EGS INVESTMENT PLAN GUIDE ANNEX – EGS EXAMPLE FOR NAIPS

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Author:	**Context Network**

PURPOSE OF THE EGS INVESTMENT PLAN GUIDE

The EGS Investment Plan Guide was developed as a resource to provide practical assistance to country stakeholders who want to present a case, and provide specific language and budget proposals, for greater government funding of those EGS investments 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 often through the five-year Comprehensive African Agricultural Development Program/African Union (CAADP/AU) sanctioned National Agriculture Investment Plan (NAIP), as well as a new instrument under development, the CAAPD country spending plan. The purpose of the guide is to assist stakeholders to make a case for, and provide specific documentation and elements for inclusion in, a NAIP line item or component to support appropriate public-sector EGS investments.

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

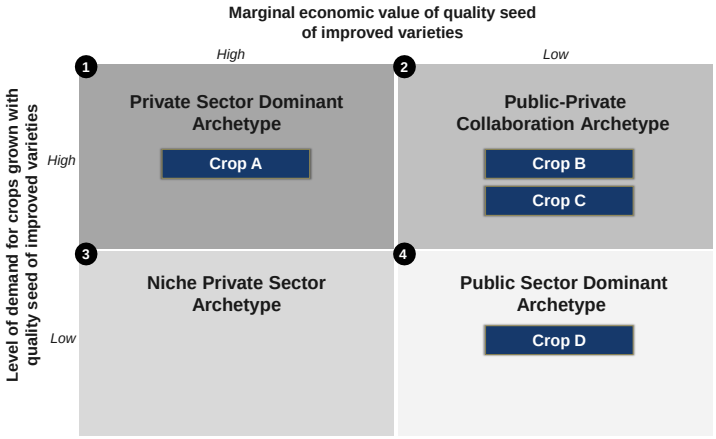
PURPOSE OF THE EGS EXAMPLE FOR NAIPS ANNEX

To date NAIPs have not included sub-sections solely dedicated to EGS recommendations. The purpose of this Annex is to provide an example of a potential EGS sub-section that can be used for the next generation of NAIPs.

Each NAIP is structured and organized differently and therefore EGS subsections should be adapted and tailored to the specific country situation.

MARKET ARCHETYPES BY CROP

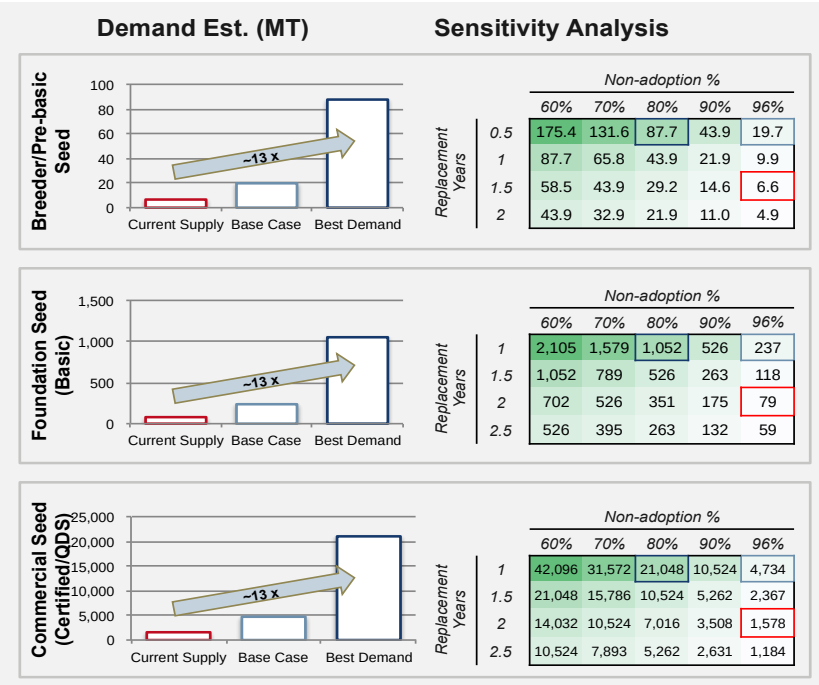
Crop classification by market archetype is an important factor in determining the stakeholders needed to organize and implement EGS recommendations. The framework categorizes EGS systems of crops and crop segments within a specific country based on the marginal economic value of the quality of improved varieties and the level of demand for crops grown with quality seed of improved varieties. Crops with both high marginal economic value and significant demand for quality seed of improved varieties are private sector led crops and not analyzed in the NAIP. Additionally, crops with high marginal economic value but low demand, categorized as niche crops are also private sector led and not analyzed in the NAIP.



Crops B, C, and D below are either public-private or public dominant crops and thereby will require NAIP's to enable publicly supported EGS development. Note that for a given crop its market archetype may vary from country to country depending upon a wide range of independent variables, e.g. capacity of public institutions, the viability of the private sector, farmer knowledge of the benefits of adopting improved varieties, etc.

Crop B - EGS Demand (an example for crops B, C, & D)

Crop B is currently viewed as a supply-constrained market, with supply falling short of the demand for improved seed. Given this primary constraint in the market, the assumptions used to build the "base case" and "best case" demand estimates were conservative. Current breeder seed supply, estimated at "x" MT, implies a basic seed supply of "x" MT and commercial seed supply of "x" MT, based on seed replacement every three seasons (one and a half years) for approximately "x" percentage of the market. The current volume of seed certified is known and can serve as the baseline for the current supply case. Based on field interviews indicating that current adopters of high-quality seed would use new seed every



season if it was available, the base case assumptions increase seed replacement to every season for the same “x” percentage of the market. The best case assumptions increase the market share to “x” percentage with this portion of the market still replacing seed every season. This is a substantial increase over the current market size, but it still shows a relatively small certified seed market compared to overall seed use.

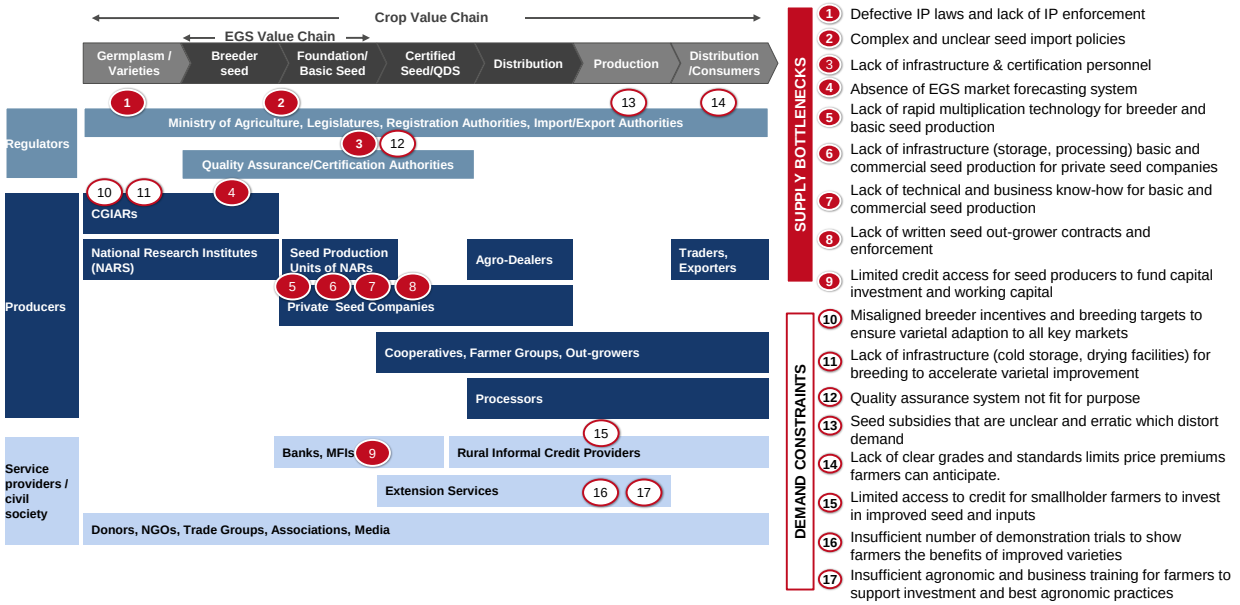
Crop B - EGS Cost of Production (an example for crops B, C, & D)

EGS production costs improves at each stage in the production process, resulting from higher yields for basic and commercial seed as compared to breeder seed as well as lower fixed costs. Inputs and inspection and certification costs are the largest portion of variable costs for crop B.

	Breeder/Pre-basic Seed	Assumptions	Basic Seed	Assumptions	Commercial/ Quality Seed	Assumptions
Demand MT	6.6		79		1,578	
Variable Cost $ per Ha	$1,431	*Inputs and Inspection/ Certification costs both represent approximately 21% of total variable cost*	$1,576	*Inputs and Inspection/ Certification costs both represent approximately 19% of total variable cost*	$1,566	*Inputs and Inspection/ Certification costs both represent approximately 19% of total variable cost*
Fixed Cost $ per Ha	$4,550	***Breeder salaries $4,370***	$544	***Salaries and overhead $394***	494	***Salaries and overhead $344***
Total Costs	$5,981		$2,120		$2,060	
Margin	*$598*	*10% base assumption*	*$212*	*10% base assumption*	*$206*	*10% base assumption*
Cost + Margin $ per Ha	$6,579		$2,332		$2,266	
Cost + Margin $ per Kg	$10.97	***600 Kg/Ha yield***	$2.33	***1,000 Kg/Ha yield***	$2.27	***1,000 Kg/Ha yield***

EGS SUPPLY BOTTLENECKS AND DEMAND CONSTRAINTS

Many supply bottlenecks and demand constraints are the cause of preventing seed value chains from performing in a commercially sustainable manner. To address these bottlenecks and constraints, it is necessary to map the extended crop value chain, which includes not only EGS production, but also varietal development, crop production, distribution, and end use (i.e., processing, trade, or consumption). Common supply bottlenecks and demand constraints that impede the development of EGS systems summarized below.



Constraints and bottlenecks are mapped to relevant crops below.

Supply Bottlenecks	**Crop B**	**Crop C**	**Crop D**
Absence of IP laws/ lack of IP enforcement		✓	✓
Cumbersome seed import policies			✓
Lack of infrastructure (labs, vehicles), personnel for certification		✓	✓
Absence of EGS market demand system		✓	✓
Lack of technology (rapid multiplication technology) for breeder and basic seed production		✓	
Lack of infrastructure (storage, processing) basic and commercial seed production		✓	
Lack of technical and business know-how for basic and commercial seed production	✓	✓	
Lack of commercial seed out-grower contract enforcement			✓
Limited credit access for seed producers to fund capital investment and working capital		✓	
Demand Constraints	**Crop B**	**Crop C**	**Crop D**
Misaligned breeder incentives and targets to ensure varietal adaption to all key markets	✓		
Lack of infrastructure (cold storage, drying facilities) for breeding to accelerate varietal improvement	✓		
Quality assurance system not fit for purpose (absence of QDS system for lower value crops)	✓		
Seed subsidies that are unclear and poorly implemented which distort demand			✓
Lack of clear grades and standards limits price premiums growers can achieve for investing in improved varieties		✓	✓
Limited access to credit for smallholder farmers to invest in improved seed and inputs	✓	✓	
Insufficient number of demonstration trials to show farmers the benefits of improved varieties	✓		
Insufficient agronomic and business training for farmers to support investment and best agronomic practices	✓		

EGS RECOMMENDATIONS (ILLUSTRATIVE AND NOT EXHAUSTIVE)

RECOMMENDATION #1 - SUPPORT THE IMPROVEMENT OF THE QUALITY ASSURANCE SYSTEM

Supply bottleneck or demand constraint addressed: A common problem in all crops is the certification authority's lack of sufficient personnel to certify fields. There are not enough field inspection officers, and without adequate oversight, some seed producers recycle certified seed and sell it to farmers informally without quality control, resulting in lower yields.

Description of recommendation: To ensure quality across all classes of seeds and increase the rate of adoption of improved seeds among farmers, the Ministry of Agriculture would need to sponsor an initiative to 1) improve the quality assurance system and 2) implement a certification protocol for Quality Declared seeds in the informal system. A significant increase in staff would be needed to have a minimally effective certification and Quality Declared system, i.e. a minimum of approximately “x” recruited field officers trained in modern seed certification methods. Furthermore, the Ministry of Agriculture should publish new standards for the certification of informal sector-produced seeds and train about “x” community seed producers in selected states. or districts.

RECOMMENDATION #2 – INCREASE National AGRICULTURE RESEARCH INSTITUTE (NARI) EGS PRODUCTION CAPACITY

Supply bottleneck or demand constraint addressed: There is insufficient production capacity of breeder and foundation seed. This is due to insufficient infrastructure, including lack of irrigation needed to reduce growing risk, insufficient land, lack of mechanization, absence of cold storage for germplasm (which forces the NARI to grow seed each season to maintain seed germinations, a significant strain on resources that increases risks from droughts), absence of drying facilities, and lack of testing capabilities.

Description of recommendation: It is recommended that the NARIs be properly resourced, including irrigation, sufficient land for breeding, mechanization, cold storage for germplasm, drying capabilities, and trained personnel.

RECOMMENDATION #3 – INCREASE CAPACITY OF PRIVATE SECTOR TO PRODUCE FOUNDATION SEED

Supply bottleneck or demand constraint addressed: The private seed sector is not capable of delivering certified seed. Local seed producers, including seed companies, farmer groups, and cooperatives, have limited seed production expertise or experience which results in relatively large numbers of seed fields failing to meet certification requirements.

Description of recommendation: Increase investment in seed producer training and capacity building. Training should focus on both technical and business programs. Legal and regulatory changes to open or enlarge EGS production by the private sector.

RECOMMENDATION #4 - STIMULATE FARMER ADOPTION OF IMPROVED VARIETIES AND QUALITY SEED

Supply bottleneck or demand constraint addressed: Smallholders lack of awareness of improved varieties’ benefits: Extension outreach programs are under-resourced to conduct insufficient demonstration trials to show farmers the value of buying improved varieties, as they are limited by seed, numbers of plots, and staff. Furthermore, there is a significant undersupply of extension officers estimated to be an extension officer to farmer ratio of “x:y” which is far above the recommended level of “x:z”.

Description of recommendation: To increase farmer adoption of improved varieties and quality seed, it is recommended that on-farm demonstration trials are increased and extended in key crop growing regions. It is critical that these trials are designed to compare the performance

of farmer-saved seed versus quality seed as well as improved varieties versus local varieties. Successful execution of these trials will require a sufficient number of plots, seed, and staff to reach smallholder farmers. This will allow for direct engagement with the farmers and also help to prove the value proposition of the seed being sold. Additionally, extension (in collaboration with researchers, NGOs, and private seed companies) should be expanded to train and provide ongoing support in the use of best agronomic practices, as well as calculating the costs and benefits of investment in inputs such as improved seed.

RECOMMENDATION #5 - IMPLEMENT AND ENFORCE CLEAR AND STRONG IP POLICIES

Supply bottleneck or demand constraint addressed: EGS production is hampered by the low motivation of breeders due to the lack of strong IP policies and weak royalty sharing policies.

Description of recommendation: Support the implementation of clear and strong IP policies that enable licensing agreements and support appropriate royalty sharing. This may require a revision of national seed law. For example, a change to consider would be that any seed variety qualified for certification would be traced back to the institute that released it, so that royalties would be remitted before certification. The NARIs would need to work closely with certification authorities to share information with seed companies on licensed and released varieties to enable the enforcement of royalty payments.

SUMMARY OF RECOMMENDATIONS

#	Summary of Recommendations	Crop B	Crop C	Crop D
1	Support the improvement of the quality assurance system	✓		✓
2	Increase NARI EGS production capacity	✓	✓	
3	Increase capacity of private sector to produce foundation seed	✓		
4	Stimulate farmer adoption of improved varieties and quality seed	✓	✓	✓
5	Implement and enforce clear and strong IP policies	✓	✓	✓
6	….			
7	….			

BUDGET

RECOMMENDATION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
1					
2					
3					
4					
5					