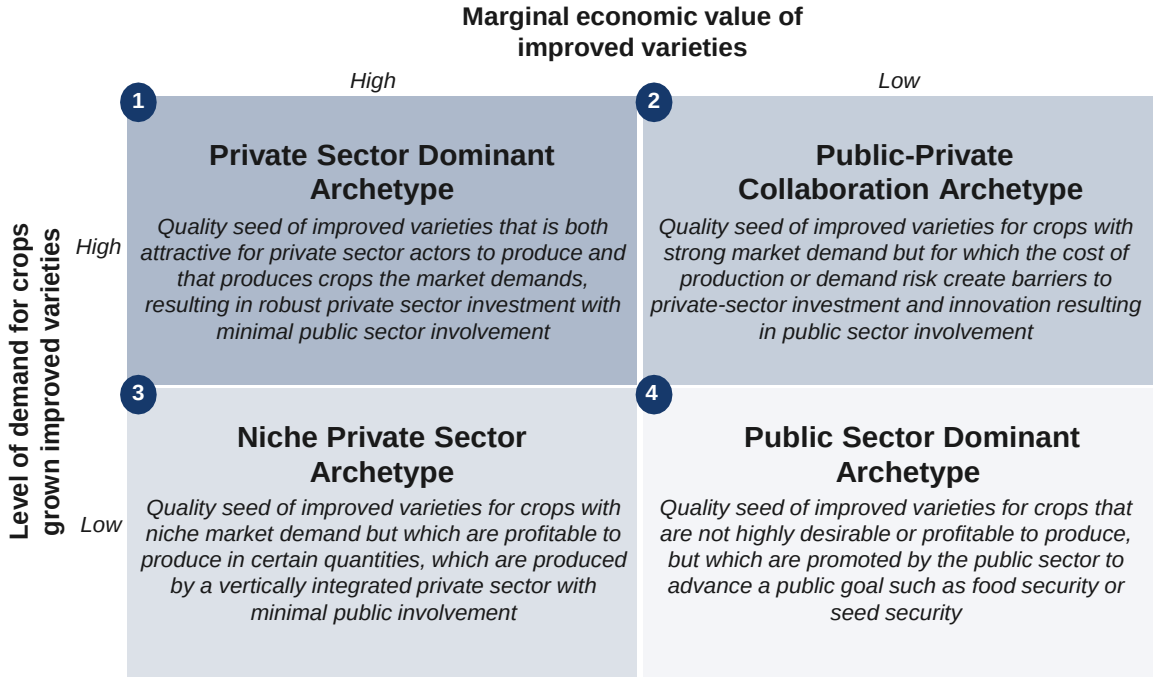
The USAID-sponsored EGS country studies are underpinned by their use of the methodology developed under the USAID-BMGF partnership. The framework evaluates several variables (Figure 13) to categorize market archetypes based on two factors: 1) the marginal economic value of the quality of improved varieties and 2) the level of demand for crops grown with quality seed of improved varieties (Figure 14).

Figure 13**: Variables that inform market archetype selection.**

Key Variable	Description	Examples
MARGINAL ECONOMIC VALUE OF IMPROVED VARIETIES		
Differential performance of improved varieties	Level with which improved varieties in the market have differential performance versus local varieties	Yield, quality, traits such as disease and drought tolerance
Frequency of seed replacement	Frequency with which quality seed must be bought to maintain performance and vigor of an improved variety	Yield degeneration, disease pressure, pipeline of new varieties being commercialized regularly
Differentiating characteristics	Existence of differentiating characteristics that command a price premium for improved varieties	Price premiums for processing, nutritional characteristics
Fragility of seed	Ability of seed to withstand storage and/or transport without significant performance loss	Hardiness/fragility of seed
Cost of quality seed production	Cost of producing quality seed	Multiplication rates, input costs, labor requirements, mechanization, macro and micro propagation technology
MARKET DEMAND FOR QUALITY SEED OF IMPROVED VARIETIES		
Total demand for seed	How much seed is required to meet the planting needs of a given crop	Area
Requirement for quality assurance	Requirement for quality assurance to realize variety benefits	Certification, Quality Declared, farm-saved seed
Farmer demand for specific varieties	Level of farmer demand for specific varieties	Mainly driven by agronomic performance
Market demand for specific varieties	Level of downstream demand for specific characteristics	Color, cooking quality, processing quality

Source: Based on variables developed by the USAID–BMGF partnership (2015).

Figure 14: **USAID – BMGF Partnership Seed System Market Archetype framework.**

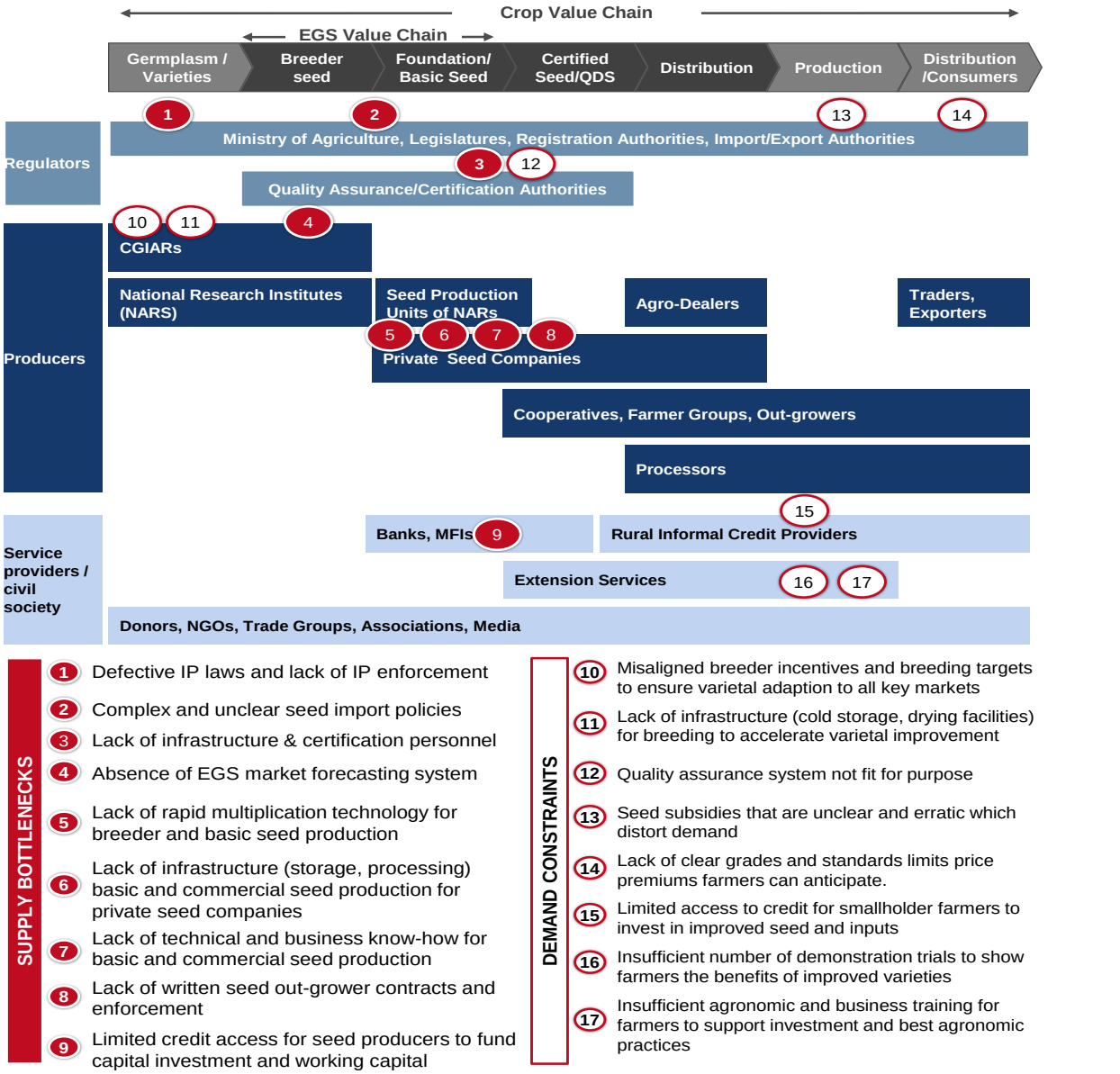


Source: Framework developed under the USAID–BMGF partnership (2015).

1.4 CONTRAINTS AND BOTTLENECKS TO OVERCOME

The purpose of this section is to present and discuss some of the inhibitors to EGS system development. There are many supply bottlenecks and demand constraints that prevent the value chain from performing in a commercial and sustainable manner. In order to effectively address these bottlenecks and constraints, the extended crop value chain should be mapped, including EGS production, varietal development, crop production, distribution, and end use (i.e. processing, trade, or consumption). Figure 15 below is a high-level, cross-crop summary of the extended value chain stages and the key actors directly and indirectly involved in each link. The exact links, roles, and responsibilities vary by crop and country, which are defined in each country study.

***Figure 15*: Extended EGS value-chain and actors.**



Source: USAID, EGS Studies Synthesis Report, prepared by The Context Network for Africa Lead (2016).

It is important to note that supply bottlenecks tend to occur at EGS production stages, while the demand constraints occur before and after EGS production stages, and often involve regulators, service providers, and the preferences of farmers and consumers.

1.5 STAKEHOLDER ANALYSIS

IDENTIFY STAKEHOLDERS

A seed system stakeholder is defined as an individual, group, or entity that can affect or be affected by a change in the seed system. Collectively, they are often referred to as “actors.” Assessing the landscape of relevant stakeholders—their roles, interests, and motivations—

provides important market perspectives. Starting with a crude map of the value chain with the main links identified, one asks the question who are the principal actors involved in production, processing, trade, and consumption. One can also pose highly specific questions such as, “in which crops or which links of a specific crop’s value chain are women especially involved in or affected by the value chain?” Stakeholder specifics will vary by crop and by country, but the general categories of stakeholders to be evaluated are described below.

Public Sector

Public-sector stakeholders include the Ministry of Agriculture, NARIs, and departments and agencies responsible for breeder seed production, commercial seed certification, and the provision of agriculture extension services.

CGIAR

The Consultative Group for International Agricultural Research (CGIAR) is a global research partnership for a food-secure future. CGIAR is the only worldwide partnership addressing agricultural research for development, whose work contributes to the global effort to tackle poverty, hunger, and major nutrition imbalances, and environmental degradation. Research is carried out by the 15 centers (members of the CGIAR consortium) in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations, academia, development organizations, and the private sector. Since 2010, the CGIAR consortium has been financed through the CGIAR Fund, which is administered by the World Bank but to which 39 donors contribute money, including bilateral donors such as USAID and private entities (i.e., BMGF) and multilateral donors such as the International Fund for Agricultural Development (IFAD) and the European Commission.

Private Sector

Private-sector stakeholders span the length of the value-chain and include private seed companies at the basic and commercial seed level, agro-dealers, farmer groups, processors, traders, business associations, and financial institutions.

Donors

The donor landscape encompasses multilateral donors like the Global Agriculture and Food Security Program, bilateral donors like USAID, and private foundations like BMGF. Donor stakeholders will vary based on the intervention type (e.g., government-facilitated or private sector-led) and geographic scope.

Civil Society

Civil society stakeholders include non-governmental organizations (NGOs), academic institutions, and the media. NGOs can feature prominently in a country’s agriculture development, often filling value-chain gaps that are economically unattractive to the private sector. Academic institutions’ roles are often centered on providing human capital development and agricultural innovation. Media outlets (e.g. print, rural radio, television, and film) may help to increase awareness of agricultural program activities.

ANALYZE STAKEHOLDERS

Once identified, a summary of stakeholders can be provided in a narrative (Figure 18), table, and/or a graphical form. Key questions that can be answered to prepare the analysis, stakeholder by stakeholder, include:

- What is the stakeholder's role in the seed sector?
- What motivates the stakeholder?
- What is the stakeholder's ability to influence other actors in the value chain?
- What resources does the stakeholder command?

One analysis technique is to categorize stakeholders (i.e., public, private, and civil society), and to specify the possible contribution and motivations of each (Table 6). Contributions relate to the stakeholder's core competencies and command of resources, while motivations correspond to the stakeholder's incentives. For example, international seed companies often possess the financial depth and technical expertise to develop and advocate for market-oriented policy reform. Their motivation for doing so is likely the return on investment by achieving higher revenues and/or lower cost. Within stakeholder groups, it is important to identify the representatives of each. Stakeholder representatives could include (IFC, 2007):

- Elected representatives of regional, local, and village councils
- Traditional representatives, such as village headmen or tribal leaders
- Leaders (chairmen, directors) of cooperatives, other community-based organizations, NGOs, and women's groups
- Politicians and local government officials and school teachers
- Smallholder farmer groups and commercial farmer associations
- Agro-dealers, formal and cross border traders
- Micro-finance institutions, banks, informal lending groups
- NARIs, agricultural extension and education services

Table 6: **Seed sector stakeholder table.**

Seed Sector Stakeholder Summary			
	Actor	**Possible Contribution**	**Possible Motivation**
Public Sector	Ministry of Agriculture	Administrative facilitation and expedition, financial support, concept validation	Economic growth
	NARIs		
Private Sector	International Seed Companies		
	Local Seed Companies		
	Farmer Groups		
	Agro-Dealers		
	Trade Groups		
	Business Groups		
Civil Society	NGOs		
	Media		
	Academic Institutions		

Source: Team analysis.

To supplement the summary table, the extended EGS value chain and actors diagram (Figure 18) referenced in section 1.4 can be used to illustrate the roles, location, and interaction of seed system actors. In such a diagram, the functional areas (e.g., regulators, producers, service providers) should be charted along the vertical axis, and the value-addition stages (e.g., seed production, production, and distribution) along the horizontal axis.

1.6 RESOURCES FOR PROVIDING SEED SECTOR CONTEXT

The USAID-sponsored EGS country studies, which have been conducted for 11 countries within Sub-Saharan Africa, provide a good starting point for describing the prevailing seed intervention context. Additional resources for reference and use in developing illustrative analyses are provided below.

RESOURCE LINK	DESCRIPTION
CAADP Country Compacts	Brief, high-level political and agricultural context, outlining priority investment areas and institutional arrangements for CAADP implementation
CAADP Country Investment Plans	Investment plans and sectoral plans, replete with analysis, challenges, opportunities, priorities, and defined goals and objectives

The World Bank – Open Data	A repository of country-level data pertaining to agriculture and rural development.
FAOSTAT (FAO)	Agriculture-specific datasets that span land use, crop production, and nutrition, among others
Famine Early Warning System	Curated food security analysis, data, and supporting maps for 29 countries in Africa
Monitoring and Analyzing Food and Agricultural Policies (FAO)	Database of select countries classifying public expenditure by commodity and repository of reports, technical notes, policy briefs, and learning material
A Handbook for Value Chain Research (International Development Research Centre)	Detailed guide on performing value chain analysis
Stakeholder Identification and Analysis (International Finance Corporation)	Guide to the process of identifying and evaluating stakeholders
Intervention Guide for the Women's Empowerment in Agriculture Index (USAID FTF)	Guide for adapting insights gained through WEAI's survey into agricultural interventions.

CHAPTER 2: MAKING THE INVESTMENT CASE

2.1 ANALYZING INTERVENTION IMPACT

Economic analyses of agricultural projects are undertaken to compare costs with benefits and to determine among alternative projects which has the highest return. The costs and benefits of a proposed project therefore must be identified (Gittinger, 1984).

Individual stakeholders interpret costs and benefits differently. For instance, the major benefit of a maize varietal improvement program for public-sector stakeholders may be increased food security, whereas for a private-sector stakeholder or farmer, the benefit may be increased income. The perspective from which interventions' costs and benefits are viewed and interpreted is important, because these perspectives will influence individual actors' preferences when it comes to selecting and prioritizing investments.

For public-led interventions, value creation can be calculated as the sum of tangible and intangible benefits, less the cost of providing the benefits. Costs are typically easier to assess than benefits, and include outlays for goods, labor, land, and debt. Benefits can be broken down into two categories: tangible and intangible. Tangible benefits include the marginal economic value that results from an intervention. Intangible benefits are non-monetary, and reflect the social impact achieved through the intervention.

EVALUATING TANGIBLE BENEFITS

Tangible benefits of agricultural projects arise either from an increased value of production or from reduced costs (Gittinger, 1984). Tangible benefits can be evaluated based on the impact of the intervention on each of the following areas:

- **Increased production:** Higher unit output resulting from the quantity, timing, and quality of inputs, including high-quality improved seed, fertilizer and crop protection, used by farmers
- **Quality improvement:** Increased unit sales price due to so-called "price premiums" associated with production quality
- **Change in time of sale:** Temporal value created from selling production at a more optimal time, when prices are higher
- **Change in location of sale:** Locational value created from moving crops to areas with a higher per-unit sales price
- **Changes in product form (grading and processing):** Increased value of the commodity through value-addition steps, like processing
- **Cost reduction through mechanization:** Reduced labor costs through production automation
- **Reduced transport costs:** Improved infrastructure and/or alternative transportation methods resulting in lower costs

- **Losses avoided:** Costs that would have otherwise been incurred if not for the intervention

EVALUATING INTANGIBLE BENEFITS

Agriculture investments have intangible costs and benefits too. These may include improved nutrition and health outcomes, increased food sovereignty, and political stability. Such intangible benefits are real and have economic value. However, they are not easily valued and must be analyzed on a case-by-case basis, because the weighting of benefits will vary depending on their importance to stakeholders.

In the end, every project decision will have to take intangible factors into account through a subjective evaluation because intangible costs can be significant and because intangible benefits can make an important contribution to many of the objectives of rural development (Gittinger, 1985).

An approach to evaluating intangible costs and benefits is Social Return on Investment (SROI). SROI is a means of evaluating social returns across diverse impact areas (e.g., health, education, and agriculture) by computing social benefits into equivalent units of economic value. Represented as an equation, SROI is:

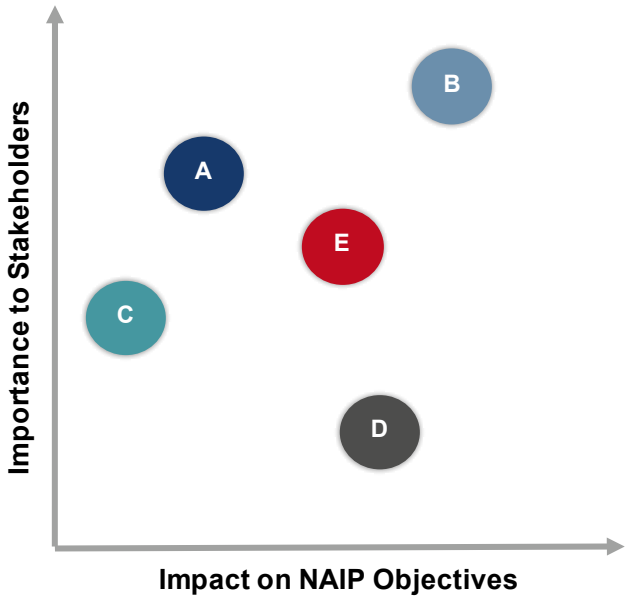
$$\text{Social Return on Investment} = \frac{[Net\ present\ value\ of\ benefits]}{[Net\ present\ value\ of\ investment]}$$

SROI's use as an evaluation metric in development interventions is limited, but its methodology has value for public-sector interventions where social impact is the priority. For further reading on SROI and its incorporation as an evaluation tool, a link is included in the resources section of this chapter.

INTERVENTION SELECTION

Once interventions are assessed based on their incremental value, they can be charted for comparison. An example of an approach to doing this is provided in Figure 17, which evaluates interventions based on their importance to stakeholders and their impact on achieving national agriculture objectives.

***Figure 16*: Intervention value comparison.**



Based on the evaluation criteria used in Figure 16, intervention "B" would be selected because it is the most important to stakeholders and has the greatest impact on NAIP objectives. Investment comparison dimensions will vary based on country priorities and constraints (e.g., agricultural development budget).

2.2 DEVELOPING THE RESULTS FRAMEWORK

A results framework articulates the long-term impact of an intervention, as well as the medium-term outcomes that precede it. Reference guides to aid the development of country and/or intervention-level results frameworks exist, and this chapter is intended to augment those resources (listed in section 2.3) with seed system-specific guidance.

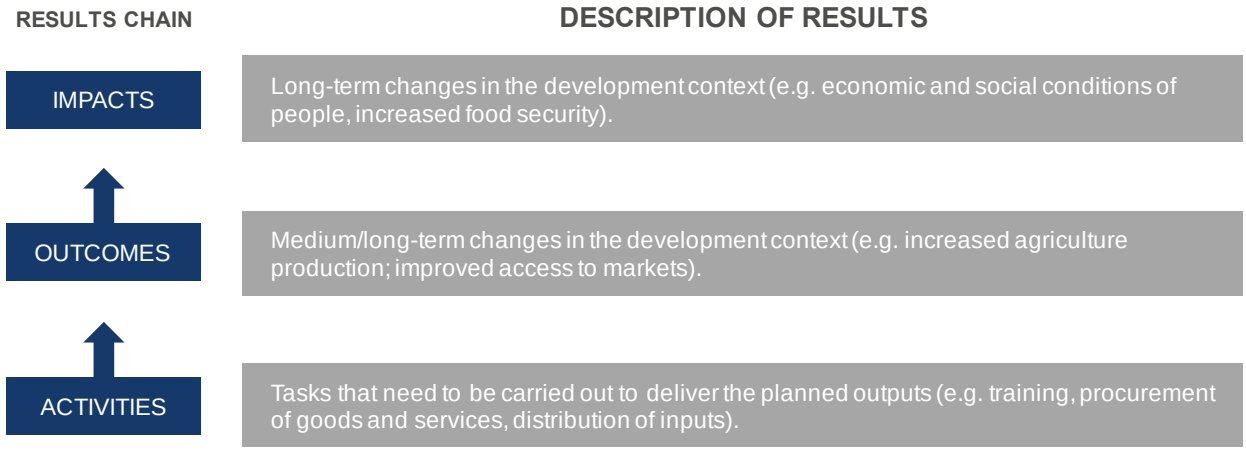
Regardless of whether a seed system intervention is to be incorporated into a NAIP as a program or component, or implemented as an independent project, a results framework helps define, structure, and communicate the intended results. It is also an invaluable tool for post intervention evaluation and holding the actors accountable.

IDENTIFYING OUTCOMES

Outcomes are mid- to long-term changes that are realized through the intervention (e.g., increased availability of improved seed, higher crop productivity, etc.) and support the long-term sector agenda (Figure 17). They are inherently program-specific.

Donor and public-sector support for interventions is increasingly predicated on the intervention's alignment with national agriculture priorities. Therefore, the linkages between the selected intervention outcomes, country impact objectives, and the CAADP Results Framework (2015-2025) should be made clear.

Figure 17. **Sample seed system requirements overview.**



Source: Adapted from FAO "Strengthening Systematic Capacities for the Formulation and Management of National Agriculture Investment Plans (NAIPs)" (2014)

There are several approaches for linking seed system intervention outcomes to country-level agricultural impact objectives. One approach, outlined in Figure 18, is to provide a qualitative assessment of the intervention's effect on country-level indicators. The benefit of this approach is that it succinctly highlights key impact areas. However, the major drawback is the lack of quantitative rigor. This shortcoming can be addressed by quantifying the intervention's impact on country-level indicators. For example, instead of stating that the EGS intervention has "High" impact on realizing an 8% increase in crop production, the numeric impact could be stated instead (i.e., 50% of the annual crop production level goal would be addressed by the EGS intervention).

Figure 18: **Impact of seed intervention on country objectives.**

Seed Intervention Impact on Strategic Agricultural Objectives			
Thematic Area	**Strategic Objective (SO)**	**Country-level Indicators**	**Seed Intervention Impact**
Productivity & Production	SO 1: To achieve a sustainable increase in agricultural productivity and production	At least 8% increase in annual crop and livestock production levels	HIGH
		5% annual change in total value of productivity (value output/value inputs) per crop and livestock unit	MEDIUM
		3% annual reduction in post-harvest losses by key commodity	LOW
		6% annual increment of farming households using improved agricultural inputs and practices	HIGH
		Amount of improved seed and fertilizer utilized: total and per hectare	HIGH
		6% annual increment of farmers using agricultural inputs and improved practices	MEDIUM
		Number of new agricultural technologies generated, tested, and released	HIGH
		% of stable food requirements imported	MEDIUM

Source: Ethiopia's Agriculture Sector Policy and Investment Framework (2010).

A similar approach can be applied for the relationship between the investment plan and Level 2 results from the CAADP Results Framework (Figure 19), which describe the desired results of agricultural performance (i.e., production and productivity) (AU-NEPAD)[2].

[2] A link to the CAADP Results Framework (2015-2025) is in the resources section of Chapter 2.

Figure 19: **CAADP results framework level 2.**

CAADP Results Framework Level 2 Agricultural Transformation and Sustained Inclusive Agricultural Growth		
Results Area	**Indicator**	**Seed Intervention Impact**
2.1. Increased agriculture production and productivity	2.1.1 Agriculture value added (absolute values) Increased agriculture production and productivity	**HIGH**
	2.1.2 Agriculture production index (2004-2006=100)	
	2.1.3 Agriculture value added per agricultural worker (constant 2005 USD)	
	2.1.4 Agriculture value added per hectare of arable land (constant 2005 USD)	
	2.1.5 Yields for the most common commodities	

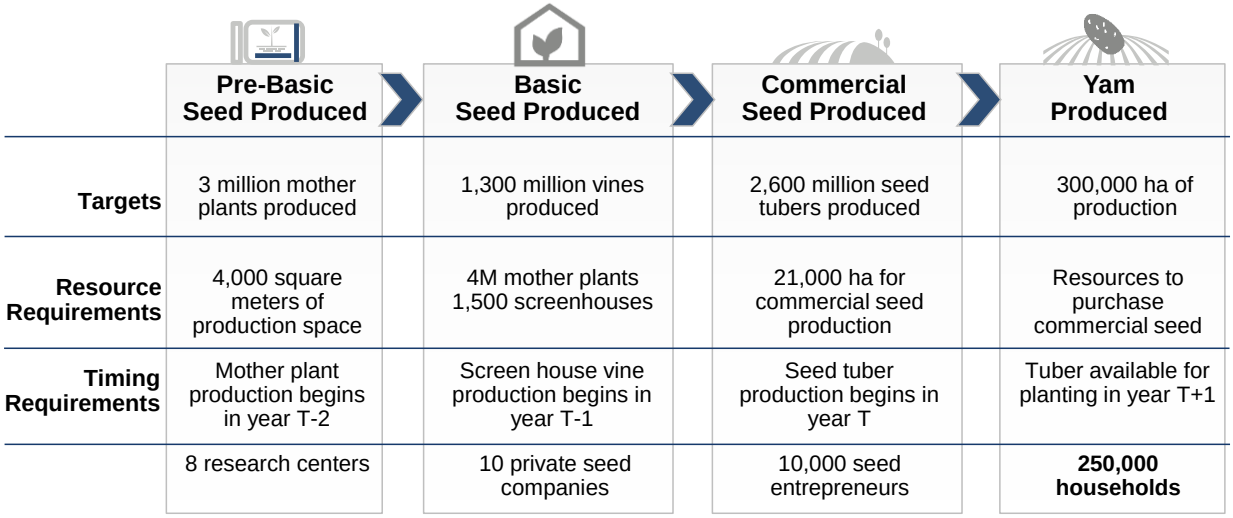
Source: Adapted from the CAADP Results Framework 2015-2025.

ASSESSING SYSTEM REQUIREMENTS

In order to evaluate the feasibility of an intervention's outcomes, the gap between the existing infrastructure and systems and what needs to be built or established should be assessed. EGS systems are composed of at least three interdependent seed production stages (pre-basic, basic, and commercial). Importantly, system requirements include not just seed volumes but also the financial, physical, and human resources needed to produce those volumes.

For example, if the intervention outcome is defined as providing enough EGS seed for 250,000 smallholder farmers, then demand-side assumptions should determine the amount of commercial seed needed (e.g., farmer perception of marginal value, disposable farm income, cropping pattern and intensity, etc.). The commercial seed demand forecast will then inform upstream seed production at the basic and pre-basic stages. A sample seed system requirement analysis is provided in Figure 20.

Figure 20: **Sample seed system requirements overview (yam illustrative example).**



	Pre-Basic Seed Produced	Basic Seed Produced	Commercial Seed Produced	Yam Produced
Targets	3 million mother plants produced	1,300 million vines produced	2,600 million seed tubers produced	300,000 ha of production
Resource Requirements	4,000 square meters of production space	4M mother plants 1,500 screenhouses	21,000 ha for commercial seed production	Resources to purchase commercial seed
Timing Requirements	Mother plant production begins in year T-2	Screen house vine production begins in year T-1	Seed tuber production begins in year T	Tuber available for planting in year T+1
	8 research centers	10 private seed companies	10,000 seed entrepreneurs	**250,000 households**

SELECTING INDICATORS

Indicators are used to evaluate progress made toward outcomes. The selection of indicators is influenced by factors such as stakeholder priorities, the correlation of indicators with outcomes, and the availability of reliable baseline data.

The most direct path to selecting intervention indicators is to use existing ones. Existing indicators can be drawn from NAIPs, the CAADP Results Framework, and international development organizations like the World Bank (Figure 21) and FTF (Figure 22). Utilizing existing metrics has several advantages over developing a unique set, including:

- Alignment of seed system interventions with country-level objectives
- Ease of incorporating the intervention into broader agriculture sector development initiatives
- Effective messaging to stakeholders because the indicators have already been vetted
- Availability of existing baseline data, which makes target setting less time-consuming and more reliable

***Figure 21*: World Bank agribusiness indicators for seed sector.**

Agribusiness Indicators for Seed Sector	
Indicator	**Measurement Source**
Private sector production of foundation seed (%)	Informed opinions and perceptions triangulated with available data
Private sector production of certified seed (%)	Published private and public sector data
Imported seed as total of certified seed (%)	Published private and public sector data
Time (years) for seed testing and registration	Published governmental and international organization data
Existence and implementation of regional & national seed laws & regulations (0-5)	Published governmental and international organization data
Ease of private sector participation in the seed market (0-5)	Perception based: interviewee (private sector participant)

Source: World Bank (2010).

***Figure 22:* FTF early generation seed indicators.**

EGS-Focused Feed the Future Indicators
Indicator Measurement
Number of hectares under improved technologies or management practices as a result of U.S. Government assistance
Number of farmers and others who have applied new technologies or management practices as a result of U.S. Government assistance
Number of private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations that applied new technologies or management practices as a result of U.S. Government assistance
Value of agricultural and rural loans

Source: Feed the Future (2016).

IFPRI's recently developed "NAIP Toolbox" report is an input and a contribution to the efforts by the AU Commission and NEPAD's Planning and Coordinating Agency to prepare a Technical Guide and Road Map for appraisal and preparation of the next generation of NAIPs and their alignment with the Malabo commitments. It is of high importance to ensure that existing NAIPs can be effectively appraised and, where new ones are being developed, designed in ways that are sufficiently rigorous and consistent with the CAADP goals and commitments in the Malabo Declaration. The report is primarily developed for country teams who will conduct country-level NAIP appraisals; the analytical tools can be used for diagnostic, planning, and monitoring, as well as for evaluation purposes.

The report is organized into three parts. Part I proposes sets of metrics for key goals and targets to be met, commitment to be achieved, milestones to be tracked, and actions to be covered by the investment plans. Part II presents the list of analytical questions that will be addressed during the NAIP appraisal process. These questions guide country and regional teams on what to focus on, although the questions can be refined based on the country context. Part III proposes and describes details of tools that can be used for the country profiling, status assessment, and program design. It also describes when and under what conditions the tools can be used and what types of data are required.

2.3 RESOURCES FOR MAKING THE INVESTMENT CASE

RESOURCE LINK	DESCRIPTION
Country CAADP Implementation Guidelines under the Malabo Declaration (NEPAD)	Guidelines to support four-step process of CAADP implementation: 1) domesticating the Malabo Declaration commitments, 2) NAIP appraisal, 3) NAIP implementation, 4) mutual accountability
Economic analysis of agricultural projects (World Bank)	How to guide for conducting economic analysis of agricultural projects
Designing a Results Framework for Achieving Results: A How-To Guide (World Bank)	Guide for developing a program results framework
Designing a Multi-Stakeholder Results Framework (World Bank)	Toolkit for development planning, including practical tools for developing goals and a results framework
Community-Driven Development Decision Tools (IFAD)	Reference document for designing community-based rural development projects
Agribusiness Indicators (World Bank)	Synthesis report comparing countries based on World Bank established agribusiness indicators
CAADP Results Framework (2015-2025)	Overview of the 2015-2025 CAADP Results Framework
Social Return on Investment: A Practical Guide for the Development Cooperation Sector (Context, International Cooperation)	A guide to understanding and implementing SROI
Household seed security concepts and indicators (FAO)	Reference document and guide for evaluating household seed security
A Guide to Assessing Seed System Security (CIAT)	Guide for evaluating seed systems in a post-disaster environment

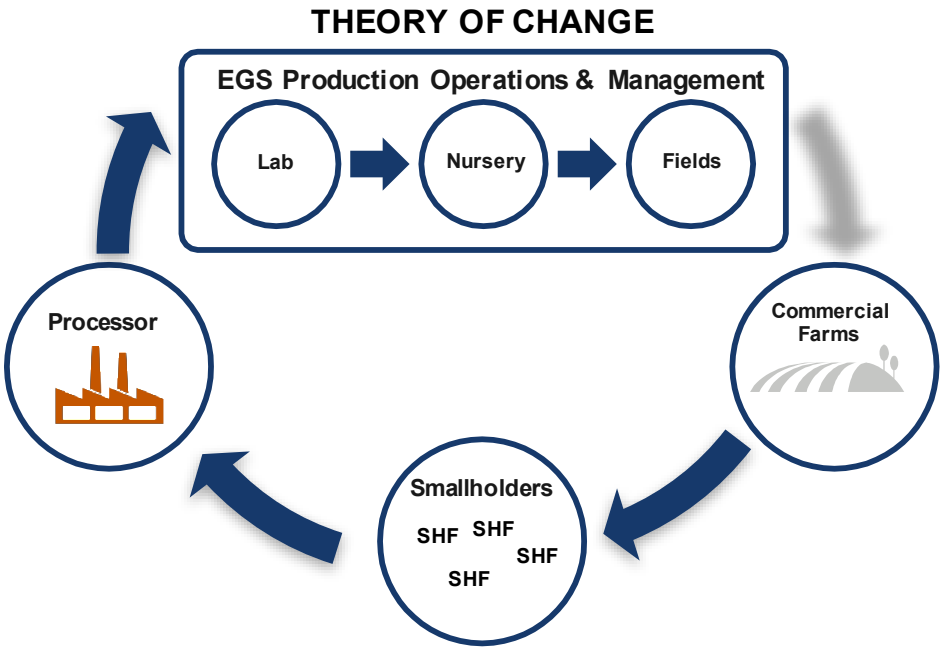
Maximizing the Nutritional Impact of Food Security and Livelihoods Interventions (Actions Against Hunger)	Guide for incorporating nutrition into agricultural interventions
Seed Marketing (FAO)	Guide to seed marketing, including a chapter (4) on forecasting seed demand
Feed the Future Handbook of Indicator Definitions (USAID FTF)	Detailed summary of the FTF indicators
Feed the Future Indicators (USAID FTF)	Excel table with a summary of FTF indicators
Feed the Future Results Framework (USAID FTF)	The FTF 2013 results framework overview
Technical Note on Developing a Results Framework (USAID FTF)	Technical note that describes the concepts underlying the Results Frameworks for Country Development Cooperation Strategies
Feed the Future Learning Agenda (USAID FTF)	The FTF 2013 learning agenda overview
Selecting Performance Indicators (USAID FTF)	Guide for the selection of indicators
Feed the Future Agricultural Indicators Guide (USAID FTF)	Guidance on the collection and use of data for selected FTF agricultural indicators

CHAPTER 3: DESCRIBING THE INTERVENTION

3.1 INTERVENTION DIAGRAM

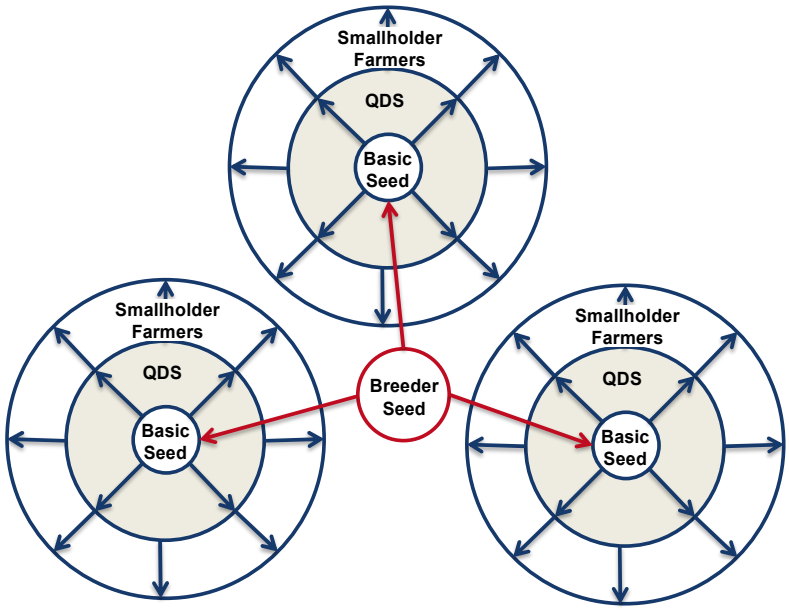
Intervention diagrams can be used to supplement narrative, clarify programmatic aims, and guide the description of the intervention. Three intervention illustrations are provided below for reference. Figure 23 is an intervention diagram for a program intended to improve the productivity of EGS production through processor linkages.

Figure 23: **Sample intervention diagram.**



A second example in Figure 24 diagrams an intervention's role in developing a local Quality Declared Seed system.

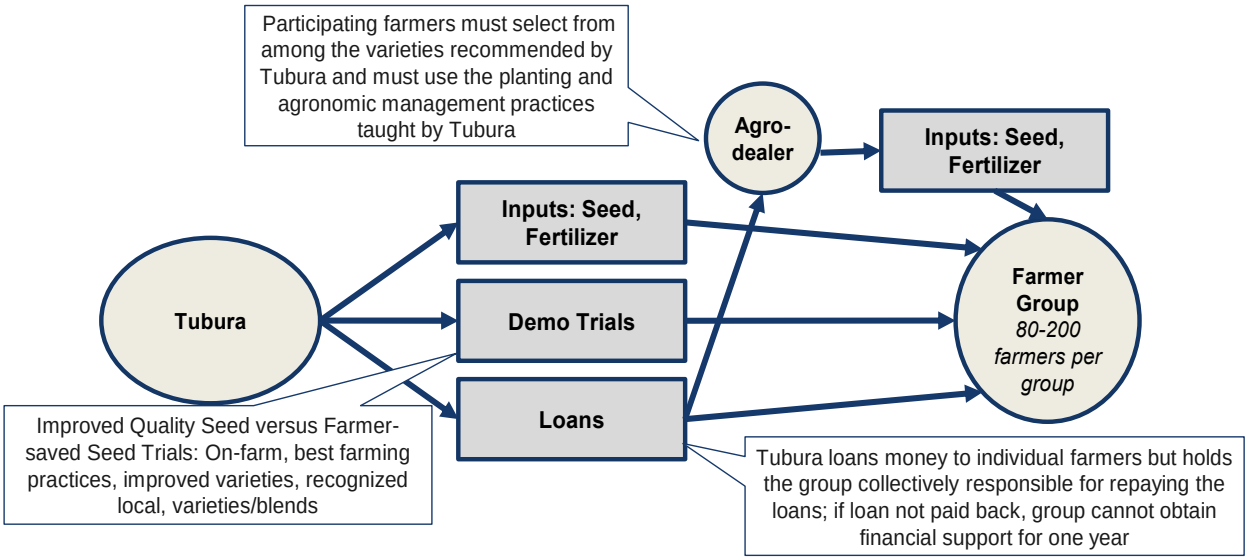
Figure 24: **Localized seed production diagram.**



Source: USAID, Zambia EGS Study, prepared by The Context Network for Africa Lead (2016).

Lastly, an intervention diagram based on the Tubura model in Rwanda shows the organization's role in connecting farmers with inputs, training, and credit (Figure 25).

Figure 25: **Tubura intervention diagram.**



Source: USAID, Rwanda EGS Study, prepared by The Context Network for Africa Lead (2016).

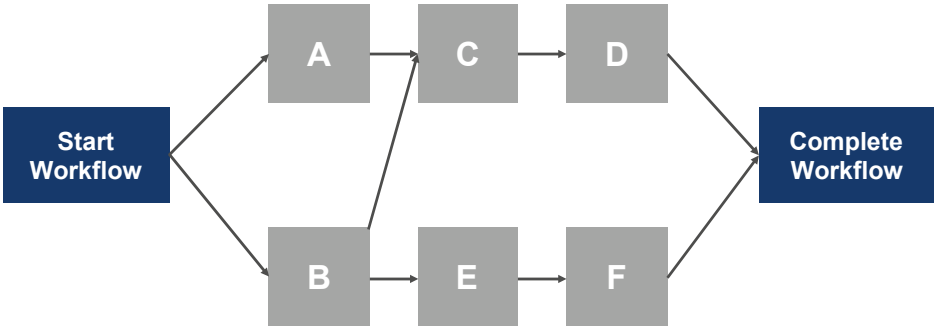
3.2 INTERVENTION ACTIVITIES

SEQUENCING ACTIVITIES

EGS production is a multiyear process. Commercial seed available for sale in a given season is the result of pre-basic seed production that may have begun years earlier. The long timelines required for EGS production make the sequencing of intervention activities important. Activities can be strategically sequenced through the use of a precedence diagram model (Figure 26), which helps identify interdependencies between activities and determine how activities can be optimally sequenced. Three questions used to construct such a diagram are:

- Which activities must be completed before this activity?
- Which activities can happen at the same time as this activity?
- Which activities require this activity to be completed before they can start?

***Figure 26*: Sample precedence diagram method.**



ACTIVITY PLANNING

Once the order and timing of activities is established, they can be migrated to an implementation plan table, like the one in Table 7, which outlines which tasks are to be done by whom and when.

***Table 7*: Sample implementation plan table.**

	Outcomes	Activities	Responsible	Timeframe	Budget	Budget Source	Status
1.1	**Harmonize variety registration processes with EAC and COMESA procedures**	Develop a summary comparison report and distribute among key agriculture policy stakeholders	Intervention Working Group	April 2017	$10,000	Donor	Complete
		Form policy working group and draft legislation	Ministry of Agriculture	June 2017	$30,000	National Budget	In progress

Further, a Gantt chart can supplement the implementation plan table, providing an easy-to-understand visualization of activities and milestones. An example of a Gantt chart is provided in Table 8 for reference.

***Table 8*: Example Gantt chart.**

Activity	Responsible Party	Status	2017												2018											
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Stakeholder Coordination																										
Coordinate roundtable meeting	Project Manager	In Progress																								
Host roundtable meeting	Agriculture Ministry	Pending																								
Activity																										
Activity																										
Activity																										
Program Implementation																										
Activity																										
Activity																										
Activity																										
Activity																										
Activity																										

Source: Gantt chart adapted from www.tool4dev.org.

3.3 STAKEHOLDERS

STAKEHOLDER BENEFITS

The perspective of stakeholders must be embedded in the program design process. In fact, stakeholder consideration is a criteria used by NEPAD to evaluate NAIPs. A stakeholder assessment typically begins by characterizing the projected direct and indirect benefits to each of the seed sector stakeholders outlined in Chapter 1. Table 9 provides an example of the form this analysis can take.

Table 9: **Sample stakeholder benefit summary.**

Projected Stakeholder Benefits			
Stakeholder		**Benefit**	
		Direct	**Indirect**
Public Sector	Ministry of Agriculture	Increased technical capacity	Reduced costs due to lower staff turnover
	Regional Administrations		
	National Research Institutions		
Private Sector	Farmers		
	Women's Trade Group		
	Agro-Dealers		
	Local Seed Companies		
	International Seed Companies		
Civil Society	NGO		
	Print, rural radio, and TV outlets		
	Academic Institution		

Additionally, a beneficiary assessment can be used to analyze the intervention from the perspective of its intended beneficiaries (Salmen, 1991). It relies on learning through a non-prescriptive combination of observation and interaction with beneficiary groups. The learning that occurs through the process informs the planning, structuring, and operational delivery of the intervention. Importantly, beneficiary assessments are intended to be employed before, during, and after the seed system intervention. Links to more information on conducting beneficiary assessments is provided in section 3.6.

STAKEHOLDER ROLES & RESPONSIBILITIES

As outlined in Chapter 1, there are many actors in a country's seed sector platform. Describing the roles and responsibilities of each is important for internal clarity and external communication. A stakeholder summary table can provide a concise summary of who is doing what to implement the intervention (Table 10).

***Table 10*: Sample stakeholder roles and responsibilities table.**

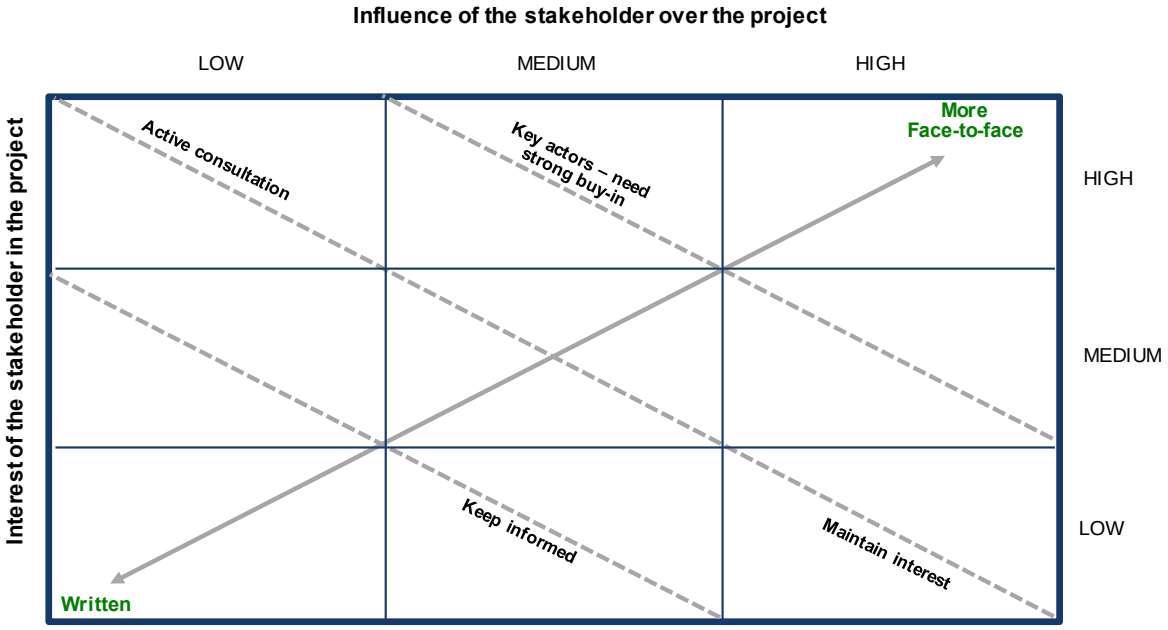
Stakeholder Roles & Responsibilities		
Name	**Intervention Role**	**Key Responsibilities**

STAKEHOLDER COMMUNICATION STRATEGY

Developing a stakeholder communication strategy that optimizes resource allocation based upon importance to stakeholders can help to dampen dissent and increase support for the intervention. It can be useful to segment stakeholders in a way that enables strategic communication with them. A method for doing this is to apply the influence-interest grid (Imperial College London). This matrix has many adaptations, but one that maps the interest and influence of stakeholders, and overlays a communication strategy based on the interaction of the two, is provided in Figure 27.

This approach, or one like it, can be developed by analyzing key stakeholders through an "interest" and "influence" frame. The "interest" component can be developed by engaging with the stakeholders to assess the depth of their interest to support the intervention.

***Figure 27*: Influence-interest matrix.**



Source: Adapted from Jisc (UK) guide entitled "Stakeholder engagement" (2014).

If, for example, the intervention was focused on scaling back cotton input subsidies, then elected officials from heavy cotton-growing agricultural regions would likely represent a stakeholder group with significant influence and interest in the project. These officials have policy influence and a constituency that benefits from continued subsidies. The influence-interest matrix indicates that these stakeholders should be getting more face-to-face time.

3.4 MONITORING & EVALUATION

The results framework contains the objectives and indicators used to track and evaluate performance and is therefore the basis for the intervention's Monitoring & Evaluation (M&E) plan. The M&E plan goes further though, by defining the specific data collection methods, roles and responsibilities, and the plan for disseminating information to stakeholders (Table 11). Key questions to be addressed within the M&E plan include:

- Where will the data needed to track the progress of intervention come from?
- Who is accountable for the collection, evaluation, and reporting of intervention progress?
- How frequently, and in what format, will intervention monitoring be conducted?
- How will insights be disseminated to project stakeholders, including beneficiaries, managers, and policy makers?

***Table 11*: Sample M&E summary table.**

Evaluation	Monitoring					Evaluation		
Evaluation Question	Monitoring Question	Indicator	Data Source	Responsible Party	Timeframe	Responsible Party	Reporting Format	Reporting Timing

Source: Table adapted from Evaluation Toolbox article, "Developing a Monitoring & Evaluation Plan."

A structured approach for developing an M&E system is to build off of the 12 components identified by the World Bank as being core to a functional M&E system. The components are segmented into three categories, (1) People, partnerships, and planning, (2) Collecting, capturing, and verifying data, and (3) Using data for decision making. The 12 components are listed below, and diagrammed for visualizing their interconnections follows in Figure 28. A comprehensive resource from the World Bank entitled *Making Monitoring and Evaluation Systems Work* provides guidance on using the 12 components to develop and evaluate M&E systems. A link to this and additional M&E development resources is provided in section 3.6.

People, partnerships, and planning

1. Structure and organizational alignment for M&E systems
2. Human capacity for M&E systems
3. M&E partnerships
4. M&E plans
5. Budgeted M&E work plans
6. Advocacy, communication, and culture for M&E systems

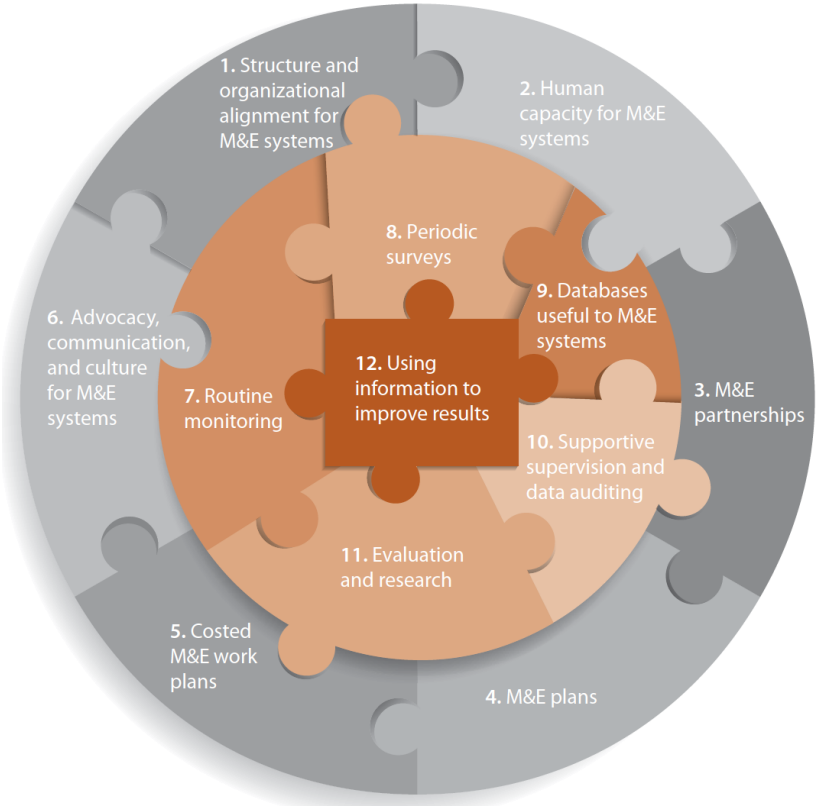
Collecting, capturing, and verifying data

7. Routine monitoring
8. Periodic surveys
9. Databases useful to M&E systems
10. Supportive supervision and data auditing
11. Evaluation and research

Using data for decision-making

12. Using information to improve results

***Figure 28*: Twelve components of a functional M&E system.**



Source: Reprinted from *Making Monitoring and Evaluation Systems Work* (Kusek, G, 2009).

Several practical applications for using the 12 components, as outlined within the World Bank toolkit, include:

- As an organizing framework for thinking about human capital and financial resources required for the M&E system
- As a way to establish a clear division of labor at the country level and a framework within which all partners can work together
- As the basis for evaluating and building the capacity of staff in the intervention's M&E unit
- As a means to develop indicators to measure levels of M&E system operationalization

3.5 RISK CONSIDERATIONS

A unique set of risks accompany each seed sector intervention. These risks should be assessed alongside broader business risks to develop an investment risk profile and mitigation strategy (Table 12). A non-exhaustive list of potential seed sector risks is provided below.

***Table 12*: Sample risk profile and mitigation summary.**

#	Risk	Probability	Severity	Actions to Minimize Risk
1	**Internal Risks**			
1.1	Unable to structure agriculture lending product for seed entrepreneurs with financial institutions	Moderate	High	Allocate intervention funds for reducing the risk inherent in credit products
2	**External Risks**			
2.1	Currency devaluation	Slight	Moderate	

Source: Table adapted from www.tools4dev.

SEED PRODUCTION RISKS

Working Capital

Working capital is an acute challenge for seed producers because of the long period between cash inflows. Operational costs are incurred upfront, with the purchase and planting of basic and/or breeder seed. Returns do not materialize until seeds are multiplied, marketed, and sold. The time between commencing seed multiplication and selling it can be six months or longer. This pattern puts a lot of pressure on seed companies to manage the unevenness of cash flows throughout a production cycle. Structuring the financial aspects of interventions to accommodate the inherent cash flow volatility of seed production helps reduce risk to seed company stakeholders and improve the prospects for good outcomes.

Capital Expenditure

The high upfront investment cost required to establish a seed production enterprise is a meaningful barrier to entry for prospective entrants (Kormawa P. et. al., 2000). For interventions seeking to encourage private-sector involvement in seed production, ensuring the accessibility of affordable credit for the purchase of land, infrastructure, and equipment is often an important precondition. This is especially true for vegetatively propagated crops, like potato and yam, which require significant investment in rapid propagation technologies to increase EGS supply.

Forecasting

Seed companies' profitability is dependent upon their ability to predict and to meet demand. Due to the long seed production cycle, demand forecasts must be made years in advance of projected sales. Fitting production to long-term demand forecasts, as seed companies must do, exposes them to under supply or risk of excess inventory. A lack of demand data hinders seed producers from reaching economies of scale, without undue risk, which would in turn lower production costs.

Product Life Cycle Management

New seed varieties cannibalize the sale of existing varieties. As a result, seed companies have to manage the simultaneous ramp-up and ramp-down of varietal production, and the associated

resource allocation (e.g., land) and inventory management. A seed company's effectiveness in managing product lifecycles powerfully influences its financial sustainability.

SYSTEMIC RISKS

Intellectual Property Rights

Breeder seed producers are incentivized by, and rely upon, licensing agreements and royalty revenue to support their operations and continuing investment. Programs that require increasing breeder seed production should consider how existing intellectual property laws (and their enforcement) will impact EGS production.

Counterfeiting and Fraud

Counterfeit seed reduces confidence in the EGS system because farmers who believe they purchased "certified seed" but obtained dismal yields are reluctant to purchase it again. For crops and countries where counterfeit seed or fraudulent packing is an issue, establishing the credibility of the seed system through authentication measures and strict enforcement of consumer fraud laws is key to increasing improved seed adoption.

Farmer Access to Credit

Farmers rely on retained earnings from the sale of crops and income from non-farm activities to cover the higher cost of improved seed. The reliance on self-financing to fund farm operations is often the only option because of the limited availability of affordable credit. Credit inaccessibility has the effect of limiting farmers' ability to make otherwise profitable investments in agricultural inputs (K. Baltzer and H. Hansen, 2012). Interventions that emphasize the adoption of high-quality seed should be combined with efforts to increase the availability of credit to smallholders.

3.6 RESOURCES FOR DESCRIBING THE INTERVENTION

RESOURCE LINK	DESCRIPTION
A Guide to Assessing Needs (World Bank)	Guide and tools for conducting a needs assessment
Implementation Best Practices for Value Chain Projects (USAID FTF)	A guide of five best practices for implementing value chain projects
Tracking Results in Agriculture and Rural Development in Less-than-ideal Conditions: a Sourcebook of Indicators for Monitoring and Evaluation (FAO)	Sourcebook with guidance and recommendations on indicator selection and M&E
Using M&E to Manage for Impact: A Guide for Project M&E (International Fund for Agricultural Development)	Guide to using and setting up M&E systems

Making Monitoring and Evaluation Systems Work: A Capacity Development Toolkit (World Bank)	Extensive resource for structuring M&E plans, including budgeting tools and advocacy strategy
Monitoring and Evaluation Unit (Center for Development, Environment, Policy, of SOAS, University of London retrieved via FAO)	Guide to designing and implementing M&E systems
Ten Steps to a Results-Based Monitoring and Evaluation System (World Bank)	Comprehensive guide to developing an M&E system
Handbook on Monitoring and Evaluating for Results (UNDP)	Extensive four-part guide for developing and using an M&E system
Guide to the Use of Digital Financial Services in Agriculture (USAID FTF)	Tool for identifying and selecting digital financial service solutions for payment and financial services challenges
Sampling Guide for Beneficiary-Based Surveys for Select Feed the Future Agricultural Annual Monitoring Indicators (USAID FTF)	A tool to provide technical guidance on the design and use of beneficiary-based surveys to support the collection of data for agriculture-related annual monitoring indicators
M&E Guidance Series Volume I: Monitoring and Evaluation Under Feed the Future (USAID FTF)	Guide outlining the FTF M&E approach

CHAPTER 4: STRUCTURING THE INTERVENTION

4.1 GOVERNANCE

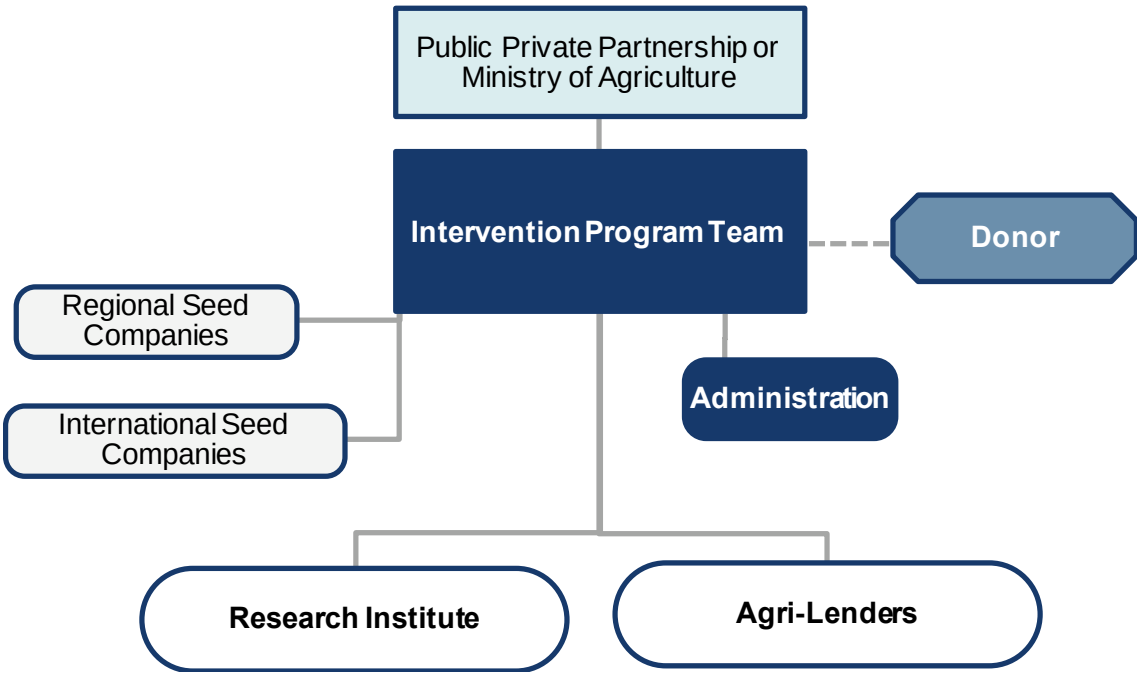
Project governance defines the policies, processes, and procedures that circumscribe the intervention. The inclusion of good governance procedures in the investment plan provides internal clarity and assurances to citizens, government, and donors that appropriate management controls are in place. Key questions to be addressed include:

- What are the stakeholder roles and responsibilities?
- How are decisions made?
- What are the communication channels among stakeholders and formal reporting roles?
- How are stakeholder incentives and the intervention aligned?
- What rules, norms, and processes are in place to address inter-stakeholder conflict?
- What reporting and communication processes are in place to ensure financial and operational transparency to outside monitors (e.g., donors, governments, media, and financiers)?

INTERVENTION STRUCTURE

The intervention structure can be illustrated with a project organizational chart (Figure 29). The chart shows the formal and informal reporting structure between program implementing stakeholders.

***Figure 29*: Sample project organizational chart.**



POLICY IMPLICATIONS

NEPAD guidance for detailing the policy implications of NAIPs holds for seed investment plans too. The guidance is as follows: The policy implications and outstanding policy issues implicit in changing the thrust of agriculture sector development should be set out, as well as an assessment of the difficulty and time required to achieve the change and which entity is responsible for leading the change (NEPAD).

4.2 PUBLIC PRIVATE PARTNERSHIPS

The structural and demand issues identified in Chapter 1 can be addressed but only if adequate financial and human resources are applied. It would be a daunting task for governments to undertake all of the changes necessary to build fully functional EGS systems, even in the absence of funding constraints. Without funding for EGS systems, governments should be willing to consider alternatives that incentivize private-sector participation and reduce the need for government support to the seed sector.

OVERVIEW

A Public-Private Partnership (PPP) is commonly defined as a venture that is funded and operated through a partnership between the public-sector or government entity and one or more private-sector companies. Accordingly, the public-sector or government actor may provide support in a number of ways, including through fiscal policy or the contribution of infrastructure or expert capabilities. Typically, a PPP involves the transfer of risk from the public sector to the private sector, with the balance of risk often determined by the allocation of potential value in the partnership. Several benefits and disadvantages exist for PPPs (IISD, 2011):

Potential Benefits

- Increased efficiency, expertise, and innovation from the private sector contribute to better infrastructure and greater cost and time savings.
- Project risks are distributed between public and private sectors according to the party best equipped to deal with it.
- Access to private-sector financing may create additional investment.
- PPPs provide the private sector with access to reduced risk, secure, long-term investment opportunities that are sometimes underwritten by government contracts.

Potential Disadvantages

- A PPP may prove to be more expensive in the long-term than standard procurement, due mainly to the higher costs of private-sector borrowing when compared to government rates.
- Accountability and transparency issues may be distorted under PPP models of financing and agreements if, for example, private-sector funding components fail to appear in public spending records. Similarly, evaluation is made more difficult as private sector data on profits, costs, or lessons learned may be considered proprietary information.
- The inclusion of exclusivity agreements within PPP contracts can have the effect of awarding monopoly markets to private partners.

- Both the public and private sectors should possess PPP-specific capacity for an agreement to make sense and administered successfully.

STRUCTURING A PPP

IFPRI details the following four mechanisms for formalizing partnerships. The most suitable mechanism must be determined by the stakeholder or actors on a case-by-case basis.

1. Project addendum: Certain projects funded by government and international donors specify that the main recipient needs to provide proof of collaboration with a third-party partner. In those cases, project addenda or letters of intent are developed that specify how the partners will contribute to and benefit from the project in case it gets funded. Usually, no further partnership contract is developed after the funding is received.

2. Contractual agreements: In its most basic form, a partnership is a contract that details agreements between the stakeholders to carry on joint activities in pursuit of a common goal; to contribute to that goal by combining property, resources, knowledge, and activities and to share in the profits of the partnership. Under this agreement, stakeholders own the partnership assets together, have equal rights to manage activities, and are all personally liable for the partnership's debts and obligations. Disagreements in the ordinary course of partnership activities are resolved by a majority of the partners. Disagreements relating to extraordinary matters and amendments to the partnership agreement require the consent of all stakeholders. If a partner is the principal agent carrying out the activities of the partnership, the other stakeholders can be held liable for his or her dealings with third persons. The agreement also specifies how profits and losses are to be shared. Finally, the contract usually includes a declaration of partnership, which in some countries can be registered and made available for public inspection.

3. Temporary union or consortium: A consortium is formed by a contract that delineates the rights and obligations of each member. It usually ceases to exist when the specific project for which it was created ends. Each stakeholder retains its separate legal status, and the consortium's control over each partner's resources is generally limited to activities involving the joint endeavor and the division of profits resulting from it. Consortia are particularly common in the nonprofit sector, where they are often favored over corporations for taxation purposes.

4. New entity: In some countries, a partnership can also become a legal entity, usually in the form of a permanent not-for-profit organization. This unit does not cease to exist when a research project is completed but can carry out an infinite number of projects that match the entity's principal objectives. The legal establishment of such a joint venture is usually a long and complicated process and requires the influx of capital from the stakeholders. However, the partnership's independent legal status can help it manage the influence and bias of stakeholders, develop coherent activities and efficient management structures, and be accountable to its owners through boards and assemblies. Some countries' legislation provides for special types of partnerships: "limited partnerships" are arrangements in which some partners transfer their right to manage activities in exchange for limited liability for the partnership's debts, for example, while "limited liability partnerships" are arrangements in which all stakeholders have some degree of limited liability. This kind of legislation is not very prominent in developing countries.

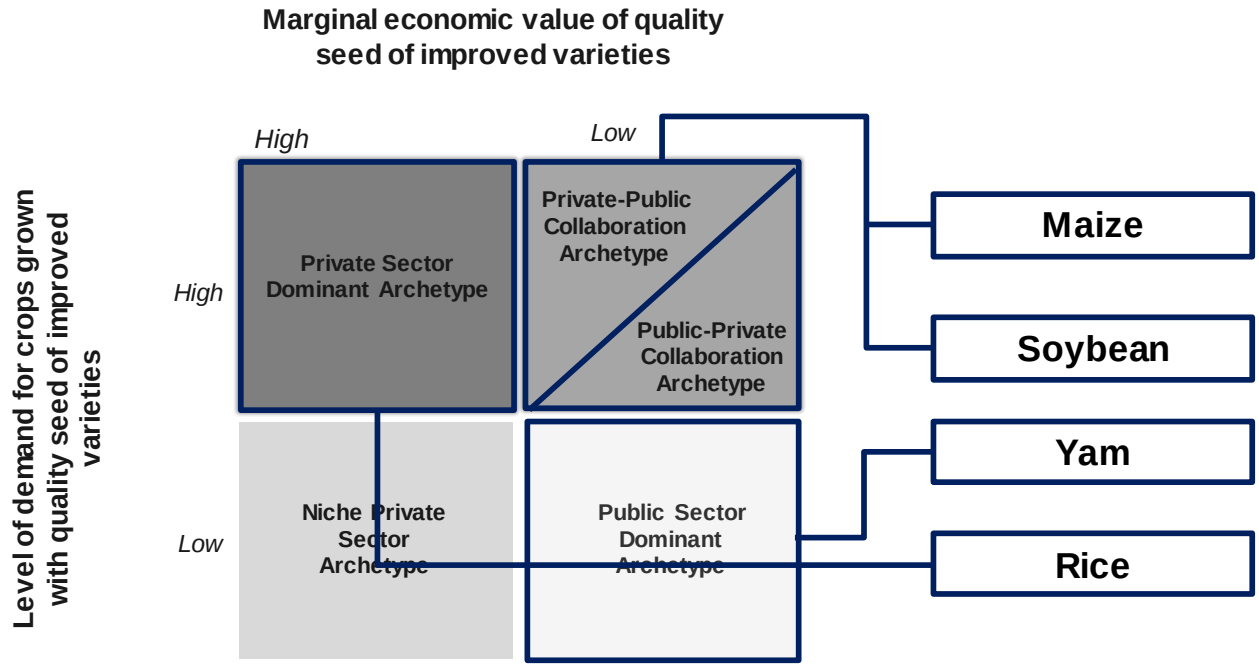
4.3 FUNDING ARRANGEMENTS

PUBLIC AND DONOR FUNDING

EGS interventions often involve public-sector investment due to NARI's important role in breeder seed production of many crops, EGS regulation, and its interest in using EGS to achieve socioeconomic objectives. The ideal market archetype identified using the framework developed under the USAID-BMGF partnership can be utilized to help make the case for public-sector investment.

The point in enlisting the framework is to illustrate a crop's market archetype, as demonstrated in Figure 30, and to use the positioning to explain the circumstances that underlie its placement. If, for example, a crop is classified as falling within the public sector dominant archetype, then an investment case calling on the public sector is expected. The EGS country reports should contain assessments of crops by archetype. This analysis can be evaluated and presented to make the case for public and/or private sector investment.

***Figure 30*: Example positioning of crops within the archetype framework.**



Source: Nigeria EGS Study (2016).

PRIVATE-SECTOR FUNDING

A tangible private-sector contribution is important not only from a resource and sustainability standpoint but also because its presence is a criteria used by NEPAD to evaluate NAIPs.

Assessments of private seed investment within a country helps stakeholders understand how public-sector spending complements and supports market development. An approach to assessing private investment is to evaluate the actors identified in Chapter 1 and to estimate the type and scale of their resource deployment along a seed value chain (NEPAD).

4.4 RESOURCES FOR STRUCTURING THE INTERVENTION

RESOURCE LINK	DESCRIPTION
Building Public-Private Partnerships for Agricultural Innovation (IFPRI)	Reference guide that can be used in the development of agricultural PPPs
A Guide to Investor Targeting in Agribusiness (World Bank)	Guide for identifying potential private sector investors and conducting an investor targeting campaign
Strengthening Systematic Capacities for Formulation and Management of National Agriculture Investment Plans (FAO)	Comprehensive CAADP NAIP development resource[3]
Investment Project Financing Economic Analysis Guidance Note (World Bank)	A guide to assess a project's economic impact and if public sector financing is necessary
Early Generation Seed Study (USAID-BMGF)	Guide to seed market archetype methodology
EGS Country Studies - Rwanda, Zambia, Kenya, and Nigeria (USAID-FTF)	Country studies provide examples application of the seed market archetype methodology as well as EGS recommendations and associated PPPs

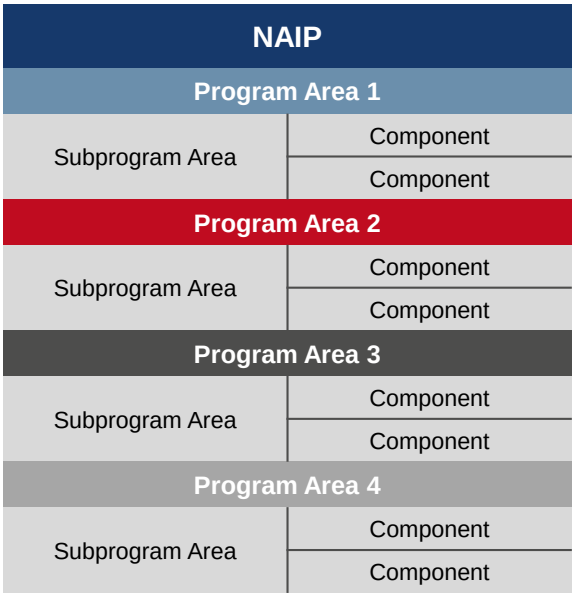
[3] This FAO report includes a series of useful case studies, including: (1) Cameroon: National ownership and leadership for the CAADP process as a key component of country capacity (pp. 25), (2) Grow Africa: A public-private partnership to accelerate investments (pp. 38), (3) Cameroon: Anchoring the NAIP in the Rural Sector Development Strategy (pp. 44), (4) Democratic Republic of the Congo: Using a participatory approach to define NAIP priorities (pp. 48), Chad: Roles and responsibilities in plan formulation (pp. 50), (5) Lesotho: Outreach and regional peer exchange (pp. 52), (6) Chad and Lesotho: Mainstreaming cross-cutting issues into NAIPs (pp. 57), (7) Cameroon: Participatory design of the results framework (pp. 72), (8) The NAIP results framework in Cameroon (pp. 79-81), (9) Chad: The cost of "realistic" costing (pp. 97), (10) Democratic Republic of the Congo: Holding the business meeting (pp. 102-103), and (11) Tanzania: Achieving coordinated implementation of investment programs (pp. 108-109). The report also provides a "toolbox" in CD-ROM format.

CHAPTER 5: ADVOCATING FOR SEED SYSTEMS

5.1 ROLE OF SEED SYSTEMS WITHIN NAIPS

The NAIP architecture has three levels. At the highest level are *program* areas. Within the *program* areas exist *subprogram* areas. *Subprogram* areas support the realization of *program* areas and are comprised of multiple *components*. Figure 31 makes the relationship between the three levels clearer.

***Figure 31*: Sample NAIP architecture.**



Source: Adapted from FAO "Strengthening Systematic Capacities for the Formulation and Management of National Agriculture Investment Plans (NAIPs)" (2014).

Theoretically, seed systems could be found at any of the three levels. In practice, however, seed system development initiatives, to the extent that they are mentioned at all, are typically found as *components*. In Zambia's NAIP (2014-2018), the promotion of seed systems is found as *component* of a crosscutting *program* focused on improving agricultural support systems. In Mozambique's NAIP (2014-2018), the development of a cotton seed system is found as a *component* within the cotton value chain *subprogram*.

5.2 INCREASING THE ROLE OF SEED IN NAIPS

Increasing the role of seed systems within NAIPs requires advocacy, i.e., by demonstrating their importance in agricultural development.

DEMONSTRATING THE IMPORTANCE OF SEED SYSTEMS

Governmental agriculture priorities and seed system development are interconnected. Explicitly stating how seed system development aligns with, or even undergirds, agricultural priorities to achieve country-level objectives is the key to justifying its placement within the NAIP. Doing so will demonstrate the importance of seed systems to achieve agricultural development and growth goals.

An approach to showing this connection is to start with the priorities identified in the current or prospective NAIP and to highlight seed systems' relevance within each priority (Table 13).

Table 13: **Sample mapping of seed system to NAIP thematic areas.**

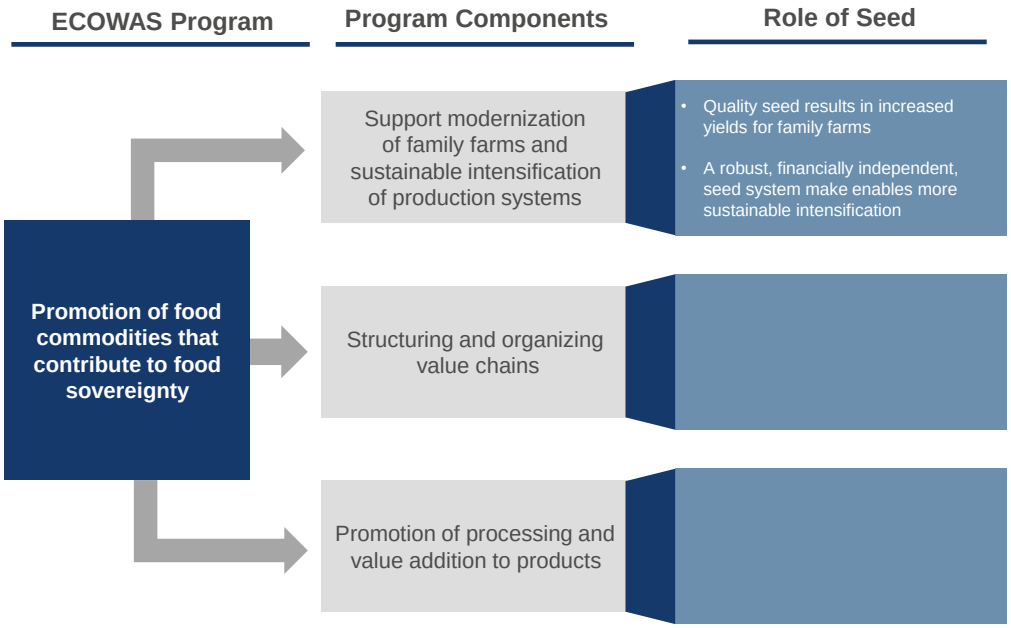
Mozambique – National Agriculture Investment Plan		
Component	**Thematic area**	**Relevance of Seed System**
1	Improvement of Production and Productivity	Increased availability and uptake of quality seed is directly correlated with increased production and productivity
2	Market Access	Increasing access to markets will increase the demand for high yielding improved varieties with quality traits, in turn catalyzing EGS system development as a mechanism to deliver improved varieties
3	Food and Nutritional Security	…
4	Natural Resources	…
5	Reform and Institutional Strengthening	…

Source: Adapted from the Mozambique National Agriculture Investment Plan 2014-2018.

RELATIONSHIP OF SEED SYSTEMS TO REGIONAL PRIORITIES

Establishing the relationship between seed systems and regional agriculture priorities strengthens the case for investment in seed systems and is an important evaluation criterion of NAIPs. NAIPs show the linkage between country priorities and CAADP Pillars. A similar tact can be taken with seed system investment plans and Regional Economic Community (REC) objectives (Figure 32).

***Figure 32*: Linkage between seed systems and REC agricultural priorities.**



Source: Economic Community of Western States (ECOWAS) Agriculture Policy/Comprehensive African Agriculture Development Program (2009).

STAKEHOLDER ROLES IN ADVOCACY

Particular attention should be paid to advocacy because of its importance in mobilizing stakeholders and persuading decision makers to support seed development. To this end, the EGS investment plan ought to include a summary of its strategy to win political and social support for the proposed intervention. Developing an advocacy strategy involves five steps:

5.3 RESOURCES FOR SEED SYSTEM ADVOCACY

RESOURCE LINK	DESCRIPTION
An Introduction to Advocacy (USAID)	Training guide for developing effective advocacy campaigns

ANNEX 1: GUIDES AND TOOLS

Actions Against Hunger (ACF). (July 2011). *Maximizing the nutritional impact of food security and livelihoods interventions*: *a manual for field workers.* Prepared by Le Cuziat, G. and Mattinen, H. Retrieved from http://www.actionagainsthunger.org/sites/default/files/publications/Maximising_the_Nutritional_Impact_of_Food_Security_and_Livelihoods_Interventions_A_Manual_for_Field_Workers_07.2011_0.pdf

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Lj7g_7OAhUKXR4KHcGWDIYQ6AEILzAA#v=onepage&q=when%20disaster%20strikes%20a%20guide%20to%20assessing%20seed%20system%20security&f=false

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ANNEX 2: USEFUL DATA SOURCES AND REPOSITORIES

Resource	Description
Access to Seeds Index	The Access to Seeds Index assesses, scores and ranks seed companies according to their efforts to improve access to quality seeds of improved varieties for smallholder farmers. The Index seeks primarily to identify leadership and good practices, providing an evidence base for the discussion on where and how the seed industry can step up its efforts. As a benchmarking tool, the Index aims to incentivize seed companies to improve their performance.
Africa Lead II	Africa Lead II is USAID's primary capacity-building program in Sub-Saharan Africa. The program works to help realize FTF and the African Union's CAADP goals of reduced hunger and poverty by building the capacity of champions, institutions, and stakeholders to develop, lead, and manage the structures needed for African-led agriculture transformation. This website provides access to an extensive library of publications searchable by geography, sector, and types of publication.
Africa Seed Trade Association (AFSTA)	AFSTA is a not-for-profit membership association formed in 2000 to champion interests of private seed companies in Africa. It is registered in Kenya as an international organization with an office for West Africa in Dakar, Senegal. Currently, it has about 100 members comprising seed companies and national seed trade associations, among others. The website provides access to an extensive library of position papers.
Agrilinks	Agrilinks is part of the U.S. government's FTF initiative, which aims to address the root causes of hunger, poverty, and undernutrition and to establish a lasting foundation for change. The Agrilinks portal includes an extensive library of publications, reports, videos, and tools.
CAADP	CAADP is a program of the African Union (AU) in the New Partnership for Africa's Development (NEPAD). The website provides access to publications, news articles, and a video and audio gallery.
Consultative Group to Assist the Poor (CGAP)	CGAP is a global partnership of 34 organizations that seek to advance financial inclusion. The website includes a library of publications and data.
CGIAR	The CGIAR website has links to its 15 CGIAR centers and includes an extensive library of reports, research papers, data, and news.
Policy Institutions and Markets Value Chains Knowledge Clearinghouse	The Value Chains Knowledge Clearinghouse is an initiative led by Policies, Institutions, and Markets CGIAR Research Program consisting of IFPRI, CIAT, ILRI, IITA, World Agroforestry Centre, ICRISAT, Bioversity, and CIP. The portal provides a repository of research methods and best practices surrounding value chain performance that can be used by all of the consortium research programs and partners.
Famine Early Warning Systems Network (FEWS NET)	FEW NET is a leading provider of early warning and analysis on food insecurity. Created by USAID in 1985 to help decision-makers plan for humanitarian crises, FEWS NET provides evidence-based analysis on some 35 countries.
FAO Statistics (FAOSTAT)	FAOSTAT is maintained by the statistics division of the Food and Agricultural Organization of the United Nations. In working directly with the

	countries, the statistics division supports the development of national statistical strategies, the strengthening of institutional and technical capacities, and the improvement of statistical systems.
FAO Food Price Monitoring and Analysis Tool	Access to more than 1,100 consumer price series in 85 countries and 43 international cereal export price series.
FAO Gender Toolkit	Database includes the Socio-Economic Gender Analysis, the Agri–Gender Statistics Toolkits, and the Gender and Land Rights Database, and provides a set of tools for gender analysis and assessment for each agricultural sector
FTF	FTF resources include access to newsletters, reports, strategy documents, and fact sheets.
Grow Africa	The Grow Africa Partnership was founded jointly by the AU, NEPAD, and the World Economic Forum in 2011. Grow Africa works to increase private sector investment in agriculture and to accelerate the execution and impact of investment commitments. The resources portal provides access to publications, videos, and tools.
Microlinks	Microlinks' mission is to share good practice in inclusive market development around the world. This platform helps users consume and contribute content along a spectrum of issues from pathways out of poverty to mobilizing private capital, market facilitation to models for reaching scale. USAID supports Microlinks and a broad array of knowledge-sharing tools, strategies, and events through the Knowledge-Driven Agricultural Development program.
Monitoring and Analyzing Food and Agricultural Policies (FAO)	Database of select countries classifying public expenditure by commodity and repository of reports, technical notes, policy briefs, and learning material
New Alliance	The New Alliance for Food Security and Nutrition is a shared commitment to achieve sustained inclusive, agriculture-led growth in Africa. The portal includes a library of fact sheets, multimedia, reports, and speeches.
Regional Strategic Analysis and Support System (ReSAKSS)	The ReSAKSS portal provides access an extensive library of CAADP documents as well as data and publications.
The African Seed Access Indicators (TASAI)	The central objective of TASAI is to promote the creation and maintenance of enabling environments for competitive seed systems serving smallholder farmers. It is this enabling environment that TASAI seeks to measure, track, and compare across African countries. The intended outcome of this index is improved access to locally adapted, affordable, and high-quality seed of improved varieties by smallholder farmers in Sub-Saharan Africa.
United Nations Comtrade Database	UN Comtrade is a repository of official trade statistics and relevant analytical tables. It contains annual trade statistics starting from 1962 and monthly trade statistics since 2010.
USAID - Enabling Agricultural Trade (USAID-EAT)	The USAID-EAT project promotes inclusive agricultural sector growth, a key component of the U.S. government's FTF initiative, by creating enabling environments for agribusinesses that encourage private-sector investment and promote food security. EAT has a number of tools for analyzing all aspects of the agribusiness enabling environment and has operated in countries around the world.

United States Department of Agriculture Foreign Agricultural Service (USDA FAS) Database	The USDA FAS links U.S. agriculture to the world to enhance export opportunities and global food security. The website includes four databases providing information on trade, production, and demand, as well as a library of reports and publications.
World Bank Development Indicators	The primary World Bank collection of development indicators, compiled from officially recognized international sources. It presents the most current and accurate global development data available and includes national, regional, and global estimates.

ANNEX 3: BIBLIOGRAPHY

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