

GLOBAL SUPPORTING SEED SYSTEMS FOR DEVELOPMENT ACTIVITY FY20 ANNUAL WORK PLAN

October 1, 2019 – September 30, 2020



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Acronyms and Abbreviations

AE	Agri Experience
AGRA	Alliance for a Green Revolution in Africa
AVISA	Accelerated Varietal Improvement and Seed delivery of legumes and cereals in Africa
BMGF	Bill and Melinda Gates Foundation
CBO	Community Based Organization
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
COMESA	Common Market for Eastern and Southern Africa
CRS	Catholic Relief Services
DiNER	Diversity for Nutrition and Enhanced Resilience
DTMA	Drought Tolerant Maize for Africa (led by CIMMYT)
ECR	Emergency, Chronic-stress and Resilience
EGS	Early Generation Seed
EHAR	Emergency & Humanitarian Aid and Resilience programming
ESSETA	Modernization of State Agencies for Enhancing the Seed Sector in Tanzania
FSPs	Financial Service Providers
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFDC	International Fertilizer Development Center
ISSD	Integrated Seed Sector Development
KALRO	Kenya Agricultural & Livestock Research Organization
KEPHIS	Kenya Plant Health Inspectorate Services
KIM	Kenya Investment Mechanism
MoA	Ministry of Agriculture
NARS	National Agricultural Research System
NML	New Markets Lab
OI	Opportunity International
PABRA	Pan-Africa Bean Research Alliance
PCMA	Pre-Crisis Market Analysis
PIATA	Partnership for Inclusive Agricultural Transformation in Africa
PICS	Purdue Improved Crops Storage bags
PASP	Private Agricultural Services Providers
QA	Quality Assurance
QDS	Quality Declared Seed
RTB	Roots, Tubers and Bananas
S34D	Feed the Future Global Supporting Seed Systems for Development activity
SADC	Southern African Development Community
SCCI	Seed Certification and Control Institute (Zambia)
SEEP	Small Enterprise Education and Promotion Network
SHF	Smallholder Farmer
SMEs	Small and Medium Enterprises
SMS	Short Message Service (text message)
SNNPR	Southern Nations, Nationalities, and People's Region
SSSA	Seed System Security Assessment
STAK	Seed Trade Association of Kenya
TASAI	The African Seed Access Index
TASTA	Tanzania Seed Trade Association
VBAs	Village-based Agents
WEMA	Water Efficient Maize in Africa (led by AATF)

I. Introduction

The Feed the Future Global Supporting Seed Systems for Development activity (S34D) is a five-year Leader with Associates Award, funded by Feed the Future initiative through the Bureau of Food Security (BFS) and by USAID through the U.S. Office of Foreign Disaster Assistance (OFDA). Catholic Relief Services (CRS) is leading this consortium with support from partners that include: CIAT, IFDC, Opportunity International (OI), PABRA, Agri Experience and Purdue University. S34D's Life of Activity (LOA) runs from August 2018 through August 2023. The overarching goal of S34D is to improve the functioning of national seed sectors in focus countries in an *inclusive* manner—this 'inclusive' approach aims to support all farmers, including women farmers and youth. S34D aims to meet the activity goals by increasing the capacity of each of the seed systems to sustainably offer quality, affordable seeds of a range of crops (**Objective 1**), and increasing collaboration and coordination among all seed systems actors and actions (**Objective 2**).

This activity is unique in that the overall strategy proposes to generate a broader view and integration of the seed systems, with **Objective 1** working across formal, informal and emergency seed sectors; and, **Objective 2**, placing emphasis on the interactions and synergies among the three systems. This integrated approach is further strengthened by cross-cutting IRs that seek to improve policies and practices that support pluralistic seed systems, rather than focusing on individual parts of each system. An important aspect of the activity is to gain a better understanding about how seed systems interact and where there may be positive or negative market interactions. In the case of detrimental actions, S34D intends to develop interventions to address market distortions.

The activity contributes to USAID's resilience agenda in two ways: Firstly, S34D will enhance the resilience of people and livelihoods through increasing farmers' access to improved seeds for a range of crops, including climate-resilient varieties (Objective 1). Access to improved seeds of nutritional crops will lead to greater productivity, increased incomes and improved nutrition, leading to more resilient livelihoods. Climate adaptation and mitigation will also be supported by farmer access to and use of better performing climate resilient seeds. Secondly, S34D will build the resilience of seed systems through interactions and synergies among formal, informal and emergency seed sectors and by building capacity at market, economic, and policy system levels (Objective 2). A resilient seed system is one that can absorb and recover from shocks (i.e. rapid onset disasters) and stresses (i.e. slow onset disasters) such as extreme weather events, climate change, pest infestation, pandemics, conflict, and economic crisis while adapting and transforming to withstand future shocks and stresses. In contexts that are subject to recurrent shocks and chronic stressors, seed-related interventions for building resilience must bridge the divide between humanitarian and development assistance to ensure that short-term, emergency seed interventions do not undermine longer-term development objectives within seed systems.

The Annual Work Plan reflects activities and interventions proposed by S34D during the activity's second year of implementation (FY20). S34D continues to support strategic services to understand and respond to demand in order to advance the objectives of capacity, coordination and collaboration among formal, informal, and emergency seed sectors. The Mission-funded activities description can be found in Annex 1. In annex 2 the cost for the core, Mission and cost share funded activities are presented separately. The interventions and activities table can be found in Annex 3 and the activity targets in Annex 4. The Gantt chart or detailed implementation plan can be found in Annex 5. Annex 6 provides an overview of the proposed travel plan and Annex 7 contains additions to the program description. Finally, Annex 8 has an updated Branding Strategy and Marking Plan and Annex 9 an updated organogram.

Although not mentioned as activities in chapter 2, S34D will establish an advisory committee, develop a communications plan and produce an event calendar.

This revision shows adjustments and changes in activities, based on S34D's learning. Other changes in activities based on available funding. As a result, some core-funded activities have been moved to Mission-funded activities.

2. Work Plan

This FY20 work plan has core-funded (core) and proposed Mission-funded (Mission) activities. These activities are presented in Annex 1. In this narrative, proposed core-funded activities that can be implemented with the current obligated amount are titled in **black**. The activity names in **dark red** are proposed Mission-funded activities, and their descriptions can be found in Annex 1.

Mission-funded activities were derived from seed consultations with the country's implementing partners, USAID Mission staff and other seed actors. The budget has separated the core and Mission funded activities by country and partner. An activity that Missions have expressed keen interest in to S34D to implement is a review of the three seed systems in their respective country: how each sector is performing, the level of integration between the systems and identifications of key bottlenecks, conflicts and opportunities to strengthen each of the systems, and methods to support more positive integration.

Activity 0.1 Develop country profiles and framework for engagement in Kenya and Uganda (core).

Agri Experience (AE) will develop a scope of work to generate a country level assessment tool to identify key bottlenecks, opportunities and level of integration of the formal, informal and emergency seed systems. This framework document will serve as both a reference point for the seed systems activity within a country and provide Missions with a consolidated view of the various parts of the seed systems. This rapid analysis will draw on the wealth of existing information on the formal sector and complement this with data and targeted survey information from the informal and emergency seed systems. The output from this activity is a cross seed sector country profile (5-10 pages), which will provide a framework for engagement with USAID, host governments and private sector actors.

To develop a cost effective and consistent methodology, S34D will start with a virtual design consultation where AE will work with S34D's formal, informal, and ECR seed systems lead personnel to generate a template and approach for undertaking the country profile. The country profiles will be developed for Kenya and Uganda in Q1-Q3 by AE with support from other consortium partners. These two countries were selected as S34D already has many of the pieces required to construct the report, and has strong connections to key stakeholders; additionally, Kenya and Uganda were selected because of the considerable differences in maturity of the seed systems and levels of investments across seed sectors. Although AE will lead this activity in Kenya and Uganda, this work will draw heavily from other direct consortium partners (CIAT, PABRA, OI, IFDC, CRS) and from S34D's network partners to gather information in the informal, emergency and policy areas. The results from the reports will first be shared with the Mission and a half day meeting with key 'seed stakeholders' to socialize the learning, gain additional insights, help verify the findings and to prioritize critical investment needs, will be requested a couple months in advance.

Based on the lessons learned from Kenya and Uganda, S34D will refine the methodology, S34D can offer this cross seed sector profile to interested Missions.

2.1 Formal Seed Sector Activities

IR 1.1 Constraints in formal seed systems identified and mitigated

The primary focus of the formal seed systems component is to identify and solve bottlenecks associated within the seed value chain system to offer high-quality seeds for a broader range of crops and varieties, and offer genetically uniform seed through improved business options, including varieties most likely to

be successful in stressful and marginal conditions. Not only will these actions enhance the resilience of the formal seed system itself, but they will also enhance the capacity of the formal seed system to make available a range of crops and varieties that can help build resilience among farmers and cropping systems in high-risk areas S34D will work with private and public sector actors in formal seed systems starting with EGS providers and down through the value chain to increase the availability of high-quality seed. This approach will support a range of activities including improving seed logistics, exploring new business models, developing new information systems to increase farmer awareness and deploying sustainable last mile systems to extend the seed delivery frontier. The target institutions and firms include those from the formal and informal sectors to make high-quality seed available to more smallholder farmers (SHFs).

Sub IR 1.1.1 Operational efficiency of seed companies increased.

Operational efficiency is a key driver in long-term profitability and sustainability of small and medium (SMEs) sized seed enterprises. S34D will work with firms to improve operations and promote the production of multiple crops – i.e. going beyond hybrid maize. Activities planned under this Sub IR in Kenya, Uganda and Zambia include: (i) undertaking a needs assessment of seed firms to learn about topics that are of most interest; and, (ii) working with seed associations to develop an agile, targeted, fee-based training curriculum that addresses the production and marketing needs of the seed firms. This work will develop specific training materials with seed companies, like Good Nature Agro, to build the capacity of private seed inspectors in Zambia. Moreover, this work will complement ongoing work by Alliance for a Green Revolution in Africa (AGRA), Seed Assure and Integrated Seed Sector Development (ISSD) to build capacity of seed companies in Uganda to take on internal seed inspection requirements, and gain skills to use digital seed management systems that are being developed by the Ministry of Agriculture (MoA). S34D will work with Seed Assure and KEPHIS in Kenya and similar initiatives in Uganda to ensure not to duplicate efforts. This Sub IR is specifically designed for small/medium size seed enterprises - which have 'minimum research facilities', depends on public research for EGS and in some cases private sector depends on licensing arrangements.

Activity 1.1.1.1 Document firm level needs assessment in Uganda (core).

In Q1 and Q2, AE, in consultation with the Uganda Seed Trade Association (USTA), QualiBasic and AGRA-Uganda, will initiate a needs assessment to identify constraints in quality seed production, processing and sales of field crops seeds, for a cohort of 20-25 small and medium size seed firms. The assessment will focus on the needs for production of legumes, small cereal grain crops and OPV and hybrid drought tolerant maize (DTM) introduced through DTMA and WEMA. The needs assessment will provide the information to generate a capacity curriculum on specific skills and subjects needed by the seed firms to improve their efficiency levels (linked to activity 1.1.1.2 and 1.1.1.3). While QualiBasic is engaged in maize, S34D will compliment and work closely with QualiBasic for legumes.

The **outputs** from this activity will be a list of gaps in legume seed production and processing experienced by seed companies in Uganda, along with a list of eligible entities and training organizations who can deliver the modules to address those gaps.

Activity 1.1.1.2 Gather, select and develop seed systems materials for coaching from partner organizations that meet client needs (technical, managerial and territorial marketing strategies) through engagement with internal and external partners in Uganda (core).

Curricula customization is directly linked to the FY19 activity 'Inventory scan of Financial Services.' To achieve this, OI will expand on their FY19 activity by consensus building with Ugandan FSPs on reviews

of training curriculum and integrate with the complete training materials developed by OI. In Q2, OI will customize their current SME finance related materials into four specific access-to-finance modules for training courses for seed companies. Training content will first be customized to the unique enabling environment of the Ugandan finance market and delivered to local members of financial service providers (FSPs) (linked to activity 1.1.1.1. and 1.1.1.3). In OI's ongoing activities in Uganda, FSPs have informed OI that they are interested in such opportunities.

The **output** of this activity is financial-access training content for seed companies and FSPs. CRS' Impact Investment team (through cost share) will review and provide input to operational and financial needs assessment tools developed under this activity to ensure key information related to financial and operational business development services and growth financing requirements are captured.

Activity 1.1.1.3 Develop a fee-based training model for deployment by Seed Trade Associations or similar stakeholder organizations in Uganda (core).

In Q3 and Q4, AE will develop a modular based, demand led, fee-based training plan to targeted registered seed firms. This capacity building will be implemented with the Uganda Seed Trade Association (USTA) to ensure long-term sustainability and ownership at the country level. This training approach will allow USTA to offer short, one-day training events to their members to improve key operational areas assessed under Activity 1.1.1.1. S34D will facilitate the training with USTA and other key players, such as the MoA, AGRA, ISSD and PABRA, and where possible, AE will identify local professionals to deliver specific training modules. Although the first focus will be on delivery of the training to seed firms, such services can be extended to cooperative too.

Costs will be minimized by leveraging sector experts who are willing to conduct training sessions on behalf of their employers, e.g. CGIAR experts, NARS, government and private sector experts. Subject matter will focus on issues such as seed production in off-season, seed quality, seed inspection, post-harvest handling, and marketing, with some topical issues such as control of Fall Army Worm (FAW). This work will assist USTA's service offer to their members, develop training materials and generate a list of master trainers. The **outputs** from this activity are that 20 seed companies are trained on selected modules through USTA (Q3 and Q4) and a learning document based on USTA's fee-based model (best practice) for scaling in other countries is produced in Q4.

CRS' Impact Investment team (through cost share) will also summarize business development services available and referral process, a list of eligible entities and training organizations who can deliver the modules to address those gaps, and share these materials with consortium members to include an inventory of available services that could complement activities to strengthen seed companies.

Activity 1.1.1.4 Develop a fee-based training model for deployment by Seed Trade Association of Kenya (STAK) (Mission).

~~*Activity 1.1.1.5 Work with three seed companies to solve systemic bean seed marketing challenges in Ethiopia (core). Canceled*~~

Activity 1.1.1.6 Improve certification efficiency of non-maize seed to promote sales volumes of non-maize certified seed, particularly for legumes in Zambia (core).

Zambia is currently the largest producer and exporter of hybrid maize in the East and Southern Africa region. However, Zambia has extremely low seed production and certification of non-maize seed, such

as beans, cowpea, groundnut and soybean, which are critical for nutrition and improving soil quality. To increase seed production for non-maize crops, Zambia's Seed Certification and Control Institute (SCCI) has requested support in strengthening the certification capacity of private seed company personnel for these crops, and to carry out certification processes on behalf of SCCI and improve production efficiency.

In collaboration with eight seed firms, Zambia's SCCI and MoA, AE will work with seed firms to coach and facilitate methods of improving sales and volumes of non-maize certified seeds. To achieve this, AE will provide training to eight private seed inspectors from eight seed companies that primarily produce legumes, sorghum and millet in seed quality control and inspection protocol. During Q1, AE, in partnership with SCCI, will select firms and inspectors for training with focus on non-maize crops modules. This will be followed by training activities in Q2-Q3 and preliminary feedback and reporting in Q4. The **output** will be a training needs assessment, coaching and training program, leading to a baseline and measurement of changes in the sales and volumes of target non-maize certified seed.

Activity 1.1.1.7 Create farmer awareness about the importance of periodically replacing non-maize seed, especially for legumes; and, training seed growers in certified seed production process in Zambia (Mission).

Activity 1.1.1.8 Facilitate shift to a more private-sector-led inspection process in the national seed certification strategies, with emphasis on digital management tools to share compliance information in Malawi, Uganda, Kenya, Tanzania (Mission).

Activity 1.1.1.9 Develop an inventory of financial services to expand financing for seed sales from seed companies in Niger (core).

In FY19, S34D, through CP OI, conducted an inventory of financial services (supply-side) in Kenya, Uganda, Tanzania and Malawi. These scans revealed that over the past five years, formal financing available for seed companies in East Africa decreased significantly due to increased regulatory requirements. S34D learned that despite the recent decline in financing, local FSPs appetite is increasing to offer innovative products to companies with successful financial performance and unique business models. Local East African FSPs have invested heavily to increase deposit bases and capital adequacy and are now better positioned to lend into the seed sector. Through assessments conducted on over 140 local FSPs, interviews with 38 FSPs with agricultural portfolios, and in-person deep-dive consultations with 18 providers, S34D identified local financiers with an interest to lend capital into the seed sector. In Q2, OI will update existing inventory scans of FSP's developed by AGRA, national Ministries of Finance, and central banks, across the 3 seed sectors in Niger. This activity will be implemented in close collaboration with Purdue when they conduct their post-harvest cowpea seed management assessment (activity 1.2.1.2), with IFDC when they conduct the rapid review for the country profile development (activity 0.1) and with CORAF, CILSS and West Africa regional missions. The goal of this scan is to develop an inventory of current offerings per FSP and to better document FSPs capacities and constraints specific to servicing seed companies.

The **outputs** of the scan will inform seed supplier efficiency self-assessments (linked to activity 0.1). This activity will enable seed companies to align with FSPs and access specialized coaching with local financiers. Types of capability and constraint listings will include account and lending documentation requirements, loan appraisal regulations, variations between FSP types, variable pricing models (interest rates, risk appetite, and fees), available geographies, and delivery channels (traditional and digital). These evaluations will also inform the development of seed company operational efficiency self-

assessments. CRS' Impact Investment team (through cost share) will summarize investment requirements and referral process and share with consortium members to include an inventory of available services that could complement activities to strengthen seed companies. The **output** is a methodology and report to assess the national lending environment for the seed sector. This will inform seed actors in Niger across the 3 seed sectors—as well as the Mission—about opportunities and constraints to financial access for seed actors.

Activity 1.1.1.10 Develop an inventory of financial services to expand financing for seed sales from seed companies in Senegal, Zambia, and Ethiopia (Mission).

Activity 1.1.1.11 Map seed companies and other agribusinesses in the seed value chains and provide referrals for potential Impact, capital or equity Investment in Senegal (Core).

Seed firms that have expressed interest in investing in upgrading their seed quality assurance (QA) production, logistics and processing to increase their competitiveness and the functioning of the seed value chain, have found it challenging to access financing option for their upgrading plans. This may be related to the high cost of lending from financial institutions or the level of capacity and the investment readiness of these firms. Some initial investment options S34D was informed about was finding ways to upgrade seed processing, for example by using a device that uses optical technology to identify poor quality seeds or integrating of seed packing machines that can process seed in smaller sachets, tailored to smallholder farmers' needs.

S34D will engage with a student from Centre Africain d'Etudes Supérieures en Gestion (CESAG) and CRS Senegal to map firms (e.g. SEDAB, RESOPP, GIE CASAGRI, GIE AGRO ASTEL) active in the seed value chain that are interested in upgrading their internal business processes. In addition to readily available information, e.g. The Africa Seed Access Index¹ and Access to Seed Index², S34D will use one on one business conversations between S34D and the firm for the mapping exercise. S34D (CRS Impact Investment team) will identify the firm's current business status, their future goals and work with the firm to find better business models and strategies to reach those goals. S34D will not only discuss the current business plan and growth plan, but also the firm's current capacity and capacity requirements to reach those goals. The business conversations will provide further details in the mapping about the type of business services these firms provide to the seed value chain. Depending on the mapping, some firms that are investment ready will be referred to the CRS Impact Investment team for further screening and potentially a due diligence will be conducted.

This activity will identify seed companies who are ready to upgrade their business functions by investing in their business logistics and distribution and by purchasing more client focused seed processing machines and improve the seed processing.

The **output** of this activity is an overview of seed companies and agribusinesses in the seed value chain and their level of readiness for investment. Another **output** is firm referrals to the CRS impact investment team for the Impact Investment team to conduct screening and due diligence.

¹ https://tasai.org/wp-content/themes/tasai2016/img/tasai_brief_2017_senegal_final_lr.pdf

² <https://www.accesstoseeds.org/index/western-central-africa/country-profile/senegal/>

Sub IR 1.1.2 Seed availability of climate – smart crops increased, through enhancing EGS capacities of firms and producers.

Activity 1.1.2.1. Identify and document bottlenecks faced by national seed and post-harvest providers' in accessing financial services and list recommendations for detailed action in Kenya and Tanzania (Mission).

Activity 1.1.2.2 Diversify sources of legume seed and increase the production of EGS of non-hybrid crops in Uganda (Mission).

Sub IR 1.1.3 Capacities of local seed actors strengthened.

Under Sub IR 1.1.1, S34D will increase operational efficiency of seed actors at the *first* mile level or at the higher level of the seed value chain which requires improving the capacities at a higher, technical level such as improving production efficiency, in addition to managerial aspects. Under Sub IR 1.1.3, S34D will improve operational efficiencies at the *last* mile, e.g. achieving managerial efficiency of the operations. But in some cases, the agro dealers or last mile actors can become seed producers or manage seed production activities – producing their own seeds, package and deliver to customers - in this case the capacity building includes at both levels; last and first mile.

As seed companies are supported to serve rural customers and build local supply chains, limited access to longer-term growth capital is expected as a constraint. While OI assesses the current state of local FSPs and facilitates linkages with seed companies, CRS' Impact Investing team (through cost share) will explore options for catalytic financing to invest directly into aligned private seed companies. This additional financing strategy will seek support from a network of mission-oriented impact investors that could also be leveraged as appropriate.

One of the major constraints faced by legume or other non-maize seed growers is lack of availability of high-quality seed of high-yielding, disease resistant varieties. Legume seed sales are limited by lack of volume and distribution networks to supply farmers at the right time, place and cost. There are efforts to improve the supply of legume and other non-maize cereal, like millet, sorghum, and rice seeds, to farmers through linking seed producing firms to farmers through a network of agro-dealers in Kenya and Uganda. This market awareness and supply chain work is constrained by significant knowledge gaps among agro-dealers, stockists, micro-retailers and village agents (in Uganda) about the value of seeds, varieties and other skills related to improving last mile actors' operational efficiencies to expand seed sales beyond maize.

Activity 1.1.3.1 Strengthen capacities of last mile actors, enabling them to supply legume seeds in Western Kenya (Mission).

Activity 1.1.3.2 Strengthen capacities of last mile actors, enabling them to supply legume and rice seeds in eastern and south-eastern Uganda (core).

In Q2 and Q3, IFDC will build on their existing value chain activities that promote farmer climate resilience through crop diversification. The activity will build capacity of 20 agro-dealers and 10 micro-retailers and women and youth village-based agents (VBAs), who are working on increasing sales of rice and bean seed in Eastern and South-Eastern parts of Uganda. In this activity, IFDC will collaborate with

ISSD³, CIAT-PABRA, OI and CRS to train last mile actors to improve their knowledge of seeds and varieties, finance, and business-related information. ISSD will assist in the selection of last mile actors and will be consulted for technical sessions during capacity building activities (especially on seed quality related models). CIAT-PABRA will provide specific technological information on seeds and varieties as part of the capacity building module. OI will support this activity by expanding businesses through financing and enhance business operations capacities. Leveraging the output from Activity 1.1.1.7 and 1.1.1.8, OI will collaborate with CIAT and IFDC to evaluate and develop models for credit and long-term financial access for last mile actors. CRS supports in both countries (activity 1.1.3.1 and 1.1.3.2) the design and implementation the survey on monitoring of last mile actors towards improving their sales compared to baseline. Most of the countries that allows input sales, recognize 'accreditation' or 'registration' of agro dealers with the government as recognized entities to sell inputs. Therefore, if they cannot be located, then access becomes the issue and, they may not be able to serve the farmers. One example, in Kenya all agro dealers must be registered, if they would like to sell inputs. Another example, in Uganda, though not in practice, most of the firms and government programs would like to have 'recognized dealers' or actors to supply inputs. Because of these examples, S34D does not anticipate issues with geotagging last mile actors' point of sales.

The **outputs** of this activity are: (i) developed four module coaching models that serves as best practices towards capacity strengthening of last mile actors for improving their operational efficiencies and expanding their crop seed portfolios; (ii) teaching material for agricultural extension officers based in local county government; and, (iii) geo-tagging the last mile actors' sales points and sharing the information on possible sales points of quality seeds of expanded crop portfolios to county agents and other development programs for better linkages with local farming communities.

Activity 1.1.3.3 Strengthen capacities of local seed actors to extend customer base and support last mile in Malawi, Zambia, Ethiopia, Senegal and Niger (Mission).

Activity 1.1.3.4 Facilitate modernizing the seed industry with digital information management to support improved quality assurance/quality control (QA/ QC) in Uganda (Mission).

Activity 1.1.3.5. Improve knowledge and technology capacity of the Aq Seed Agency and target national seed firms in production and genetic maintenance of EGS and foundation seed, focusing on cassava and legumes in Tanzania (Mission).

Activity 1.1.3.6 Build the capacity of agro-dealers and other last mile actors in Malawi, Tanzania, Kenya, Uganda, Ethiopia and Niger (Mission).

Sub IR 1.1.4 Sustainable models with private sector players to supply quality EGS and QDS to a range of suppliers piloted and scaled using innovative financing.

During FY19, S34D assessed emerging business models to increase last mile delivery of seed through methods such as mobile vans, carts, kiosks and input bundling. During FY20, S34D will pilot and test select models in Kenya and Uganda to enhance last mile delivery options. In Activity IR 1.1.3.1 and Activity 1.1.3.2, agro-dealers, micro-retailers, VBAs and agripreneurs will be identified (as last mile actors) and trained on specific skills to enhance their networks and supply of quality seeds. Under this IR, selected cohorts from such last mile actors will scale-up their operations and profitability through

³ A Dutch-funded initiative that focuses on approaches for formal and informal integrated seed systems development.

designing specific and adaptive delivery mechanisms of maize, beans, rice, and RTBs (in Uganda and Kenya).

In addition to catalytic financing, CRS' Impact Investment team (through cost share) has limited resources available to provide specialized BDS directly or contract third party providers when distinct capacity building requirements are identified that could be leveraged to pilot innovative models with a small number of private sector actors.

Activity 1.1.4.1 Prototype two last mile delivery models to reach last mile users with quality seeds in Uganda (Mission).

Activity 1.1.4.1 Prototype two last mile delivery models to reach last mile users with quality seeds in Kenya (core).

IFDC, in collaboration with PABRA and two selected seed firms, will work on scaling up agro-vets, micro-retailers and agripreneurs' operations. This will be achieved with a selection of cohorts from the trained last mile actors for enhancing supply (linked to activity 1.1.3.1 and activity 1.1.3.2) by validation of business plans through stakeholder consultative meetings; expanding business needs by linking selected agripreneurs at the last mile; and, by demonstrating a prototype of last mile delivery model with activities. Prototype activities in Kenya and Uganda include testing input bundles and enhancing seed storage aspects, micro-franchising and mobile carts, vans, variety demonstrations, kiosks and small seed packet sizes.

In Kenya, IFDC will implement among selected cohorts of agro-dealers towards expanding their business operations through micro-franchising or micro-retailers. The last mile cohort actors will be selected from the trained cohorts in Western Kenya (linked to activity 1.1.3.2 above) to improve the supply of legume seeds. The activity will be led by IFDC in partnership with CIAT-PABRA.

These activities will be carried out by increasing awareness through field days and field demonstrations by agro-dealers for farmers in Q2 and Q3 in Kenya. These activities will share information to 50 farm households on new seed varieties and production technologies of legumes and other cereal crops beyond maize, seed storage aspects, and other seed related information, including seed access points for high-quality seeds. The outcomes of prototype activities, such as input bundles, micro-franchising through retailers, mobile sellers (vans, carts, bikes), and varying seed package size are to improve the accessibility and availability of high-quality seeds of legumes, cereals and RTBs through enhanced last mile delivery systems. These activities will be implemented from Q2-Q4.

Outputs from the activities in Kenya would include cohort of trained agro-dealers or last mile actors linked to local markets, including finance (in selected cases) and other services. These services are linked with a range of input suppliers and firms that supply different agricultural inputs to enable diversification of enterprises and improved input bundling services. The prototypes are linked with existing farmer organizations and trader associations in the areas of operations for sustained business opportunities and networking.

Activity 1.1.4.2 Review current VBA method; test and strengthen alternative methods on improving last mile distribution of seed, including access to credit and financial education for agro-dealers and VBAs in Tanzania (Mission).

Activity 1.1.4.3 Prototype last mile models with quality seeds of legumes and cereals in Malawi, Senegal and Niger (Mission).

Activity 1.1.4.4 Scale out last mile delivery through digitally enabled rural seed and enterprise agent systems in Kenya (cost share).

S34D will work with Kuza (a social enterprise with a multi-sided AgTech digital platform) to localize and scale a fee-based network of rural youth agents that are supported through a robust digital backbone. This activity will focus on increasing sales of legumes, providing opportunities to accelerate and deepen sales to more remote buyers, or those who are unable to buy through existing commercial market outlets. The approach will test a technology supported market linkage platform that provides traceable links between seed companies and large formal input suppliers, through a network of agro-dealers to a village level salesforce of agents and village shops. Most methods to raise sales of legume seed with farmers have relied largely upon grant driven strategies, whereas the KUZA approach offers a business solution model to enable better market access for the more remote farmers. The KUZA model will train a network of rural agents to offer farmers with critical commercial services, including a bundle of agricultural services that include production advice, access to seeds and other inputs. The approach will also test novel financial services to improve market reach. The hard to reach farmers are those who are beyond the current reach of the formal private sector. This segment of farmers is either physically remote, or do not have information that persuades them to invest in quality seed, or do not have the purchasing capacity to buy seed. Based on previous work, the team consider that it will take approximately 2 years to establish a sustainable agri-business to supply farmers with sustainable market links for quality input supply.

The **outputs** will be: (i) a cohort of trained last mile agents linked to local input supply markets; (ii) agents linked into the digital platform for capacity building and transaction support and analysis; and, (iii) a report on performance of field agents in terms of local farmer registration, training, input and output market transactions.

Activity 1.1.4.5 Professionalize the processes and scaling production of QDS at community/farmer level through Public-Private Partnerships where the QDS producers have access to quality seeds (from private sectors or from NARS) in Tanzania (Mission).

Activity 1.1.4.6 Scale out last mile services with local seed conservation models for non-hybrid crops in Kenya (Mission).

Activity 1.1.4.7 Utilize digital last mile seed rural agent systems in Uganda (Mission).

2.2 Informal Seed Sector Activities

IR 1.2 Strengthened capacity of informal seed systems to offer a broader range of affordable, improved quality seed

S34D's informal seed sector work will link, leverage, and strengthen seed marketing, seed quality assessment and increase demand for quality seed based on linking seed input and grain output markets. This market pull from the informal market will be achieved through working with NARS, seed companies, QDS producers, new seed delivery actors e.g. seed traders, motorcyclist riders (boda-boda) from the formal and informal sectors operating in Uganda, Kenya, Tanzania. The target market will focus on the yellow bean corridor of Uganda, Kenya and Tanzania. CIAT will support improved access to seed by working with farmers and seed suppliers to test new business models, such as the (i) niche-market model, and the (ii) bundled multi-crop quality seed model. This work will increase sales of seed by actors in the last mile and/or push-pull marketing strategies. The goal is to create awareness and demand for quality seed produced by actors in the informal systems.

Quality seed of adapted varieties contributes to household resilience by increasing productivity, crop sales and incomes, which enhances farmers' absorptive capacity and their ability to deal with shocks and stresses. By raising both the quality of seed and the delivery capacity within informal seed systems, the resilience of the informal seed system itself is enhanced. Available literature⁴ suggests that seed systems resilience can be strengthened by: (i) better links between formal and informal seed systems; (ii) engaging with traders who can help bridge systems, as well as cross scales; (iii) maintaining a diversity of crops and supply channels; and (iv) links across geographical scales that enhance seed security and ensure seed availability in local markets. S34D's informal seed sector work is addressing all of these areas.

OI and CIAT will explore financing arrangements to unlock SMEs seed business potential and mainstream, ICT-supported marketing strategies to extend their reach of quality seed to last mile customers. ICT technologies enables firms to reach more farmers, or to identify more potential clients, through SMS and IVR methods for both pushing offers and gathering data on clients. The aim is to build marketing knowledge and business skills of different types of actors in the informal seed sector and enable them to extend quality seed sales to all types of farmers—men, women and youth. This work will also promote sales of improved seed and grain storage management with Purdue University.

Sub IR 1.2.1. Informal trader capacity and local seed networks assessed.

Activity 1.2.1.1 Complete report writing for yellow bean characterization study in Tanzania (core).

CIAT-PABRA will finalize the yellow bean characterization study in Tanzania (field survey carried out in FY19 Q4) in Q1-Q2. In FY19, PABRA and CRS initiated the characterization and profiling of seed and grain markets in the yellow bean corridor in Tanzania, in terms of varieties grown and traded, market size, type and gender of traders and seed actors in the value chain, geographical zones of production concentration, and the final destination for marketed volumes, among other aspects. The objective was to improve the understanding of the importance of yellow beans in the region, capacity of traders and

⁴ McGuire & Sperling, 2013. 'Making seed systems more resilient to stress'. *Global Environmental Change* 23: 644–653.

seed network within the corridor, and to identify opportunities for enhancing sectoral efficiency through policy and practice that work across national boundaries.

In FY20, DNA fingerprinting of collected grain and seed samples will be carried out (linked to activity CCIR 2.2.1) to establish the seed and grain of yellow bean varieties grown and traded. Together with Tanzania Agriculture Research Institute (TARI), key findings from the Tanzania yellow bean study will be disseminated to at least 100 stakeholders in the bean and seed value chains (bean aggregators, seed companies, national seed services, policymakers in the MoA, agro-dealers, local government officials, representatives of the development partners and farmer organizations) in a workshop in Arusha. CIAT-PABRA will develop one technical report and one policy brief for Tanzania on strengthening informal seed supplies. The **outputs** are one final report from Tanzania on the yellow bean study, one policy brief, and information tools produced and shared.

Activity 1.2.1.2 Seed and grain market characterization and identification of areas of interventions in Senegal (Mission).

Activity 1.2.1.3 Conduct diagnostics of seed storage—assess legume storage and post-harvest management constraints and capacities in Niger (Mission).

Sub IR 1.2.2. Capacity of local seed entrepreneurs and non-traditional seed actors strengthened.

Activity 1.2.2.1 Scope existing and identify new seed and post-harvest suppliers and vendors to expand the reach of these technologies in Tanzania (Mission).

Activity 1.2.2.2 Train and link the seed and post-harvest supplier and vendors to distribute and market these technologies in Tanzania (Mission).

Sub IR 1.2.3. Business models to leverage integrated operations validated.

The main work under this Sub IR is the validation and identification of business models that link formal and informal systems and extend market frontiers. These models will work to make critical value chain components more profitable and strengthen regional seed and grain supplies, as demand for seed is partly based on grain sales. In FY20, four seed business models will be tested. These models are: (1) push-pull model to harness demand and improve access to quality declared legume seed (QDS) in Uganda; (2) bundling beans and fodder in Kenya; (3) facilitate linkages of existing and new identified seed producers and suppliers to grain off-takers trading in the yellow bean growth corridor in Tanzania; and, (4) explore complementarity of conventional and non-seed distribution channels for nutritious bean varieties in Kenya (see IR 2.1.3).

Activity 1.2.3.1 Test and catalyze push-pull model to harness demand and improve access to quality declared legume seed (QDS) in Uganda (Mission).

Activity 1.2.3.2 Test bundled legumes & fodder seed and Post-Harvesting Technologies (PHT) marketing model in Kenya (Mission).

Activity 1.2.3.3 Test and catalyze push-pull models to harness demand and improved access to quality legume seed in Uganda (Mission).

Activity 1.2.3.4 Facilitate digital information sharing platforms for seed actors and analytics to enhance seed business and link to farmer demand in Uganda (Mission).

Sub IR 1.2.4. Last mile delivery solutions through non-traditional partners and ICT strengthened.

In 2017, PABRA and KALRO released three new and improved high-zinc and iron-rich bean varieties (Nyota, Angaza and Faida) that are also higher yielding with attractive market preferred traits (large seed, palatable and fast cook). Though Kenya has numerous seed companies, few seed companies and agro-dealers supply bean seed to farmers due to inadequate market reach in remote areas where most beans are produced. Therefore, there is a disconnect between KALRO, seed companies and farmers. In collaboration with KALRO, CIAT will support Bubayi Seed Company, which is licensed to commercialize Nyota, and test innovative seed marketing models that increase connection with the seed company and its agro-dealer networks to remote farmers. This is meant to integrate formal and informal sector approaches—formal with a seed company linked to a research (KARLO) institution to quickly move and introduce a new and niche variety (bio-fortified or specific niche trait) as quickly as possible, which is connected to formal and informal channels (agro-dealers using boda-boda, schools, health centers, county channels) in the last mile.

Activity 1.2.4.1. Niche Market business model: Explore non-seed distribution and sale niches with seed varieties (linked to PoS ICT application with seed companies) and monitor sales/adoption in Kenya (core). CIAT will support one seed company and ten agro dealers in western Kenya to market and reach farmers with seed of a niche variety (high iron bean). This will be done by exploring non-conventional seed distribution models (specifically the use of motorbikes) for the niche varieties. This will be linked to a Point of Sale (PoS) ICT application to collect seed sales, information and feedback from agro-dealers, motorbike riders and farmers. CRS will work with CIAT/PABRA to track changes over time and explore policy implications. The **outputs** of this activity will be reports enhancing our understanding of the niche model (of HIB) and its policy implications. This activity will be implemented from Q1 through Q4.

Activity 1.2.4.2 Catalytic financial models for seed companies and large traders to scale out micronutrient rich legumes in Kenya (Mission).

2.3 Emergency & Humanitarian Aid and Resilience (EHAR) programming activities⁵

IR 1.3 Strengthened capacity of emergency and humanitarian aid programs to respond effectively to acute and chronic stresses

This IR aims to enhance the capacity of emergency and humanitarian aid actors to respond appropriately and effectively to ensure that farmers affected by acute and chronic stresses are able to access quality seed in a timely manner. In times of disaster, emergency and humanitarian aid actors working in the seed sector tend to respond through either direct seed distribution or seed voucher and fair (SVF) interventions. There is a range of different ways in which SVFs can be designed and implemented according to local needs and contexts. Despite the existence of seed system security assessment (SSSA) tools and guidance, it is not always possible to undertake an SSSAs in an emergency context. There also appears to be a lack of understanding about the range of various response options available and the ways in which different responses can be tailored to local contexts. When multiple agencies attempt to implement direct seed distribution interventions without effective coordination concerning the quantity of seed available within the formal seed sector, this can result in agency-induced seed ‘shortages’ within the formal sector, as in the case of Mozambique in 2019. The capacity of emergency and humanitarian aid actors will be enhanced through the development and dissemination of appropriate technical guidance and awareness, working in partnership with key actors and within existing coordination platforms, with a particular focus on assessment and response options.

In FY20, the 1.1.3.1 activities build partly on the FY19 activities that started to identify and test incentives for private sector: (i) to expand crop portfolios to better meet the needs of populations facing chronic stress; and (ii) in bundling innovation. Working with the formal, informal and policy teams, EHAR aims to develop best practices and tools for response analysis and decision making, including raising awareness about market-based responses to seed aid and limiting free seed distribution. FY20 activities also focus on expanding key policy and advocacy efforts by disseminating evidence generated in FY19 and engaging stakeholders in discussion and problem solving around these issues. S34D’s purpose in informal integrated market support approaches is to identify support needed by informal market systems to be more resilient, and to deliver new, high-quality varieties.

Sub IR 1.3.1 Select emergency and humanitarian past actions assessed: focus on farmer evaluation, new varieties, and markets (local and formal).

Activity 1.3.1.1 Disseminate results from FY19 studies on cash and markets using mixed modes of delivery (core).

In Q3 and Q4, CIAT and CRS will disseminate findings on studies conducted in FY19 on past humanitarian actions. In FY19, S34D gathered insights on last mile market-based approaches to seed security in humanitarian actions and on cash and markets for seed security outcomes. The findings from these studies will be disseminated and used as leverage for discussion and advocacy in FY20. S34D envisages a mixed mode of delivery, including 2 global webinars accessible to the broader humanitarian, seed, and markets communities (one webinar for the market-led interventions study, and one for cash transfers), marketed as a webinar series on last mile market-based solutions for seed security. S34D’s EHAR team

⁵ As advised, workplan revisions for FY20 have been kept to a minimum, retaining the current structure and the existing activity numbering system and only changing the content of some activities. As a result, the structure of the revised activities for IR 1.3 and 2.2 may appear to be somewhat incongruous with the sub-IRs; this will be addressed in the FY21 workplan.

also proposes dissemination of the study reports in hard copy. The **output** of this activity will be two webinars and summary reports of the related webinar discussions. The lessons and recommendations from the studies themselves will be incorporated into the response options to be produced under Activity 1.3.3.1.

Additional FY19 studies (to be completed in FY20) were on Diversity for Nutrition and Enhanced Resilience (DiNER) evaluations in Southern African region (Malawi, Zimbabwe and Madagascar); which included a comparison study, funded by CRS private funds, in Guatemala and with a Nicaragua follow in FY20 – see Activity 1.3.1.4, Activity 2.2.2.2, and Activity 2.2.2.3 for follow-up in relation to the DiNER studies.

Activity 1.3.1.2. Develop template that systematically gathers information on delivery and use of modern varieties in emergency response (core).

This activity has been deleted at the request of OFDA.

Activity 1.3.1.3 Interview private and research sector actors on their role in emergency and humanitarian seed programming in Kenya, Uganda and Malawi (core).

In Q1, CIAT will conduct 30 in-person interviews in Kenya, Uganda and Malawi. This activity builds on a FY19 advanced bibliography, desk review of roles and drafting of questionnaires in consultation with formal and informal sector teams. Furthermore, S34D will finalize questionnaires including seed storage components for the study. Interviews will be with select key stakeholders, like NGOs, seed companies, farmer seed associations and NARS in the seed industry about their roles in emergency and ways of adopting best practice. This activity will serve as a preliminary establishment for information provision i.e. data source for the platform (see Sub IR 1.3.3) on seed interventions in emergencies (seed intervention type, seed volume moved by crop and organization involved). The **output** of this activity is a report on current and envisaged status of roles by these sectors and actors, completed in Q4.

Activity 1.3.1.4 Develop actionable plan based on lessons emerging from the cash transfer and market studies completed to date, and the (on-going) FY19/20. (DiNER) evaluations in Southern African region (Malawi, Zimbabwe and Madagascar).

Lessons from the Southern African DiNERS fairs suggest that actively designing the supply side is at least as important as focusing on the beneficiary side when planning for agricultural input fairs. Working with CIAT-PABRA, IFDC and Purdue, CRS will develop a series of actions that can potentially be incorporated into future seed fairs, designed to support the continuing business of participating private sector seed fair vendors. The **output** will be an actionable plan to guide the work of implementing partners by the end of Q3.

Sub IR 1.3.2 Emergency and humanitarian responses that promote climate resilience, including food, income, cover and fodder crops are catalyzed.

S34D aims to help shape discourse in the emergency and humanitarian space especially in relation to seed systems that smallholders use. The information on seedsystem.org includes guidance and analytical frameworks for humanitarian and development actors, among other elements. These continue to help practitioners in better design and implementation of responses during emergencies. For example, seed system security assessments (SSSAs), are widely accepted as a way/tool to understand the status of seed security in stress-prone areas. These have systematically offered options on strengthening seed systems that smallholders use, in acute and chronic stress contexts. Under such

conditions, SSSAs give guidance on strengthening systems and result in crops and varieties that enhance a) productivity b) agrobiodiversity c) family nutrition and d) income with an overall net effect of enhancing resilience. Resilience-building could include promotion of responses like seed and vouchers in fairs, incorporating nutrition and diversity i.e. diversifying from staple crop seed deliveries to including vegetable seed.

Activity 1.3.2.1 Support upgrades in functionality, socialization and promotion for SeedSystem.org website (core).

S34D will contribute to this site by posting public documents of our work including content and publicity on any key seed issues akin to driving greater resilience and seed security. S34D will support relevant functionality upgrades on and promote SeedSystem.org as a resource for humanitarian practitioners. The effort to have it readily updated and in the best state for real-time utilization pre- and post-emergency is crucial. The website is pivotal in raising profile of key issues in the seed industry and will be closely linked to the new database to ensure a seamless user experience. S34D also envisions a socialization process that ensures the website and the proposed new database are utilized fully within the consortium, by humanitarians, and by private sector, government and other seed actors, as appropriate. S34D will socialize the sites through humanitarian clusters, SEEP Network, Markets in Crises and Cash Learning Partnership groups will also be prioritized. The **output** will be the information updates made available through the website and a report on the website's usage metrics.

Sub IR 1.3.3 Tools and Information Systems to frame Shock Responsive Models developed.

Three key activities will contribute towards this Sub IR in the following ways: (i) a conceptual framework for 'shock-responsive' or resilient seed systems and associated response options (Activity 1.3.3.1) will generate a greater understanding of how resilience can be built into seed systems (both formal and informal) and the types of interventions that can support this in different contexts. (ii) a consultation among humanitarian practitioners and humanitarian policy-makers will determine whether and how capacities for humanitarian aid programming in the agricultural sector can be strengthened, i.e. whether through additional guidelines, standards, training, etc. ; and (iii) through the collection and compilation of data relating to the current state of emergency seed interventions (Activity 1.3.3.3), to be presented as part of the broader Seed Sector Country Profiles (Activity 0.1), the interactions between development and relief approaches within specific countries will be more clearly understood. Each of these activities is described in greater detail below.

Activity 1.3.3.1 Framework and response options for resilient seed systems (core).

The activity is intended to provide a model and practical guidance for the development of 'shock responsive' seed systems for greater resilience. The model or conceptual framework will identify the key aspects of seed systems that render them resilient to different types of shocks. The response options will identify the different types of interventions that can usefully build resilience into seed systems, including formal and informal systems, and emergency seed interventions. The inability of formal seed systems to function in chronic conflict and/or economic failure (e.g. South Sudan, Haiti) suggests that alternative models may be needed in such contexts. The current coronavirus pandemic has also highlighted various weaknesses in the formal seed sector, particularly relating to quality testing. Informal seed systems are inherently more resilient, and much of the work undertaken under IR1.2 is effectively enhancing resilience through seed quality improvements and working with traders to bridge the formal and informal systems. The concept of resilience is also useful in generating a common agenda and closer working relationships between development and humanitarian actors. Whilst resilience might be relatively well-understood from a development perspective, there is relatively little practical

experience of implementing resilience-building interventions from a humanitarian perspective, particularly in the seed sector. Earlier studies from DiNER fairs, for example, suggest that slight changes to the ways in which seed fairs are programmed can potentially enhance seed system resilience through supporting long-term market linkages. There is also the potential for market-based interventions linked to the informal seed sector. The activity will involve an extensive literature review to identify the defining features of resilient seed systems and correspondence with key experts to generate a conceptual framework. Existing best practice, together with the findings from studies conducted by S34D in FY19 and FY20, and the actionable plans of Activity 1.3.1.4 and Activity 2.2.2.2 will be used to generate the response options. The **outputs** of this activity are a conceptual framework for resilient seed systems and a series of response options for resilience-building interventions in different contexts, to be completed in Q4.

Activity 1.3.3.2 Inputs to a stakeholder consultation with the broader humanitarian community to determine and address the need for additional guidance for agricultural interventions (core).

In Q2, CRS will work closely with the Global Food Security Cluster (gFSC) to conduct a consultation among humanitarian practitioners, policymakers and donors. The gFSC provides a forum at the international level to inform the elaboration of emergency strategies and implementation plans and support the work of the in-country Food Security Cluster (FSC) in guiding and coordinating the food security response in major emergencies. The FSC is co-led by FAO and WFP; members include NGOs, the Red Cross and Red Crescent Movement, UN organizations, Governments and Donors. As such, it represents the whole of the humanitarian community and offers a prime avenue for collaboration and dissemination. There are currently 4 gFSC Working Groups – (i) Cash & Markets; (ii) Preparedness and Resilience; (iii) Nutrition; and (iv) Program Quality, and it has been suggested that there should be an additional working group or task force relating to technical agricultural issues. The consultation will be undertaken through a gFSC survey that will: (i) determine whether there are any gaps in technical support for agricultural interventions in emergency, protracted and transitional contexts (including early action, emergency preparedness, emergency response, early recovery, and resilience interventions); (ii) determine whether there is a need for a new gFSC task force on agriculture to fill these gaps; and (iii) to identify potential outputs of such a task force. As a member of the gFSC, CRS will help to lead in the development of a survey to be used for the consultation process (Q2), and will also play a key role in any potential Task Force activities (Q3, Q4) that are agreed by the gFSC Advisory Group, based on the survey results.

Activity 1.3.3.3 Collect, compile, and analyze information on emergency and humanitarian seed interventions in relation to formal and informal seed sector development interventions (core).

In Q2 and Q3, CIAT and CRS will test a methodology for collecting and compiling information from relief agencies, governments and the UN related to emergency seed interventions. This will be complemented by information from the formal and informal seed sectors to generate country-level seed system profiles for selected counties (Activity 0.1). The broader country profiles will aim to provide a consolidated view of the various parts of the seed systems and serve as a reference point for seed sector activities within a country. The profiles will differ from existing Seed System Security Assessments by quantifying the amounts of seed that are produced and distributed within each of the three 'sectors'. The profiles will also allow humanitarian actors to better understand the broader seed system context within which emergency seed interventions take place, potentially disrupting private sector development and other longer-term development efforts. A companion report will accompany each country profile containing recommendations on how humanitarian actors and others can better provide appropriate seed-related support in acute or chronic stress emergency responses such that humanitarian and developmental efforts complement one another and support the private seed sector. The initial countries for testing

the approach will be Uganda and Kenya. These were selected because all three seed ‘systems’ are present in both, and there are various major differences in the seed sectors across these two countries. The information to be compiled will include seed volumes distributed, by whom, how, which crops, within which geographies and when. The **outputs** are the emergency component and associated analysis contributing towards the country seed system profiles of Activity 0.1 and a one-pager that will show S34D’s country-specific recommendations prior to, during and after emergencies.

Activity 1.3.3.4 Develop country-level inputs to seed database (1.3.3.3) with real-time snapshots pre- and post-disasters in Malawi, Mozambique, Uganda, or Niger (Mission).

Sub IR 1.3.4 Last mile delivery solutions especially for chronic stress areas (small packs, boutiques, WhatsApp seller linkages) developed.

Activity 1.3.4.1 Identify promising practices from last mile PASP model to provide access to improved seed in chronic stress contexts (Mission).

Activity 1.3.4.2. Scope and prototype PASP model for groundnut seed in Senegal (Mission).

Activity 1.3.4.3. Study existing “mom & pop shops” as opportunities to make improved seed available in rural areas (small packs, etc.) in Niger (Mission).

1.3.4.4 Develop a 1-2 page white paper on possibilities for financing of different farmer segments (core).

OI is currently piloting an iterative process for developing appropriate financial tools within refugee settlements in Uganda under the Office of the Prime Minister. This tool is not just looking at debt, but also savings mobilization, digital financial services, financial literacy, and training.

OI will lead the white paper (**output**) and explore financing options for refugee owned enterprises (ideally last mile agrodealers). More work is needed to identify best practice in this space as refugee financing, in general, is an underdeveloped business line explore possibilities of financing refugees for seed security or enterprises and will be completed by Q4. This will be tracked in FY20 under S34D for potential follow-up activities in FY21. CRS, CIAT and OI will meet to discuss outcomes of the OI scoping using the paper as a foundation and determine if and what actions S34D can pursue in FY21 to support financing refugees in Uganda for seed security. The white paper output will summarize learnings from this pilot and seek to analyze how this can be leverage within the EHAR component of the seed sector.

2. 4 Integration and Collaboration Between Sectors

IR 2.1 Strengthened interface and collaboration between formal and informal seed systems

At the systemic level, seed system resilience can be strengthened by improved linkages between formal and informal seed systems. Such linkages are being promoted through many of the activities described under IR 1.2, e.g. by engaging with traders who can help bridge systems, and by supporting a diversity of crops and supply channels. Activities under IR 2.2 are further working towards more resilient seed systems by better understanding regional trade networks to ensure the availability of quality seed in local markets.

Sub IR 2.1.1 Local seed network strategies (to interface, collaborate, and leverage) and local capacities are assessed.

Activity 2.1.1.1 Implement cross seed system studies using an adapted Seed Systems Security Assessment SSSA+ methodology in Uganda (Mission).

Activity 2.1.1.2 Conduct a scoping study to assess the fodder/forage crop seed value chain in Ethiopia (core).

Forage seed is an underserved area in general but particularly in Ethiopian agriculture where livestock comprises 25% of the African cattle resource. Due to poor quality feed, the livestock greatly contributes to carbon emission and ultimately climate change. Therefore, developing quality feed supply will not only contribute to increased productivity (milk, meat and other products), but also reduces gas emission and other negative effects on climate. Supplying quality feed including beans crop residues and quality forage like *Brachiaria* variety developed by CIAT-PABRA to livestock farmers is one of the key entry points to transform livestock (particularly cattle).

S34D, through CRS and CIAT-PABRA, will conduct a fodder/forage crop and feed landscape study as a first step. This is to understand the existing food production to feed linkages, gain an understanding of fodder production capacity, gain insights into the overall push / pull market mechanisms drawing on information and analysis of existing forage/feed business models in Ethiopia and other countries. This initial study will recommend strategic options to work with local and international actors (such as Tropical Seeds) in Ethiopia to create more sustainable and scalable businesses in the fodder/forage sector. In the medium-to-long term, S34D will pilot, validate, and scale up 1–2 business models with select local Ethiopian companies.

The **outputs** will be one final report; a presentation deck; stakeholder consultations detailed in an annex; and, case studies detailed in an annex.

Sub IR 2.1.2 Crop and seed platforms that link formal and informal seed systems are catalyzed and supported.

Activity 2.1.2.1 Facilitate linkages of existing and new identified seed producers and suppliers to grain off-takers trading in the yellow bean growth corridor in Tanzania (Mission).

Sub IR 2.1.3 Formal sector suppliers and NARs/breeders leveraged and linked.

Through the support of PABRA, KALRO released (in 2017) three new and improved high-zinc and iron-rich bean varieties (Nyota, Angaza and Faida) that are also higher yielding with preferred traits (large

seed, palatable and fast cook). Though Kenya has numerous seed companies, few seed companies and agro-dealers supply bean seed to farmers due to inadequate market reach in remote areas where most beans are produced. Therefore, there is a disconnect between KALRO, seed companies and farmers. In collaboration with KALRO, CIAT will support Bubayi Seed Company, which is licensed to commercialize Nyota, and test innovative seed marketing models that increase connection with the seed company and its agro-dealer networks to remote farmers.

Activity 2.1.3.1 Explore complementarity of conventional and non-seed distribution channels for nutritious bean varieties in Kenya (linked to IR 1.2.3) (core).

linked to a PoS ICT application, with seed companies and catalytic financial models for seed companies by collaborating with OI and bodaboda to market micronutrient rich legumes to last mile users. The **output** for this activity is a report on how working with a seed company and building their business model provides seed to last mile users.

Sub IR 2.1.4 Effects of market-based interventions on seed market operations and last mile delivery systems are assessed.

There are no activities planned under this Sub IR.

IR 2.2 Strengthened interface and collaboration between development and relief to resilient and market-based seed systems

In contexts that are subject to recurrent shocks and chronic stressors, seed-related interventions for building resilience must bridge the divide between humanitarian and development assistance to ensure that short-term, emergency seed interventions do not undermine longer-term development objectives within seed systems. Existing emergency seed interventions must be modified and adapted so that they help to lay the foundation for longer-term development, e.g. by encouraging and promoting market linkages between farmers and seed providers. Longer-term interventions in contexts of recurrent crisis must build the capacity of both formal and informal seed systems so that seed systems themselves are more resilient and farmers and cropping systems are also more resilient. IR 2.2⁶ will develop a conceptual framework to clearly understand what makes seed systems resilient and how to enhance seed system resilience in different contexts. Building on studies undertaken in 2019, the IR will develop, fine-tune and pilot emergency market-based seed interventions for enhanced resilience.

Sub IR 2.2.1 Seed System Security Assessments in Feed the Future Crisis Hotspot areas (focus on formal, semi-formal and informal seed systems) are adapted and scaled.

Activity 2.2.1.1 Lead or backstop SSSA acute assessments, inputs to locust and/or Coronavirus response planning, according to demand (core).

With the on-going locust crisis affecting the Greater Horn of Africa, and also Coronavirus, this activity will remain flexible and might shift to technical backstopping for locust and/or Coronavirus response planning if necessary, based on demand. S34D will lead and provide technical backstopping to SSSAs and/or seed-related activity relating to the ongoing Desert Locust infestation and/or the COVID-19 pandemic. The technical support provided will be determined by the demand from partner organizations, Missions and OFDA. External partners will need to provide the funding to execute the

⁶ As noted above, the revisions made to activities under IR 1.3 and 2.2. are such that the activities currently listed under each will need to be re-numbered so that they fit better within the remit of each IR. This re-numbering / re-structuring will be done in the FY21 workplan.

SSSA or other seed-related activity. The **outputs** include technical reports, reviews and recommendations. With complementary donor funding, S34D may lead or take part in up to 3 SSSAs or emergency response plans, as necessary. To date (May 2020), technical support has been requested from CRS Kenya to undertake a remote seed needs assessment in response to the locust infestation, compounded by the coronavirus pandemic. S34D offered technical assistance to seven DFSAs to support them with seed intervention design and implementation. No responses yet.

Activity 2.2.1.2 Backstop real-time data components of SSSA exercise in the field and pretest digital data collection tool (Mission).

Activity 2.2.1.3 Expand and pre-test mobile data collection tool for SSSAs into trader analysis including mapping (Mission).

Activity 2.2.1.4 Develop SSSA Macro Assessment Tool for cyclone (or other disaster) affected areas (Mission).

Sub IR 2.2.2 Emergency and humanitarian responses that link relief to development, especially links to private sector and formal and biodiverse suppliers are developed and promoted.

Activity 2.2.2.1 Expand informal yellow bean seed and grain analysis to better understand informal traders as backbone of seed security and grain in emergency and chronic stress areas in Uganda and Kenya (Mission).

CIAT-PABRA will continue work with the CRS policy team in the yellow bean study considering implications in EHAR in Q3 and Q4. This activity will expand upon the work in Tanzania to Uganda, countries with spillover effects to Burundi and Rwanda. Yellow bean seed and grain flows will be mapped in Q3 through to Q4 and this will follow a synthesis of the findings and dissemination of the same to relevant stakeholders (seed companies, NARS and private sector processors) in Q1 and Q2. Ultimately, CIAT-PABRA and CRS will seek to understand and highlight informal traders as the backbone of seed security and grain in emergency and chronic stress areas. The **outputs** of this activity are two final reports of the yellow bean study, two policy briefs, and information tools produced and shared.

Activity 2.2.2.2 Continue fieldwork and scoping study within 2-3 Y2 countries on private and formal sector roles and links to relief seed (-). Canceled

Activity 2.2.2.3 Completion of DiNER studies in Southern Africa and Latin America (core).

Additional time is needed to complete various DiNER studies that were initiated in FY19. CIAT and CRS will continue to work together to complete the analysis and reporting of data collected in Malawi, Zimbabwe and Madagascar, and CRS will complete the reports for cash and voucher fair studies conducted in Guatemala (CRS private funds) and Nicaragua (S34D-funds). The Nicaragua study was originally planned to be completed in FY20. The Guatemala study includes a comparison of cash- and voucher-based fairs implemented among the same beneficiaries and vendors. The **outputs** are three reports; one for Southern Africa (Q3), one for Guatemala and one for Nicaragua (Q3).

Sub IR 2.2.3 Emergency and development seed programs to capture market opportunities are leveraged.

Activity 2.2.3.1 Review DiNER/seed vouchers and fairs and their sustainable link to private sector (core).

The importance of emergency interventions in building resilience of vulnerable households cannot be overemphasized. Based on an array of activities from cash and market-led approaches to seed security to DiNER fairs, or other types of seed vouchers and fairs, CRS and CIAT will continue to explore how fairs can connect farmers to seed companies and businesses. This activity will build on a review of results across multiple DiNER fairs of how customers were or were not able to link with private sector (and vice versa) – before, during, and after implementation. CRS and CIAT will work together to synthesize findings from the various DiNER studies that have been conducted in FY19 and FY20. The studies include those conducted in Malawi, Zimbabwe, Madagascar, and in Guatemala and Nicaragua. As an **output**, CRS will produce a 2 or 4 page brief on lessons, proposed actions and best practices that help catalyze sustainable linkages between farmers and input suppliers through fairs or other supply-side interventions. The brief will be disseminated electronically and through the S34D website and other fora.

Activity 2.2.3.2 Facilitated consultation process with stakeholders in developing best practices for seed distribution interventions in emergency response (core).

Direct seed distribution is known to have many challenges, including the inadvertent creation of agency-induced "seed shortage", as occurred in Mozambique last year. How did this come about, and how can it be prevented in future? One potential 'solution' might be learned from the Kenya example, DSD is now programmed within multi-year resilience interventions, and involves a shift over time from free seed to partial payments by farmers. Does this innovative approach to DSD adequately overcome the challenges of DSD, or do they create other challenges? What are the benefits? This activity will be desk-based study that draws on existing reports and remote key informant interviews to explore recent challenges and innovations in DSD. It might provide the basis for a more detailed activity in FY21.

S34D developed originally a 7-step approach to address the free seed challenge. Within the revised workplan, the 'free seed' issue is not a discrete activity but is instead a defining feature of the workplan. The underlying aim of the EHAR workplan is to reduce or eliminate direct seed distribution (i.e. free seed) in emergencies, except when necessary. It is thought that situations in which direct seed distribution is needed are extremely rare; the seed sector profiles (Activities 0.1 and 1.3.3.3) will quantify and describe cases of direct seed distribution and provide recommendations relevant to the local context. In general, the EHAR workplan aims to identify and promote alternative, (non-free seed), market-based seed provisioning mechanisms that can effectively support the longer-term development of both formal and informal seed systems, as exemplified by activities 1.3.1.1; 1.3.1.4; 1.3.3.1; 1.3.3.2; 2.2.2.3; 2.2.3.1; 2.2.3.2.

In FY19, 3 out of the 7 steps were completed; step 3, 4 and 5. In FY19, S34D, explored alternative strategy for cash-linked to seed (step 3), evaluated non-free seed strategy, linked to DiNER fairs (step 4), and, reviewed private sector and seed aid (step 5). Step 1, 2, 6 and 7 were not completed. Step 2 is to 'visit FAO in Rome' (linked to the development of international humanitarian standards in SSSA) and USAID Washington DC. Step 6 is to 'integrate a small set of monitoring questions into ongoing Feed the Future projects,' which is deleted from the 7 steps and Step 7 is to 'develop and promote code of conduct for different seed delivery mechanism.'

In FY20, S34D will finalize steps 1, 2, and 7 of the free seed paper. To complete the paper, S34D will: (i) add a full articulation of the problem beyond just free seed; (ii) provide the available evidence and what the gaps are both on the emergency and non-emergency side of major buys or giveaways of seed by donors, NGOs and governments; (iii) identify gaps and opportunities in policy and program dialogue with key stakeholders; and, (iv) identify how S34D can expand the dialogue with key stakeholders and inform and advise RFS and OFDA of what they, as a donor, can do in the dialogue around free seeds.

The content of the paper will be discussed during an in-depth meeting between S34D and USAID (both OFDA and RFS). **Outputs** of this meeting are feedback on the paper and key next steps for both S34D and USAID to take in FY21. S34D will then develop an action plan. While S34D will continue to work on developing best practices for seed distributions in emergency interventions, a potential next step could be facilitating a consultation process with stakeholders (UN, multilateral donors, NGOs, regional partners), to facilitate a strategic high-level awareness-raising process in the International Community on seed delivery in emergency and development programming, seed security-related issues and free seed distributions. **Outputs** of this activity is a 2-page think piece on recent developments, challenges and innovations with direct seed distribution.

Sub IR 2.2.4 Shock-responsive and resilience-based models--by crisis type, crop profile, and broad agro-ecological system are developed and tested.

2.2.4.1 Develop and test tool to assess resilience of seed systems, building on PCMA (Mission).

2.5 Cross-cutting Activities

CCIR-1 Improved effective policy implementation and regulatory formulation for pluralistic seed systems

Seed system resilience is achieved when informal and formal seed systems not only co-exist, but actively work to complement and strengthen each other. As such, the policies and regulations for pluralistic seed systems must allow for informal sector ‘solutions’ to address existing gaps or weaknesses within the formal seed sector and vice-versa. In this regard, the policy activities undertaken to date have focused on the documentation of flexible regulatory design approaches that allow for informal sector ‘solutions’, and the introduction of the standard seed certification class in Kenya.

CCIR 1.1 Country specific seed policy road maps developed.

Activity CCIR 1.1.1 Finalize the global seed policy review (core).

In Q1, CRS will complete the global seed policy review that was initiated with S34D’s consultant New Markets Lab (NML, an INGO specializing in trade issues) in FY19. The review will draw from global experiences on specific seed policies, practices, and implementation approaches that will guide S34D’s pathways. S34D has selectively sought out pioneers who possess a broad purview, and learn from those forward-looking experiences to create path forward. Such learnings will help S34D expand thematic areas where S34D could contribute through facilitation, implementation, and research activities such as policies, practices, and implementation on-the-ground in S34D focus geographies. This synthesis includes a desktop literature review, coupled with global stakeholder consultations, and followed by selected site visits (where the sites will be determined from ongoing review). S34D will disseminate findings through a workshop. S34D will coordinate this workshop with other important releases, including BMGFs pending release of PPPs for Early Generation Seeds diagnostics. S34D’s study focuses on all types of seed systems and is therefore complementary to BMGF’s EGS studies that largely relates to formal seed system. The **outputs** are a report of peer-reviewed publication quality and a stakeholder consultation proceedings report.

Activity CCIR 1.1.2. Develop country specific policy and regulatory systems maps for seed sector in Uganda, Malawi, Niger and Senegal (Mission).

CCIR 1.2. Practices to expand and liberalize seed quality possibilities developed and implemented; market outlets and venue expanded; counterfeit seed issues addressed; free seed distribution restricted.

Activity CCIR 1.2.1 Assess policy implications of the niche market business model in Kenya (core).
Cancelled.

Activity CCIR 1.2.2 Assess policy implications of the yellow bean field study in Tanzania, Kenya, and Uganda (core).

The yellow bean study led by PABRA and CRS in Tanzania in FY19 has revealed that many of the yellow bean varieties seen in market with unmet demand, were not formally released. Thus, informal markets and seed sector have played an important role in the dissemination of these yellow varieties. PABRA and CRS will finalize the report on policy implications for the yellow bean study conducted in four agroecological zones in Tanzania in Q1. The **output** of this activity is a report of publishable quality for a peer reviewed journal.

Under this activity, PABRA and CRS will also expand the yellow bean field study to Kenya and Uganda to understand the seed and grain movement in Eastern Africa (linked with Informal Sector Activity 1.2.1.1). Combined with Tanzania, S34D will expand the evidence-base and assess policy implications for East Africa. Lastly, through consultations with in-country policymakers and stakeholders (such as MoA, regulatory authorities such as TOSCI in Tanzania) and regional stakeholders (AGRA), S34D will foster policy dialogues that will shape interventions and business models for outer years. **Output** will be a comprehensive report for publishing in a peer reviewed journal in Q4.

Activity CCIR 1.2.3 Facilitate implementation of standard seed in Kenya (core).

AE will continue to work on the standard seed protocol development with KEPHIS in Kenya. This activity started in FY19 and is expected to be completed by the end of Q1 in FY20. This activity will, in collaboration with KEPHIS, STAK, CIAT-PABRA and 2-3 seed firms, develop protocols for standard seed certification in Kenya, pilot with 2-3 non-maize seed producing companies to produce seed under standard seed certification, and document challenges and recommend approaches to address the challenges arising from the pilot. S34D has a unique opportunity to demonstrate the effect of developing a less costly class of certified seeds in Kenya. This would be a key policy tool, fostering linkages between the formal and informal sectors through operationalizing standard seed classification production. Previous occasions of exposure visits by KEPHIS officials on Quality Assurance and certification systems to counterparts in Zambia and South Africa also have strengthened the views on introducing a simple and effective system of adopting a standard seed class, which is an effective Quality Assurance tool, especially easing procedures involved with non-hybrid seed crops, such as legumes. If the standard seed approach is well-crafted and implemented in Kenya, it will have high potential to serve as an inspiration and blueprint for systemic change in other COMESA countries. Hence, S34D is in a unique position to leverage the opportunity by working with the Kenyan seed regulatory system to take this to the next level of implementation, through continued advocacy and consultations towards final implementation.

After initial stakeholder consultations in FY19, protocols for standard certification will be developed in Q1 and Q2, and the piloting with a couple of seed firms to understand the modalities of functioning will be conducted in Q3 and Q4.

Activity CCIR 1.2.4 Market development and deployment for non-hybrid seed systems using a “Standard seed” strategy in Kenya (Mission).

Activity CCIR 1.2.5 Increased use of Quality Declared Seed in Uganda (Mission).

CCIR 1.3 Linkages and coordination of seed development efforts through consolidation of data and evidence are strengthened.

Activity CCIR 1.3.1 Conduct a learning study about private sector seed certification processes, approaches and counterfeiting measures in Zambia (Mission).

Activity CCIR 1.3.2 Conduct a learning study on national seed reserve systems with examples from other countries with implications for Ethiopia (core).

It is proposed that this study will (i) assess the actual and potential need for large-scale seed reserves through a desk-based review that identifies contexts when large-scale, direct seed distribution might be needed; (ii) undertake a series of interviews with aid practitioners, government and local seed providers and private sector seed companies to determine how they currently plan for emergencies and scaled-up seed production / seed provisioning and the challenges faced; and (iii) identify and document a range of innovative measures that are appropriate in supplying seed through formal and/or informal seed systems, via community, private and/or government actors. The output from this activity will be a learning report (based on evidence from the global level) with relevance to the Ethiopian context. This will be completed in Q4.

CCIR-2 Established enhanced quality information flows for seed systems

CCIR 2.1 Institutional and public policy information is better digitized.

Activity CCIR 2.1.1 Complement the digital seed catalogue and develop a reference library for crop varieties in Malawi (Mission).

Activity CCIR 2.1.2 Digitize the regulatory seed road maps in Uganda, Malawi, Niger, and Senegal (Mission)

Activity CCIR 2.1.3 Facilitate the modernizing of the seed industry with digital information management to support improved quality assurance / quality control (QA/ QC) in Kenya (Mission).

CCIR 2.2 Tools and technologies to capture quality information about seed supply in a geo-referenced manner are developed.

Activity CCIR 2.2.1. Assess the nature and genetic quality of seed (different grades) and grain of yellow beans produced and traded using DNA fingerprinting (Linked to activity 1.2.1.1) in Tanzania (core).

In FY19, seed samples of various yellow bean genotypes were collected during the yellow bean characterization. However, the actual genotypes' characterization and DNA fingerprinting will take place in FY20. S34D will publish a country reference library and at least 100 bean seed value chains actors will be made aware of its existence). e Public awareness will be increased through the production and sharing of the analysis report, additional 200 leaflets and the reference library which will be made public and posted on the S34D, CRS, CIAT and PABRA member websites.

Studies revealed challenges of varietal misclassification when it is solely based on farmer recall (Maredia et. al. 2016) that can easily compromise the genetic quality of seed accessed for planting. S34D uses DNA fingerprinting as a standard for reliable identification of varieties within trade corridors. DNA reference fingerprint libraries for each of the specific bean genotype that can be utilized as a benchmark against which contention of variety identification may be resolved in addition to supporting impact assessments of variety adoption. The reference library will be developed for major market classes with emphasis on yellow beans as a means of showcasing the power of DNA fingerprinting in variety identification. Efforts will be made to learn and explore the potential of collaborating with other initiatives such as the Africa Leads Seed Network in establishing DNA reference libraries for legume crops.

S34D (CIAT) will complete the Tanzania study which started in FY19. To help determine points of seed quality loss to better inform seed quality interventions, S34D will conduct morphological characterization and consumer trait characterization of samples collected in FY19 from Tanzania references materials, will conduct DNA analysis, and will disseminate results through two workshops (one in Arusha Tanzania) comprising of policy makers and practitioners from government ministries, national seed services (TOSCI), sub regional organizations e.g. COMESA, SADC and EAC, development organizations, seed companies, QDS producers, grain traders, representatives of Agricultural Research Institutes in particular those tasked with germplasm development, maintenance and distribution, and other development agents. The **output** of this activity is a yellow bean reference library of grain and seed traded in Tanzania. The report will have insights from the use of library (identities of grain traded and seed sources and linked to the grain) and related information tools developed and produced.

Activity CCIR 2.2.2 Work with national and regional stakeholders to develop a technical road map (framework) for demand estimation / forecasting in Ethiopia (core).

Currently, in Ethiopia there are challenges in effectively forecasting and fulfilling farmers' demand, both for variety and volume, driven by forecasting methodology, links with distributors, supply bottlenecks, and assessment of costs and risks across actors in the system. Thus, seed production volume does not match farmers' demand. Limited information exists on what seed is available and accessible to smallholder farmers. Currently, the government uses a rudimentary data management system and lacks ICT assisted systems.

This activity will leverage the work that was done by ISSD-Ethiopia team and the Ethiopian Agricultural Transformation Agency. The **output** will be technical roadmap which will assess how the demand is currently estimated, and the determinants of seed demand. This will include the roles of national and regional stakeholders; the tools that are used (both software and hardware); the data sources; the data elements; frequency of data collection; the collection mechanisms; the technical methods used to forecast. Furthermore, the roadmap will be socialized and disseminated with relevant stakeholders and government partners in Ethiopia and comments /feedback will be included in the final version.

CCIR 2.3 Last mile markets for new and quality-assured seed varieties are enabled by developing, piloting, adapting, and scaling feed-forward and feedback mechanisms that loop farmers' preferences, as well as provide information on new varieties and quality assured seed

Activity CCIR 2.3.1 Continue monitoring feedback for the new biofortified bean varieties disseminated for the niche market business model using ICT in Kenya (core).

In collaboration with PABRA, S34D (CRS) will collect feedback from at least 100 customers on adoption and preference patterns for biofortified bean varieties disseminated in Kenyan markets for the first time in 2019. The customer database will be gender and geospatially disaggregated using the point of sales application developed in FY19. The **output** will be a monitoring report that details adoption and preference patterns of new biofortified bean varieties across space and time in Kenya and a longitudinal customer database – finished by Q4.

Activity CCIR 2.3.2 Pilot SMS-based farmer feedback loop on seed quality ("Stop Bad Seed") in Tanzania (core).

AE will facilitate carrying out of the actual "Stop Bad Seed" campaign or M3 (Mulika Mbegu Mbovu in Kiswahili) in Tanzania, for which the preparatory work started in FY19, in collaboration with TOSCI, telecommunication firms (selected) and TASTA. To achieve this, AE will facilitate collection of data from SMS reports from farmers of low quality or fake seed (feedback obtained) and analyze the data to show crops and varieties with most complaints, nature of complaints, location of highest complaints, and other farmer concerns which will emerge, etc.

Funds in year 1 were utilized for preparatory work such as securing TOSCI and MoA buy-in, applied for the short code for SMS responses, developing appropriate promotional messages and notified seed companies and agro-dealers about the M3 campaign. Because this sub-activity must be done 2-3 weeks after planting and these preparatory works coincided with preparation for the planting season for both TOSCI and the seed companies, it was not feasible to carry out the farmers' reporting on germination to the regulator. Also, procuring a short code (through which the farmer complaints will be registered via SMS) in Tanzania takes a minimum of 3-4 months, which means that the short code acquisition will fall into FY20.

FY20 allows for a choice of either receiving farmer complaints during the short rainy season, or the main rainy season. The associated activities such as procuring of short codes for transmission, and implementation of the campaign will take place in Q1 and Q2; first set of feedback analysis is expected towards the end of Q3 and Q4; all activities are expected to be completed by Q4. The 'Stop Bad Seed' campaign will use SMS (text) systems similar to that of Kenya's own farmer-based feedback loop model to provide necessary insights with regard to seed quality issues, and thus provide valuable information to stakeholders involved in streamlining their activities based on farmer demand. The effectiveness of this campaign will be tracked by the number of SMS messages received as feedback from farmers in the pilot regions, and will be tracked by the actions taken by TOSCI to respond to those messages and resolving issues reported.

Activity CCIR 2.3.3 Stop bad seed in Uganda (Mission).

Annexes

Annex 1. Mission-funded activities descriptions

Activity 0.1 Develop country profiles and framework for engagement in Kenya and Uganda (core).

IR 1.1 Constraints in formal seed systems identified and mitigated

Sub IR 1.1.1 Operational efficiency of seed companies increased.

Activity 1.1.1.1 Document firm level needs assessment in Uganda (core).

Activity 1.1.1.2 Gather, select and develop seed systems materials for coaching from partner organizations that meet client needs (technical, managerial and territorial marketing strategies) through engagement with internal and external partners in Uganda (core).

Activity 1.1.1.3 Develop a fee-based training model for deployment by Seed Trade Associations or similar stakeholder organizations in Uganda (core).

Activity 1.1.1.4 Develop a fee-based training model for deployment by Seed Trade Association of Kenya (STAK) (Mission).

To provide capacity building in the Kenyan seed system, AE will undertake a training needs assessment survey with a cohort of 20-25 target seed companies identified by STAK. Following the needs assessment in Kenya, similar to the assessment in Uganda under activity 1.1.1.1., AE will develop training materials for a modular, fee-based training model for deployment by STAK, for a cohort of 15-20 seed companies. This work will draw heavily from the work conducted in Uganda, meaning that new material will only be generated in areas not covered in Uganda. However, the training materials will be adapted to the Kenyan seed market and operating environment. The development of the curriculum will be co-generated with leading USAID implementing partners such as ICRISAT, ILRI, KEPHIS and KALRO. As in Uganda, this activity will develop capacity building materials to provide short, modular training needs, that will be delivered to target seed companies with STAK. This capacity building activity will strengthen STAK and enable them to build their portfolio of services to offer their members. The training will focus on assisting seed companies to upgrade their seed production and marketing strategies with a focus on how to improve marketing and increase sales of non-hybrid crops to the more marginal production areas, more vulnerable farming communities, and small-scale farmers.

The **outputs** will be: (i) a needs assessment report, which complements the design of training materials to provide a regular but agile capacity building process, which is customized to the needs of the emerging Kenyan seed industry; and, (ii) to provide a sustainable training approach to be managed by STAK. Shifting to a fee for service approach will allow STAK and seed companies to develop a sustainable means of assisting seed companies to gain and maintain new skills to support overall competitiveness.

Activity 1.1.1.6 Improve certification efficiency of non-maize seed to promote sales volumes of non-maize certified seed, particularly for legumes in Zambia (core).

Activity 1.1.1.7 Create farmer awareness about the importance of periodically replacing non-maize seed, especially for legumes; and, training seed growers in certified seed production process in Zambia (Mission).

To increase seed production for non-maize crops SCCI has requested support for strengthening the certification capacity of private company personnel for these crops, to carry out certification processes

on behalf of SCCI and improve production efficiency. In Zambia, there is a need to increase awareness among farmers about the importance of periodically replacing their seed with fresh certified seed from seed companies; and, to train seed growers in the formal seed certification process. The **outputs** of this will be: (i) training seed producers or contract growers (affiliated primarily with non-maize producing seed companies) in quality seed production of non-maize seed; and, (ii) building farmer awareness of the importance of renewing non-maize seed after a maximum of three years' recycling.

Activity 1.1.1.8 Facilitate shift to a more private-sector-led inspection process in the national seed certification strategies, with emphasis on digital management tools to share compliance information in Malawi, Uganda, Kenya, Tanzania (Mission).

The FY19 seed consultations that were undertaken during country visits by S34D personnel found that virtually all countries are undergoing one of the most fundamental shifts in their seed certification strategies in the past 20 years. The new seed strategy will place a far greater reliance on private sector firms for seed inspection, rather than seed inspection only being managed by government led inspection systems. This important change in the inspection and certification methodology will require a greater level of investment and responsibility in seed inspection by the private sector. To successfully make this transition, there will also be new requirements for monitoring and information sharing between government and private sector players. To enable both certifiers and seed companies to work together and keep costs at a manageable level, both parties are exploring the use of digital management systems to support inspection protocols, and to monitor and ensure quality assurance and quality compliance standards are maintained and approval processes put in place.

There are many processes that need to be developed, agreed upon, and implemented in this digital transition, and there are also several different seed quality information management systems available. S34D has the opportunity to work with the various levels of government and different levels of the private sector to assess existing processes and tools and assist government agencies and seed firms to assess and test the various options. This will enable more informed decisions on how to invest in new processes, technology and staff training to support the transition into this more public-private partnership arrangement. In consultation with NML, AATF and SeedAssure, S34D will work with local partners to identify key needs of the seed sector players and offer specific consultancy analysis to evaluate and test new methods. The **outputs** are: (i) reports on challenges being faced by public and private sector partners in this transition; (ii) analysis of identified technical options; (iii) support in developing new business processes to assist in the transition to the new certification and inspection processes; and, (iv) training opportunities to enable players to take on new roles.

Activity 1.1.1.9 Develop an inventory of financial services to expand financing for seed sales from seed companies in Niger (core).

Activity 1.1.1.10 Develop an inventory of financial services to expand financing for seed sales from seed companies in Senegal, Zambia, and Ethiopia (Mission).

With the methodology, recommendation and learning in Niger (previous activity 1.1.1.9.) and the FY19 scans to assess the national lending environment for the seed sector, OI will expand this work into Senegal, Zambia, and Ethiopia. The **outputs** of the scan will inform seed supplier efficiency self-assessments (linked to activity 0.1, 1.1.1.4, 1.1.2.4, 1.1.3.2, and 1.2.3.2). This activity will enable seed companies to align with FSPs and access specialized coaching with local financiers. Types of capability and constraint listings will include: account and lending documentation requirements, loan appraisal regulations, variations between FSP types, variable pricing models (interest rates, risk appetite, and fees), available geographies, and delivery channels (traditional and digital). These evaluations will also

inform the development of seed company operational efficiency self-assessments. If possible, S34D will plan this activity in collaboration with the rapid reviews for the country profiles.

Sub IR 1.1.2 Seed availability of climate – smart crops increased, through enhancing EGS capacities of firms and producers.

Activity 1.1.2.1. Identify and document bottlenecks faced by national seed and post-harvest providers' in accessing financial services and list recommendations for detailed action in Kenya and Tanzania (Mission).

In Q2, OI will support PABRA in identifying and documenting national seed and post-harvest providers' bottlenecks in accessing finance and in their distribution channels. To achieve this, OI will identify key national providers, then perform a seed company and post-harvest providers (demand-side) assessment where needed, and construct a standardized ranking matrix in Kenya or Tanzania (based on input from PABRA) to evaluate seed and post-harvest providers' financial strength. This matrix will be tested with select providers as a self-assessment tool. The **output** of this activity will be a methodology and tool for seed providers across the three seed sectors to identify financial bottlenecks.

Activity 1.1.2.2 Diversify sources of legume seed and increase the production of EGS of non-hybrid crops in Uganda (Mission).

Lack of Early Generation Seed (EGS) for new varieties of legume seed is a major bottleneck in expanding the bean seed business. NARS remain the major, if not sole source, for EGS supply of non-hybrid crops. This limits the access to EGS and subsequent seed grades, which in turn, slows seed company access to new varieties and stymies market expansion. Thus, there is a need to diversify EGS seed sources of non-hybrid varieties.

Leveraging AVISA's work in breeding for market-preferred varieties, CIAT will involve three seed companies in the process of exploring the alternatives to NARS EGS seed production. CIAT will prototype three innovative EGS models, including: (i) (non-exclusive) variety licencing; (ii) contracts with seed companies, community-based organizations and farmer organizations; and, (iii) seed loans to avail EGS in a sustainable and market-led manner for non-hybrid crops, e.g. common beans. To develop these market-led EGS seed production models, CIAT will conduct desktop and institutional reviews on the status of the EGS for beans, assess bean EGS demand (quantity per variety), identify three target seed companies, and then work with the seed companies to build their capacity and skills to produce EGS. The **outputs** will be a report on the status of the capacity and challenges of the seed companies to access EGS in Uganda, strategies and methods for increasing the availability of EGS and improved knowledge, and skills of seed companies to produce and market EGS. This work will be conducted between Q2 through Q4.

Sub IR 1.1.3 Capacities of local seed actors strengthened.

Activity 1.1.3.1 Strengthen capacities of last mile actors, enabling them to supply legume seeds in Western Kenya (Mission).

CIAT will work with the Bubayi seed firm to promote legume seed production and supply. IFDC will strengthen last mile actors' skills towards improving the supply of legume seeds around the location of Bubayi in western Kenya. IFDC will achieve this by training 30 last mile actors in Q2. OI will support this activity by expanding businesses through financing and enhancing business operations capacities. OI will produce four modules in this activity. In Activities 1.1.1.2 and 1.1.1.9, OI will focus on localizing the content of OI's general agribusiness MSME training curricula and align the training curricula with top

needs of seed companies. OI's training curricula has nine modules: 1) Basics of Entrepreneurship, 2) Business Growth, 3) Employee Management, 4) Keeping Business Records, 5) Controlling Debt, 6) Fraud Management, 7) Planning Skills, 8) Communication with Customers, and 9) Business Prioritization. In this activity OI will select 4 out of the 9 modules from the training curricula and localize these modules into last mile coaching models, as appropriate for last mile agro-dealers.

Leveraging the output from Activity 1.1.1.2 and 1.1.1.9, OI will collaborate with CIAT and IFDC to evaluate and develop models for credit and long-term financial access for last mile actors. The **output** of OI's collaboration will be a coaching model with four modules (per country) for IFDC last mile agro-dealers curriculum to improve business operations. IFDC will train last mile actors and IFDC and CRS will subsequently monitor the agro-dealers and micro-retailers after the training (feedback on the reach of customers, seed sales etc.). In both countries, CRS supports (activity 1.1.3.2 and 1.1.3.3) the design and implementation of the survey on monitoring of last mile actors towards improving their sales compared to baseline in Q4. The **outputs** of this activity are: (i) developed coaching module that serves as best practices towards capacity strengthening of last mile actors for improving their operational efficiencies and expanding their crop seed portfolios; (ii) teaching material for agricultural extension officers based in local county government; and, (iii) geo-tagging the last mile actors' sales points and sharing the information on possible sales points of quality seeds of expanded crop portfolios to county agents and other development programs for better linkages with local farming communities.

Activity 1.1.3.2 Strengthen capacities of last mile actors, enabling them to supply legume and rice seeds in eastern and south-eastern Uganda (core).

Activity 1.1.3.3 Strengthen capacities of local seed actors to extend customer base and support last mile in Malawi, Zambia, Ethiopia, Senegal and Niger (Mission).

Though several agro-dealer capacity development programs have been carried out in the past, e.g. AGRA's agrodealer development program 2007-2012, S34D activities will focus on refresher trainings for last mile actors (agro-dealers, micro-retailers and village agents and agripreneurs). The activity focuses primarily on improving seed and variety knowledge, and other skills needed to improve their ability to expand their seed sales portfolio beyond maize. The purpose of this activity is to re-tool⁷ the last mile actors in the seed value chain with specific focus on climate-resilient crops and varieties, including DTM, cowpea, groundnut, beans, millet, sorghum, and roots, tubers, and bananas (RTBs) in Malawi, Zambia, Ethiopia, Senegal and Niger as a part of Mission-funded activities. The **output** of this activity is a rapid methodology to upgrade skills and re-tool agro-dealers in sales of legume and resilience crops. CRS' Impact Investment team (through cost share) will review OI's financial scan reports, as well as operational and financial self-assessment tools completed by key seed companies, and in collaboration with consortium members, prioritize where specialized BDS support or catalytic financing could maximize the impact and sustainability of S34D activities.

Activity 1.1.3.4 Facilitate modernizing the seed industry with digital information management to support improved quality assurance/quality control (QA/ QC) in Uganda (Mission).

S34D will work closely with MAIFF, NARO / NACCRI, USTA, and with seed companies that have indicated an interest to work with the government in the transition to a self-regulated certification system. The companies would hire their own seed inspectors, pay for training in the upgrading process and report their seed production returns through a digital information portal or system. There are already seed

⁷ Re-tooling is the development of a refresher training and a focused way of training agro-dealers on specific subject areas; here imparting knowledge on seeds and seed business related skills.

information management systems available, some of which have been tested such as Seed Assure. However, it is important to note that use of any digital systems is only as successful as the underlying policies, procedures and practices on which the overall system is structured. Therefore, the success in integrating technologies with seed companies and certifiers will need to be bolstered with support in analysis, testing and capacity building to be able to use technologies in the new roles.

The modernization and digitization of the seed system, including the digitization of national seed catalogues, will benefit MAIFF as they will be able to manage a more streamlined formal seed inspection and certification system. In Uganda's case, the new approach would come with an increase in the level of seed inspectors required to support the production of certified seed. However, a much greater part of the cost would fall onto the private sector, who would need to hire their own inspection teams. The result would be that Uganda would create an inspection service that would be a commensurate level of inspection relative to the size of the seed industry. If the new procedures were also applied to NARO / NACCRI and the EGS systems, this would provide a means for upgrading the ability to order and trace EGS seed production and procurement. Seed companies will have a better EGS ordering process and would be able to order seed more in advance, which will reduce costs to maintain parental lines. The shift in inspection would improve confidence in the seed system and lead to reduced levels of counterfeit seed. S34D will build USTA's capacity to provide seed certification services, support companies in their use of the underlying systems and use of digital QA platforms. The improved system will benefit both seed volumes and confidence of farmers in certified seed products they purchase. To achieve this, S34D will complement investments being made by AGRA and World Bank. S34D's investment will focus on process development, testing and evaluation of implementation of methods, tools and digital systems. This work would involve holding a series of meetings with stakeholders to support design and decision making, preparation of business cases for the phases of investment, and training of target users for the QA/QC systems. Follow up analysis will include process performance and effectiveness.

The **outputs** are: (i) analysis of key processes that will be upgraded through the new management system; (ii) consolidation of inclusive recommendations on strategies to support the transition from public to private led seed inspection services; (iii) review of best suited digital management systems targeting different levels of seed system including Ministry, USTA, and range of businesses from mature to emerging companies; (iv) capacity building of 2-3 USTA staff and 10-15 seed company inspection teams within target companies; (v) provision of coaching to 10-15 target companies on a fee based service to support the transition to the new digital seed management systems; and, (vi) annual reporting on effectiveness of transition to a private sector led seed inspection system.

Activity 1.1.3.5. Improve knowledge and technology capacity of the Ag Seed Agency and target national seed firms in production and genetic maintenance of EGS and foundation seed, focusing on cassava and legumes in Tanzania (Mission).

Under this activity, S34D will consult with AVISA and Modernization of State Agencies for Enhancing the Seed Sector in Tanzania (ESSETA) to ensure activities are not duplicated. AVISA is working on groundnut and sorghum and ESSETA is working on common bean and other crops both funded by BMGF. S34D will assess the capacity of the Ag Seed Agency (ASA) - seed unit under the MoA and (second tier) seed firms to develop training modules, and work with national services providers (TASTA) to develop a fee-based training model.

Activity 1.1.3.6 Build the capacity of agro-dealers and other last mile actors in Malawi, Tanzania, Kenya, Uganda, Ethiopia and Niger (Mission).

Under this activity, S34D (IFDC and OI) will coordinate with AGRA to build the capacity of agro-dealers and other last mile actors in Malawi, Tanzania, Kenya, Uganda, Ethiopia and Niger.

Sub IR 1.1.4 Sustainable models with private sector players to supply quality EGS and QDS to a range of suppliers piloted and scaled using innovative financing.

Activity 1.1.4.1 Prototype two last mile delivery models to reach last mile users with quality seeds in Uganda (Mission)

IFDC, in collaboration with PABRA, OI and two selected seed firms, will work on scaling up agro-vets, micro-retailers and agripreneurs' operations. This will be achieved with a selection of cohorts from the trained last mile actors for enhancing supply (linked to activity 1.1.3.1 and activity 1.1.3.2) by validation of business plans through stakeholder consultative meetings; expanding business needs by linking selected agripreneurs at the last mile; and, by demonstrating a prototype of last mile delivery model with activities. Prototype activities in Kenya and Uganda include testing input bundles and enhancing seed storage aspects, micro-franchising and mobile carts, vans, variety demonstrations, kiosks and small seed packet sizes.

In Kenya, IFDC will implement among selected cohorts of agro-dealers towards expanding their business operations through micro-franchising or micro-retailers. The last mile cohort actors will be selected from the trained cohorts in Western Kenya (linked to activity 1.1.3.2 above) to improve the supply of legume seeds. The activity will be led by IFDC in partnership with CIAT-PABRA. In Uganda, IFDC will leverage their existing value chain activities related to rice and legumes, by focusing on improving the supply of high-quality seeds and varieties by cohorts of selected and trained last mile actors (linked to 1.1.3.3 above) in southern and southeastern Uganda.

These activities will be carried out by increasing awareness through field days and field demonstrations by agro-dealers for farmers in Q2 and Q3 in Kenya and Uganda. These activities will share information to 50 farm households on new seed varieties and production technologies of legumes and other cereal crops beyond maize, seed storage aspects, and other seed related information, including seed access points for high-quality seeds. The outcomes of prototype activities, such as input bundles, micro-franchising through retailers, mobile sellers (vans, carts, bikes), and varying seed package size are to improve the accessibility and availability of high-quality seeds of legumes, cereals and RTBs through enhanced last mile delivery systems. These activities will be implemented from Q2-Q4.

Outputs from the activities in Kenya and Uganda would include cohort of trained agro-dealers or last mile actors linked to local markets, including finance (in selected cases) and other services. These services are linked with a range of input suppliers and firms that supply different agricultural inputs to enable diversification of enterprises and improved input bundling services. The prototypes are linked with existing farmer organizations and trader associations in the areas of operations for sustained business opportunities and networking.

OI, together with IFDC, will prototype Farmer-Feedback based financing models for last mile distributors. Leveraging human-centered design methods, OI will develop a digital farmer ranking system to allow women and youth SHFs to report on the quality of service delivery by distributors. Rankings will be compiled for FSPs to use as a basis for underwriting loans to last mile distributors. The **output** of this activity is a tested farmer-based feedback financing model. The activity is planned for Kenya and Uganda in Q2-Q4.

Activity 1.1.4.2 Review current VBA method; test and strengthen alternative methods on improving last mile distribution of seed, including access to credit and financial education for agro-dealers and VBAs in Tanzania (Mission).

Given the ongoing challenges of linking more farmers to quality seed sales, CRS, IFDC and OI will review all current VBA methods, by target countries, to strengthen, accelerate or explore alternative methods to improve sales of seed to the segments and locations where quality seed uptake remains low. This approach will include working on targeting of seed from specific seed companies and also finding ways to enable access to credit and financial education to agro-dealers and village-based agents (VBAs). The initial **outputs** will be reports on the range of last mile input supply methods and business models that are promising.

Activity 1.1.4.3 Prototype last mile models with quality seeds of legumes and cereals in Malawi, Senegal and Niger (Mission).

The **output** of this activity is to work with implementing partners in the target country to learn how well prototype models of last mile seed delivery systems are functioning, and then work with a selected set of last mile actors to enhance quality seeds delivery to women and youth SHFs. The approach will explore innovative financial models for storage, distribution mechanisms, infrastructure and market promotion mechanisms. Methods to increase demand include increasing awareness of the benefits of using quality seed of new crop varieties and raising effective demand among farm households through field days and information sharing. Other methods will include input bundles and introducing or strengthening methods that improve seed storage, micro-franchising, use of mobile carts and vans to bring seeds closer to buyers, variety demonstrations, kiosks and testing smaller seed packet sizes. In Malawi, S34D would focus on improving the supply of legumes – groundnuts and other beans; in Niger – millets, cowpeas and groundnut; and in Senegal – sorghum, millets and cowpea. This activity will be implemented in conjunction with the EHAR last mile work under 1.3.4.

Activity 1.1.4.4 Scale out last mile delivery through digitally enabled rural seed and enterprise agent systems in Kenya (cost share).

Activity 1.1.4.5 Professionalize the processes and scaling production of QDS at community/farmer level through Public-Private Partnerships where the QDS producers have access to quality seeds (from private sectors or from NARS) in Tanzania (Mission).

The **outputs** are: (i) analysis of current processes and other existing strategies (ii) upgrading strategies supported by new management systems; (iii) consolidation of inclusive recommendations on strategies to support the transition from public to private led seed inspection services; (iv) review of best suited digital management systems targeting different levels of seed system including Ministry, TASTA, and range of businesses from mature to emerging companies; (v) capacity building of 2-3 TASTA staff and 10-15 seed company inspection teams within target companies; (vi) provision of coaching to 10-15 target companies on a fee based service to support the transition to the new digital seed management systems; and, (vii) annual reporting on effectiveness of transition to a private sector led seed inspection system.

Activity 1.1.4.6 Scale out last mile services with local seed conservation models for non-hybrid crops in Kenya (Mission).

The Accelerated Value Chain Development (AVCD) project in Kenya has developed and identified several improved sorghum, beans, pigeon peas, groundnuts, millets and cowpeas, but the project faces

challenges with mechanisms for storage and conservation of seed. The ability of farmers to store seed and maintain its integrity, purity and high germination rates is weak; therefore, solutions are required which can enable farmers to access quality seed of a range of crops, especially in areas not well supported through agro-dealer networks. In this activity S34D (CRS, Purdue University,) will work closely with county governments, Kuza, ICRISAT, target seed companies and agro-dealers and will test new business models and scaling seed storage and local sales systems with the AVCD team to provide sustainable services, as the project investments wind down.

The scaling solutions **outputs** include: (i) organizing farmers using collective marketing groups or savings groups to build the necessary social capital to generate long term group sustainability for seed and grain storage; (ii) adapting the KUZA, last mile rural agent strategy, to deploy a fee-based network of rural agents that can provide agro-inputs and storage services to farmers for a range of crops; and, (iii) assessing the viability of seed banks and invest with the local business community and farmers to develop a robust business model that will allow this methodology to be applied sustainably at scale.

Activity 1.1.4.7 Utilize digital last mile seed rural agent systems in Uganda (Mission).

The partnership between CRS, IFDC, Syngenta and local seed companies will establish a local rural agent network to configure the system to the Ugandan seed and agro-input landscape and set up the basic platform from which to scale the last mile business model. S34D will work with KUZA, a social enterprise with a multi-sided AgTech digital platform, to deploy a fee-based network of rural agents that is supported through a robust digital backbone. The rural agents will be hired and trained to establish a local business network that links hard to reach farmers with critical agricultural services, including agricultural advice, access to seeds, agricultural inputs, finance, and market linkage. This approach from a start-up to managing a sustainable agri-business of a rural agent takes less than two years. The scale will be achieved by growing the rural agent business network that links informal farmers to formal inputs, markets, and other ecosystem partners via the digital platform. Farmers will gain the following: (i) access to quality inputs; (ii) access to credit; (iii) access to markets; and, (iv) access to knowledge and actionable intelligence, combination that will lead to improved income and quality of life. Rural Agents (youth), will have the opportunity to engage in a new business enterprise and link with a last mile innovation and sales network. Seed companies, agro-dealers and aggregators will have access to a missing link in the supply chain, which will assist their marketing strategies and provide fee for service intermediation for input and output markets.

IR 1.2 Strengthened capacity of informal seed systems to offer a broader range of affordable, improved quality seed

Sub IR 1.2.1. Informal trader capacity and local seed networks assessed.

Activity 1.2.1.1 Complete report writing for yellow bean characterization study in Tanzania (core).

Activity 1.2.1.1 Conduct yellow bean characterization study in Uganda (Mission).

CIAT-PABRA will conduct the characterization and profiling of seed and grain markets in the yellow bean corridor in Uganda, in terms of varieties grown and traded, market size, type and gender of traders and seed actors in the value chain, geographical zones of production concentration, and the final destination for marketed volumes, among other aspects. This study includes DNA fingerprinting of collected grain and seed samples to establish the seed and grain of yellow bean varieties grown and traded. Key findings from the Uganda yellow bean study will be disseminated to at least 100 stakeholders in the bean and seed value chains (bean aggregators, seed companies, national seed services, policymakers in the MoA, agro-dealers, local government officials, representatives of the development partners and

farmer organizations) in a workshop in Uganda. The **outputs** are one final report from Uganda on the yellow bean study, one policy brief, and information tools produced and shared.

Activity 1.2.1.2 Seed and grain market characterization and identification of areas of interventions in Senegal (Mission).

Groundnut and common beans are nutritious and marketable legume commodities in Senegal. In FY20, PABRA, Purdue University and CRS will carry out a characterization and profiling of the seed and grain markets in groundnut corridor in Senegal. The assessment will focus on varieties grown and used (released and non-released) and traded, market size and potential growth, type and gender of traders and seed actors in the value chain, geographical zones of production concentration, final destination for marketed volumes among other aspects. The survey will identify the current use of post-harvest technologies and their bottlenecks. The aim is to improve the understanding of the importance of these legumes beans in the region, capacity of traders and seed network within the corridor, and to identify opportunities for enhancing sectoral efficiency through policy, institutions and practice that work across national boundaries in the two countries.

Additionally, OI will consult with the Peanut Innovation Lab prior to conducting the landscaping of groundnut systems (input and output flow). Alongside PABRA, OI will evaluate and then develop a gross margin analysis in Senegal (inclusive of locally available financing rates) for supply-side groundnut agribusinesses and farmer demand-side production. This activity will leverage the Supply and Demand side gross margin assessment tools from 2.1.2.1 The **output** will be a landscaping analysis and development of the gross margin analysis. OI does not expect to expand this work to other countries during FY20.

The **outputs** are a report on the seed and grain market characterization, its policy implication, morphological characterization and DNA extraction of traded groundnut and bean genotypes in conjunction with activity CCIR 2.2.1.

Activity 1.2.1.3 Conduct diagnostics of seed storage—assess legume storage and post-harvest management constraints and capacities in Niger (Mission).

Cowpea is referred to as “the meat of the poor” in West Africa, and Niger is the second largest producer of cowpea after Nigeria, yet most of the cowpea produced in Niger are exported to Nigeria. Increasing productivity through improved functioning of the national seed systems would have a tremendous impact on farmers and other value chain actors in their ability to increase production and sales. Seed storage is a major challenge among SHFs and other value chain actors such as seed producers and suppliers. Farmers often rely on traditional seed storage methods that are either ineffective, not scalable, or not economical. Insecticides commonly used in seed storage by other value chain actors (e.g. seed producers and suppliers) are not reliable due to insect resistance or poor-quality insecticides. The lack of proper training on the use of chemicals and the use of poor quality insecticides lead to insect resistance. Plus, many of the insecticide products sold in rural markets are expired or adulterated. Post-harvest management of cowpea seed is crucial to maintain and preserve the viability of planting material. Using a private donation (\$60,000) in collaboration with Kirk Trust House (a UK-based Foundation), S34D (Purdue University) is currently partnering with Sahel Bio to conduct surveys to assess farmers’ preferences. This activity runs from June 2019 to April 2020 and will test the performance of striga (parasitic weed) resistant cowpea varieties in Maradi and Zinder.

Purdue University will work with INRAN (National Institute of Agricultural Research, Niger) and Sahel Bio (a local NGO in Maradi) to conduct a survey among farmers, seed producers and agro-dealers to understand post-harvest seed management to help identify challenges and opportunities for interventions that would strengthen the functioning of the national seed system in Niger. The study will focus on cowpea and will be conducted in Maradi, Zinder and Dosso where cowpea is an important crop. The survey will also include areas that have received seed interventions (distribution) under emergency relief programs led by CRS Niger or other development programs.

Purdue and its partners will organize a knowledge-sharing meeting for stakeholders after the completion of the assessment of legume storage and post-harvest management constraints and capacities in Niger. S34D will invite at least 20 participants to this meeting, including NGOs and development agencies involved in agriculture, government research and extension services involved in seed production and dissemination, seed producers and vendors, and donor agencies.

The **output** will be an assessment with clear recommendations on how farmers, seed producers and agro-dealers can improve post-harvest seed management in their businesses. This survey will be carried out before June 2020, and this intervention will leverage ongoing cowpea seed-related activities.

Sub IR 1.2.2. Capacity of local seed entrepreneurs and non-traditional seed actors strengthened.

Activity 1.2.2.1 Scope existing and identify new seed and post-harvest suppliers and vendors to expand the reach of these technologies in Tanzania (Mission).

Purdue will, in collaboration with PABRA (link to activity 1.2.1.1) increase the number of retail points selling improved seed and post-harvest technologies for seed preservation. Basic lists of seed dealers will be provided by PABRA, while Purdue will provide PICS bag vendors in the intervention area. Potential new vendors of seed and post-harvest technologies will be identified. Purdue will identify existing PICS distributors and vendors, seed suppliers and vendors, and recruit new distributors and vendors who are willing to sell seed and post-harvest related inputs to improve availability. Vendors are identified and mapped with basic information, business focus, capacity, location, contacts, etc. using the Kobo app. These maps will be stored in a database. The database will be shared with farmers and agripreneurs allowing easier access to vendors and the technologies. In addition, the database will be shared with implementers (NGOs, government agencies, etc.) to help advise their beneficiaries on the availability of seed and post-harvest technologies.

The **outputs** will be a scoping and market opportunity case study, report on changes in availability and access to improved seed by farmers through mapping and integrating both seed and post-harvest distribution systems. The report will assess levels of integration of target retail networks and define new business opportunities to both seed and post-harvest suppliers and dealers. This would expand market opportunities for seed and post-harvest technologies and strengthen the distribution retail networks.

Activity 1.2.2.2 Train and link the seed and post-harvest supplier and vendors to distribute and market these technologies Tanzania (Mission).

Under this activity Purdue will, with support from PABRA (Activity 1.2.1.1.) and PPTL (PICS licensee and manufacturer in Tanzania), increase the number of retail points selling improved seed and post-harvest technologies for seed preservation. After the completion of the scoping and identification of new vendors, S34D will organize a meeting among seed, PH suppliers, distributors, and vendors. This will be

an opportunity to pitch seed and PH technologies, and financial products to these stakeholders. Under this core-funded activity, Purdue will tap into the PICS distribution network to sell seed. Purdue will organize a meeting and train at least 20 participants on new and improved seed and post-harvest technologies. At the meeting, PABRA will discuss seed, Purdue will discuss post-harvest technologies and OI will discuss financial products. PABRA will discuss the seed business opportunities with post-harvest vendors and distributors. PICS bag vendors need to learn from PABRA how to become seed dealers and manage a seed business- where they buy seed, when, who and how to reach potential customers. PABRA seed dealers will be trained on post-harvest technologies and business opportunities. Some of the field observation from post-harvest study in Tanzania suggest that some seed dealers are seasonal. Adding post-harvest technologies to seed dealers' businesses would provide them with another line of product to sell to their customers and build their businesses. A representative of PICS manufacturers will attend the meeting to discuss business opportunities with seed suppliers, dealers and producers to either use or sell PICS bags. Participants in these meetings will also include government agencies involved in seed systems, NGOs involved in seed and seed producers. During the same meeting, a training on new and improved seed and post-harvest technologies will be provided by Purdue and PABRA. Awareness will be created by presentations and posters about improved seed storage. These seed storage posters will be disseminated among farmers through S34D partners including seed and post-harvest technologies suppliers and vendors.

The **outputs** will be increased awareness about benefits of new seed and grain storage methods, capacity building of key actors in the input and output markets in post-harvest technologies, and generation and expansion of new business partners for post-harvest technologies, leading to increased sales of post-harvest technologies and improvements in seed storage by suppliers.

Sub IR 1.2.3. Business models to leverage integrated operations validated.

Activity 1.2.3.1 Test and catalyze push-pull model to harness demand and improve access to quality declared legume seed (QDS) in Uganda (Mission).

In the recently concluded Tropical Legumes activity (phase II & III), ISSD, PABRA and NARO have supported an evolution of the community-based (Local) Seed Businesses (LSBs) that have contributed to growth in seed multiplication of five newly released bean varieties (NARO Beans 1, 2 3, 4 and 5) in Uganda. However, these LSBs rely on large institutions, such as NGOs, for sale of their seed. This market is not sustainable. To pilot the pull-push seed marketing strategy for enhancing the capacity of CBOs to produce and sell bean seed directly to bean farmers in Central –West and Eastern Uganda, CIAT will work with 10 LSBs and will leverage and build upon PABRA's demand-led breeding projects and ISSD's information on new varieties. To achieve this, CIAT will train 50 seed producers on seed business management (marketing, record keeping and cost-benefit analysis) and package information on new variety profiles. CIAT-PABRA will provide variety information, bean production guides and seed sources to 20,000 farmers and 50 outlets and seed distribution networks. Various seed packages and pricing, variety and seed branding from the LSB will be tested, in partnership with 10 LSBs, NARO and development partners, and CIAT will disseminate information packages (500 branded variety information leaflets and posters and 500 bean seed production and marketing guides for LSB and 1000 production guides for bean grain producers) to end-users. The marketing strategies emphasize the use of parallel and multiple dissemination methods. The mobile phone approach will be one method and will be based on ICT platforms, e.g. through WhatsApp in a system developed and supported through

previous projects, like the MasterCard Farmer Network marketing platform for inclusive financing that has a substantial number of farmers linked through ICT. Although the mobile phone penetration in Uganda is about 77%, the internet penetration rate is 40.5% (2019) based on Internet World Stats⁸. WhatsApp is only **one** of the multi-media promotion approaches we plan to use in harnessing demand and improving access of QDS by end users. WhatsApp will not be exclusively or main approach to reach end users. S34D plans to selectively use it to link QDS producers to extension service providers, agro-input dealers to create awareness and promotes QDS to end users. Intermediaries in turn will use other mass communications approaches, such as radio, demonstrations, field days, SMS to convey information on QDS.

The marketing strategies will also include a range of other media channels. Via public events, such as agricultural shows, community market days, outlet-based demonstrations and field days, CIAT will support seed producers in reaching out to various networks of bean farmers with specified seed offers.

The **outputs** are a report that defines the business model and characterizes the production and marketing of seed by LSBs and an analysis of their strategies used to improve their seed marketing penetration, increased knowledge and skills of 10 LSB managers and their distributors. Information on increases in sales.

Activity 1.2.3.2 Test bundled legumes & fodder seed and Post-Harvesting Technologies (PHT) marketing model in Kenya (Mission).

S34D will test the bundling and the marketing of certified seed of various fodder and legumes crop and other complementary technologies such as PHTs (PICS bags). S34D will train at least 350 trainers from farmer organizations on benefits of legume and forage crop bundling and link them to 20 seed actors. Access to quality legume and forage seed is a gap identified by USAID-funded AVCD activity and Kenya Crops and Dairy Market Systems Development (KCDMSD) activity. CIAT's forage program is currently working with two private seed companies (Amiran and Advantages) to popularize forage seed (*Bracharia* sp) in Kenya. An additional company with strong focus on animal husbandry and national distribution coverage will be recruited to strengthen the consortium. Together with OI, S34D will explore financing options to seed actors (particularly agro-dealers based on their identified need) in order to boost the financial capacity to meet market demand and use digitalized ICT to disseminate information on combinations of the bundles to the last mile users (linked to activity 1.2.4.1.). CIAT will synthesize the existing information and develop a business case for bundling legumes with fodder to demonstrate profitability. After holding 3 sensitization and consultative meetings with seed companies and agro-dealers, 20 people from 3 interested seed companies and agro-dealers will be trained on designing cross crop seed bundles. In collaboration with seed producers, AVCD and KCDMSD activities, KEPHIS and STAK, farmer groups will be identified and trained on the benefits and utilization of bundled seed. The **output** of this activity is to develop one participatory business plan and progress report.

Activity 1.2.3.3 Test and catalyze push-pull models to harness demand and improved access to quality legume seed in Uganda (Mission).

OI will work with the bean seed suppliers and distributors to encourage farmers to grow the varieties that have strong market demand (yellow bean). To achieve this, OI will expand or customize gross margin analysis tool from 1.2.3.2 to additional value chain actors and identify the financing needs at either end of the value chain to improve availability of seed and uptake and a strong buying signal at

⁸ <https://internetworldstats.com/stats1.htm>

harvest. By populating and utilizing the expanded gross margin tool with Uganda specific metrics, OI and PABRA will work with the legume seed sector to better expand operations and sales. The **output** of this activity is a marketing strategy and outreach tools for suppliers for demand generation leveraging the profitability analysis.

Activity 1.2.3.4 Facilitate digital information sharing platforms for seed actors and analytics to enhance seed business and link to farmer demand in Uganda (Mission).

In collaboration with Kuza and PABRA, OI will contribute to the adaptation of a commercially viable fee-based digital platform to register farmers and other seed actors and provide them with information on input availability and market off-take. To achieve this OI, will develop analytics metrics, process data, model cash flows and make recommendations for the platform integration. The **output** of this activity is linked to the Kuza and PABRA digital platform pilot.

Sub IR 1.2.4. Last mile delivery solutions through non-traditional partners and ICT strengthened.

Activity 1.2.4.1. Niche Market business model: Explore non-seed distribution and sale niches with seed varieties (linked to PoS ICT application with seed companies) and monitor sales/adoption in Kenya (core).

Activity 1.2.4.2 Catalytic financial models for seed companies and large traders to scale out micronutrient rich legumes in Kenya (Mission).

OI will assess PABRA supported agribusiness and farmer profitability for the supply and sale of macronutrient rich legume products. OI will introduce national financial service providers to macronutrient legume seed distributors and develop seed company training workshops (linked to 1.2.4.1). OI will achieve this by adapting training curriculum on macronutrient legume modelling from the niche market business model (activity 1.2.4.1). Under the guidance of PABRA, OI will train 8 agribusinesses.

IR 1.3 Strengthened capacity of emergency and humanitarian aid programs to respond effectively to acute and chronic stresses

Sub IR 1.3.1 Select emergency and humanitarian past actions assessed: focus on farmer evaluation, new varieties, and markets (local and formal).

Activity 1.3.1.1 Disseminate results from FY19 studies on cash and markets using mixed modes of delivery (core).

Activity 1.3.1.2. Develop template that systematically gathers information on delivery and use of modern varieties in emergency response (core). This activity has been deleted at the request of OFDA.

Activity 1.3.1.3 Interview private and research sector actors on their role in emergency and humanitarian seed programming in Kenya, Uganda and Malawi (core).

Activity 1.3.1.4 Develop actionable plan based on lessons emerging from the cash transfer and market studies completed to date, and the (on-going) FY19/20. (DiNER) evaluations in Southern African region (Malawi, Zimbabwe and Madagascar). (core).

Sub IR 1.3.2 Emergency and humanitarian responses that promote climate resilience, including food, income, cover and fodder crops are catalyzed.

Activity 1.3.2.1 Support upgrades in functionality, socialization and promotion for SeedSystem.org website (core).

Sub IR 1.3.3 Tools and Information Systems to frame Shock Responsive Models developed.

Activity 1.3.3.1 Framework and response options for resilient seed systems (core).

Activity 1.3.3.2 Inputs to a stakeholder consultation with the broader humanitarian community to determine and address the need for additional guidance for agricultural interventions (core).

Activity 1.3.3.3 Collect, compile, and analyze information on emergency and humanitarian seed interventions in relation to formal and informal seed sector development interventions (core).

Activity 1.3.3.4 Develop country-level inputs to seed database (1.3.3.3) with real-time snapshots pre- and post-disasters in Malawi, Mozambique, Uganda, or Niger (Mission).

To inform the platform, S34D will conduct 1-2 studies of recent seed aid in Malawi, Mozambique, Uganda, or Niger. The purpose of these studies is to inform and populate the database, and to have a global picture of what types of seed assistance occur in emergencies. This information will be used for Mission knowledge, as a baseline for future responses, and to analyze together for advocacy messaging around relief seed. The **output** will be used as part of the S34D country profile, for Mission knowledge; as a baseline for future responses; and, to analyze together for advocacy messaging around relief seed.

Sub IR 1.3.4 Last mile delivery solutions especially for chronic stress areas (small packs, boutiques, WhatsApp seller linkages) developed.

Activity 1.3.4.1 Identify promising practices from last mile PASP model to provide access to improved seed in chronic stress contexts (Mission).

Together with the formal and informal seed systems teams, CIAT and CRS will identify existing and promising last mile solutions that provide access to improved seed in chronic stress contexts (1.1.3). To achieve this, S34D will link with CRS' new learning study funded through CRS' Innovation Funds. This study is a 3-year program to develop and evaluate a harmonized technical framework for the fee-based Private Agricultural Service Provider (PASP) approach. As a Proof of Concept, CIAT will work with CRS to conduct a learning webinar for humanitarian and development practitioners - private sector actors will be included when relevant - to identify initial learning that can be further explored or disseminated in FY21 through mission funding and will write the findings in a 1-2 pager. This activity will be integrated with S34D's formal and informal team's last mile activities (link to 1.3.4.2 and 1.3.4.3) and conducted in Q3 and Q4.

1.3.4.2. Scope and prototype PASP model for groundnut seed in Senegal (Mission).

In collaboration with S34D's formal sector last mile activities, CRS will explore prototyping of the PASP model for groundnut seed with the Senegal mission. Building on best practices CRS has gathered to date, the team will model PASP specifically for seed. Lessons will be captured in a learning report and in multi-stakeholder learning events. S34D will leverage this experience to explore promoting this model in other locations. The **output** will be a learning report and in multi-stakeholder learning events. S34D will leverage this experience to explore promoting this model in other locations.

1.3.4.3. Study existing "mom & pop shops" as opportunities to make improved seed available in rural areas (small packs, etc.) in Niger (Mission).

In collaboration with S34D's formal sector last mile activities, CRS will jointly study existing “mom & pop shops” as opportunities to make improved seed available in rural areas (small packs, etc.). Officially, seed in Niger must go through formal channels despite significant informal activity (i.e., trade with Nigeria). The GoN's seed program targets the most vulnerable for annual distributions; seed production companies often prioritize the government and other institutional buyers as clients, so private sector investments in marketing and distribution for retail sale—including to SHFs—have been generally low. GoN and NGOs cannot meet the country's seed requirements. There are issues with quality of distributed seed, as well as timeliness and special interests also make seed quite political. Interestingly, SHFs appear to be increasingly willing to pay for quality seeds rather than waiting on the unreliable distributions and risking losses, especially following businesses' marketing efforts (i.e., demo plots near decentralized vendors, branded small packs, quality guarantees, radio commercials, etc.). Seed companies are responding by extending ‘points of sale’ retail models and are often encouraged by programs funded by AGRA, etc. but also often lack sufficient capital, certain management skills, etc. Through this activity, S34D will explore the Niger case of kiosks as potential model for other countries; the **output** is a short evaluation and white paper on this model.

1.3.4.4 Develop a 1-2 page white paper on possibilities for financing of different farmer segments (core).

IR 2.1 Strengthened interface and collaboration between formal and informal seed systems

Sub IR 2.1.1 Local seed network strategies (to interface, collaborate, and leverage) and local capacities are assessed.

Activity 2.1.1.1 Implement cross seed system studies using an adapted Seed Systems Strengthening Assessment SSSA+ methodology in Uganda (Mission).

S34D (CRS and CIAT) will work with ISSD and AE to adapt the standard SSSA methodology to apply this new method to a larger area to assess the level of access to quality seed for the top 4 crops in low potential and highly vulnerable areas, medium potential and high potential areas.

The SSSA+ study will complement the TASAI assessments and the country profile (activity 0.1) and provide country offices, programs and projects with a rapid assessment of the levels of farmer access to improved seed, and the varieties used by different farmer segments across the country. This will provide a better sense of the geo-spatial access to seed for the major food crops, and provides details about where farmers access seed, the quality of the seed and a better sense of how the formal, informal and EHAR seed markets interact. The combination of reports by TASAI and the **SSSA+** Model will help seed companies, government, donors and projects that are investing in seed gain a better understanding about how farmers are engaging with seed markets and this may assist in decision support for future seed interventions in the areas of emergency, informal and formal seed systems. This type of information, which covers both formal and informal methods, is not easily available and the analysis and sharing these results with teams in country will help to socialize information across teams who may not normally interact. The goal being to design innovative investments that help more farmers access better quality seed, which fits their needs.

Activity 2.1.1.2 Conduct a scoping study to assess the fodder/forage crop seed value chain in Ethiopia (core).

Sub IR 2.1.2 Crop and seed platforms that link formal and informal seed systems are catalyzed and supported.

Activity 2.1.2.1 Facilitate linkages of existing and new identified seed producers and suppliers to grain off-takers trading in the yellow bean growth corridor in Tanzania (Mission).

CIAT in collaboration with a total of 30 seed actor from 6 different categories (seed companies, CBOs, grain off takers, grain local market, agro dealers), will develop strategies to respond to grain demand within the yellow bean corridors in Manyara and Kilimanjaro and western Tanzania (Kagera). A minimum of 250,000 farmers will be informed of the benefits of quality seed through multi-media channels (radio announcements and talk shows, leaflets and posters, WhatsApp groups).

This activity will expand the market frontier for new yellow bean varieties by linking formal seed sales with informal seed producers and leveraging grain traders and ‘mom and pop shops’ to sell small packets of certified or other quality seed in last mile areas. The approach and strategies for linking seed producers and suppliers to grain off takers will be developed drawing from the work of yellow bean characterization carried out in FY19. The process of validating this model starts with the socialization of yellow bean characterization study results (linked to activity 1.2.1.1), drawing lessons from the study to inform the development – in consultation with Excellence in Breeding (CGIAR) and new Crop Improvement Innovation Lab (Cornell) - of a seed road map⁹. To achieve this, CIAT will facilitate an interactive workshop between the 100 grain traders and seed producers to match seed demand derived from the grain market to the seed production plans. One workshop will identify any other intervention that contribute to realization of the seed production and market plans in collaboration with TARI, seed producers and traders, and TOSCI. At the same time, building on the work of AVISA, CIAT will develop information tools (radio talks and messages, variety leaflets and posters, WhatsApp messages) and outlet-based field demonstrations targeting 250,000 grain farmers. Three Seed companies, 50 agro-dealers, 10 traders and 20 QDS producers will be trained on bean seed business management, client-oriented marketing strategies for increased bean commercialization and expansion in the yellow bean corridor.¹⁰ CIAT will facilitate planning, performance monitoring, and learning about progress via various multi stakeholders’ platforms (workshop of 100 participants and WhatsApp).

The work will leverage AVISA and PABRA’s activities in establishing bean corridors, particularly its demand led breeding and early generation seed production work in Tanzania for regular updating and adjusting seed road map to respond to the emerging new market opportunities in the corridor. The **outputs** of this activity are three developed strategies to support local seed business in production and marketing linked to grain market demands (variety and volume) and a study report on seed commercialization.

OI will evaluate and then develop gross margin analysis (inclusive of locally available financing rates) for supply-side bean agribusinesses and farmer demand-side production (Linked to 1.2.1.2).

Sub IR 2.1.3 Formal sector suppliers and NARs/breeders leveraged and linked.

Activity 2.1.3.1 Explore complementarity of conventional and non-seed distribution channels for nutritious bean varieties in Kenya (linked to IR 1.2.3) (core).

⁹ This is a seed production plan designed to respond to the grain and seed demands within the corridor in a specified timeframe

¹⁰ <https://cgspace.cgiar.org/handle/10568/80540>

Sub IR 2.1.4 Effects of market-based interventions on seed market operations and last mile delivery systems are assessed.

IR 2.2 Strengthened interface and collaboration between development and relief to resilient and market-based seed systems

Sub IR 2.2.1 Seed System Security Assessments in Feed the Future Crisis Hotspot areas (focus on formal, semi-formal and informal seed systems) are adapted and scaled.

Activity 2.2.1.1 Lead or backstop SSSA acute assessments (core).

Activity 2.2.1.2 Backstop real-time data components of SSSA exercise in the field and pretest digital data collection tool (Mission).

Tied to activity 2.2.1.1, this activity will comprise elements on training, data management, report writing and decision-making. The plan for backstopping will involve training and oversight for data entry staff; cleaning, managing, analyzing and visualizing data; and final dissemination of results in reports or presentation and other formats. To be more efficient and articulate in data collection, S34D embarked on digitizing collection templates into a mobile data collection tool. It is imperative to have a harmonized dataset across all SSSAs conducted to ensure the tools for analysis to generate information for decision-making are all comparable, up-to-date and practical. Thus, this activity hinges not only on the need to build capacities of specialists, but also on enabling alignment of data to a pool of datasets that describe the seed security situations globally, and over time. To achieve working state of the tool, S34D will pre-test this new mobile tool (on subscribed SurveyCTO framework) for the household questionnaire. This can be achieved in an actual SSSA context, and the **output** of this activity is a tested mobile tool.

Activity 2.2.1.3 Expand and pre-test mobile data collection tool for SSSAs into trader analysis including mapping (Mission).

CIAT will explore with informal sector actors (tied to activity 1.2.1.1 and 2.2.2.1) how to expand and pretest a mobile data collection tool for SSSAs, including potential seed and grain trader analysis that includes mapping ability. As traders sell the grain and potential seed, it will be enriching to see how seed is sourced and/or sold by geographies. The new component allows mapping of seed flows into farmer production systems during an emergency. Its development and embedding into the final tool will enrich outputs for improved decision-making. In chronic stress zones, there is need for development of a complementary and improved decision-making tool to look at large seed issues (supply and demand) in times of stress and early recovery. This comprehensive tool will be ready for pretest (Q3) and deployment by Q4. The **output** is a SSSA test case using digital system for data collection.

Activity 2.2.1.4 Develop SSSA Macro Assessment Tool for cyclone (or other disaster) affected areas (Mission).

This activity will upon activities 2.2.1.2 and 2.2.1.3. CIAT and CRS will work with stakeholders in the development of an SSSA Macro-Assessment tool that investigates seed security across a region. An example under consideration is the cyclone-affected area in Southern Africa that covers multiple countries, e.g. Zimbabwe, Malawi and Mozambique. Full deployment will rely on broader stakeholder (private sector companies, relief aid agencies, donors and NARS) discussion and accepted recommendation.

Sub IR 2.2.2 Emergency and humanitarian responses that link relief to development, especially links to private sector and formal and biodiverse suppliers are developed and promoted.

Activity 2.2.2.1 Expand informal yellow bean seed and grain analysis to better understand informal traders as backbone of seed security and grain in emergency and chronic stress areas in Uganda and Kenya (Mission).

CIAT-PABRA will continue work with the CRS policy team in the yellow bean study considering implications in EHAR in Q3 and Q4. This activity will expand upon the work in Tanzania to Uganda, countries with spillover effects to Burundi and Rwanda. Yellow bean seed and grain flows will be mapped in Q3 through to Q4 and this will follow a synthesis of the findings and dissemination of the same to relevant stakeholders (seed companies, NARS and private sector processors) in Q1 and Q2. Ultimately, CIAT-PABRA and CRS will seek to understand and highlight informal traders as the backbone of seed security and grain in emergency and chronic stress areas. The **outputs** of this activity are two final reports of the yellow bean study, two policy briefs, and information tools produced and shared.

Activity 2.2.2.2 Continue fieldwork and scoping study within 2-3 Y2 countries on private and formal sector roles and links to relief seed (core).

Activity 2.2.2.3 Identify strategic venues to disseminate S34D EHAR findings and results in Kenya and Uganda (distinct events) (core).

Sub IR 2.2.3 Emergency and development seed programs to capture market opportunities are leveraged.

Activity 2.2.3.1 Review DiNER/seed vouchers and fairs and their sustainable link to private sector (core).

Activity 2.2.3.2 Facilitated consultation process with stakeholders in developing best practices for seed distribution interventions in emergency response (core).

Sub IR 2.2.4 Shock-responsive and resilience-based models--by crisis type, crop profile, and broad agro-ecological system are developed and tested.

2.2.4.1 Develop and test tool to assess resilience of seed systems, building on PCMA (Mission).

CRS will adapt the OFDA-funded Pre-Crisis Market Assessment (PCMA) for seed systems, with intent to identify breaks in formal and informal channels in crisis periods and separate from or annex to SSSA. Depending on the output, this could be considered as an annex to SSSA, or simply a seed focused PCMA adaptation. As much as possible, the EHAR component will seek to develop, trial and recommend tools that aid in the assessment of resilience of seed systems. This will be best achieved with greater stakeholder engagement – their direct involvement in development and testing of the tool to assess resilience of seed systems. The draft tool will be developed during Q1 and Q2 with testing taking place during Q3 and Q4; testing location are still to be confirmed, but likely Niger or Malawi. The **output** will be production of a draft methodology and possible testing to produce a case study.

CCIR-1 Improved effective policy implementation and regulatory formulation for pluralistic seed systems

CCIR 1.1 Country specific seed policy road maps developed.

Activity CCIR 1.1.1 Finalize the global seed policy review (core).

Activity CCIR 1.1.2. Develop country specific policy and regulatory systems maps for seed sector in Uganda, Malawi, Niger and Senegal (Mission).

CRS and NML will develop a library of Regulatory Systems Maps, for Uganda, Malawi, Niger, and Senegal. These maps visually depict key legal and regulatory processes – and their implementation – step-by-step, highlighting regulatory bottlenecks, tradeoffs, institutional roles and mandates, and best practices. The Regulatory Systems Maps are based on NML’s methodology for promoting the integration of social and economic considerations into design and implementation of economic laws and regulations system-wide. The Regulatory Systems Maps have been a constructive tool for supporting evidence-based advocacy and reforms and are also a useful means for collecting comparative data and assessing interoperability of different regulatory processes and procedures across borders. The maps enable governments and business entities to prioritize options for regulatory reforms, and can also be part of an inclusive process for creating an action-focused regulatory reform agenda based on public-private dialogue and agreed-upon roadmaps. The **output** of this activity is published country-specific seed regulatory maps¹¹ that are shared in the public domain.

CCIR 1.2. Practices to expand and liberalize seed quality possibilities developed and implemented; market outlets and venue expanded; counterfeit seed issues addressed; free seed distribution restricted.

Activity CCIR 1.2.1 Assess policy implications of the niche market business model in Kenya (core).
Cancelled.

Activity CCIR 1.2.2 Assess policy implications of the yellow bean field study in Tanzania, Kenya, and Uganda (core).

Activity CCIR 1.2.3 Facilitate implementation of standard seed in Kenya (core).

Activity CCIR 1.2.4 Market development and deployment for non-hybrid seed systems using a “Standard seed” strategy in Kenya (Mission).

Many seed companies are reluctant to trade in non-hybrid crops and to develop seed for less commercialized parts of the country. The result is that the commercial parts of the country offer broad access to seed, whereas agro-dealers who work in the more marginal areas only stock seed for a limited range of crops. If the costs of seed production are the challenge for companies to work with non-hybrid crops, and if public institutions and projects want to provide sustainable access to quality seed, then the

¹¹ Regulatory Systems Maps synthesize a set of laws, regulations, and practical information to map the flow of a regulatory process from start to finish. Regulatory Systems Maps visually depict national fertilizer regulatory processes and comparatively maps these regulations across countries. Used alone, the maps are a useful way to demonstrate the true complexities of administrative processes, especially in complex sectors where the rules regulating a particular action or activity may be housed in multiple separate legal instruments. Taken together, the maps allow qualitative comparisons across legal systems. The language used in laws and regulations rarely tracks exactly evenly between systems. The visual depictions are better suited for comparing the different possible routes to achieve similar goals, and therefore lead to more creative and efficient solutions to legal challenges. Regulatory Systems Maps appear in all NML's legal guides and assessments, and NML is currently working on expanding the reach and impact of these maps by digitizing them to make them even more interactive.

use of standard seed would provide them with an option to broaden their crop portfolio and invest in more sustainable methods to supply the hard to reach farmers.

S34D is already working with KEPHIS on the standard seed protocols (activity CCIR 2.1.1) and S34D (AE, CIAT) will test this alternative standard seed class with a few targeted seed companies. S34D will develop a training in the inspection protocols and work with seed companies to assess new business strategies using this approach. The new seed class and options for pack sizes and crops would be promoted using a marketing and awareness campaign that would use demonstration plots, farmer days, radio and other means to increase farmer awareness and build their confidence in the value of using quality seed to improve their production for food and sales. This type of approach could be integrated into the AVCD project and could be adapted to improve sales of fodder crops, and by doing so, link with the KCDMSD activity. The **output** is the development of protocols for testing standard seed in Kenya, test methodology in a target value chain and gain insights into commercial application for seed companies.

Activity CCIR 1.2.5 Increased use of Quality Declared Seed in Uganda (Mission).

As indicated in the TASAI reports, most seed companies focus on 3-4 crops and the majority of earnings come from sales of hybrid seed. These include hybrid maize, vegetables and some companies specialize in other crops, such as sorghum, beans and local fruits and indigenous African vegetables. However, sales from self-pollinated crops have been meager; therefore, seed companies are reluctant to trade into the less commercialized areas of the country and most agro-dealers only stock seed for a limited range of crops.

Part of the reason for not investing in self-pollinated crops is the high cost of full certification for these crops. If costs can be reduced, with a less costly inspection process, then it is likely that more seed companies would produce and sell QDS for the less profitable crops. Farmers would then gain improved access to seed for a broader range of crops. This is important for both nutrition and soil fertility. If costs of seed production are the challenge, and if public institutions and projects want to provide sustainable access to quality seed, then the use of standard seed or QDS would provide them with an option to broaden their crop portfolio and invest in more sustainable methods to supply harder to reach farmers.

S34D will provide basic training in production systems and financial analysis to show the benefits and then a system for establishing seed grower groups or working with larger farmers to establish standard seed or QDS plots. To achieve this, the seed needs to be promoted through standard methods, such as demonstration plots, farmer days, radio and other means to increase farmer awareness and build their confidence in the value of using quality seed to improve their production for food and sales. ISSD and NuTech, in northern Uganda, are using these methods and reduces the costs of seed production for seed producers. This approach would commence with support to the NuYok project and then integrate with other similar projects and work with relief institutions who currently rely on regular free seed options. The **output** of this activity would be a more sustainable system to link farmers to input markets, and decreased use of free seed that cause market distortions and decrease resiliency of farming communities.

CCIR 1.3 Linkages and coordination of seed development efforts through consolidation of data and evidence are strengthened.

Activity CCIR 1.3.1 Conduct a learning study about private sector seed certification processes, approaches and counterfeiting measures in Zambia (Mission).

Prior to conducting a learning study in Zambia on privatization of seed certification and the role of national seed policies, CRS will coordinate with the Southern Africa Seed Trade Project. This study will assess counterfeiting measures in the country, and S34D will use this study to inform policymakers in Malawi and regional stakeholders, such as AGRA, about the steps, sequencing, priorities, and other building blocks necessary to implement privatization of seed certification and to combat counterfeiting (linked with formal sector activity 1.1.1.6). The **output** of this activity is a report with learnings from Zambia and a report on stakeholder consultations in Malawi and Uganda by Q4. This information will be used to share with Malawi and Uganda national stakeholders to assess the building blocks and needs to institutionalize similar systems in their countries. It will also help to draw next steps for the Missions. This activity will be coordinated with the Southern Africa Mission's Seed Trade Project.

Activity CCIR 1.3.2 Conduct a learning study on national seed reserve systems with examples from other countries with implications for Ethiopia (core).

CCIR-2 Established enhanced quality information flows for seed systems

CCIR 2.1 Institutional and public policy information is better digitized.

Activity CCIR 2.1.1 Complement the digital seed catalogue and develop a reference library for crop varieties in Malawi (Mission).

CRS and CIAT will support the Department of Agriculture Research Services (DARS) and Seed Services Unit (SSU), in close collaboration with USAID's Southern Africa Regional Seed Trade Project (STP) and AGRA, with the further development of the **Malawi digital seed catalogue** (MDSC) with proper descriptions and genetic characteristics for all released crop varieties in Malawi, with an initial focus on legumes. A digital seed catalogue for Malawi is critical to ensure that Malawi is competitive in the regional harmonization framework under the new seed bill. SSU has already developed protocols and works in conjunction with the Gene Bank. S34D will consult with SSU and DARS to determine what data they would like and is required to be included in the Malawi digital seed catalogue to ensure the varieties in the catalogue are compliant with the ISTA and OECD requirements and ensure that the Malawi varieties can be added seamlessly into the regional SADC seed catalogue. The regional SADC seed catalogue has been established and is currently being developed with assistance from Feed the Future Southern Africa Seed Trade Project. S34D will work together with seed actors who have paper-based seed description of released crop varieties, like DARS (maize, legumes, cassava), ICRISAT (legumes, cereals), CIAT (common bean, groundnut, pigeon pea, sorghum, millet, rice), Ag Diversification Activity (soy and groundnuts) and others. The released varieties data will be transferred to a digital platform—the Malawi Digital Seed Catalogue (MDSG). Once a seed bill is enacted, this MDSG platform will be housed in SSU and managed by SSU (later transitioning to NSC) with support from S34D.

To not duplicate efforts, S34D will coordinate with AGRA, who is also providing **DNA fingerprinting** services to the SSU, which varieties will be analyzed by whom. S34D will provide DNA fingerprinting analysis and will liaise with breeders from ICRISAT, CIAT, DARS, and LUANAR to compare DNA characteristics with the parental stock. The DNA fingerprinting results for each variety will be included on the MDSG and shared with the University of Minnesota database. UoM is working with the Center for Agriculture Transformation (CAT) in Malawi and is collecting genetic data through their GEMS¹²

¹² G.E.M.S™ is an international agro-informatics initiative jointly led by the College of Food, Agricultural and Natural Resource Sciences (CFANS) and the Minnesota Supercomputing Institute (MSI)

program. S34D will complement this effort by providing genetic results and information to UoM and other stakeholders.

Activity CCIR 2.1.2 Digitize the regulatory seed road maps in Uganda, Malawi, Niger, and Senegal (Mission).

Linked with CCIR 1.1.2 above, CRS and NML will digitize the seed regulatory road maps developed for Uganda, Malawi, Niger, and Senegal to make the maps interactive. **Outputs** will be digitized maps at country levels.

Activity CCIR 2.1.3 Facilitate the modernizing of the seed industry with digital information management to support improved quality assurance / quality control (QA/ QC) in Kenya (Mission).

There is increasing interest by KEPHIS, KALRO, STAK and the leading seed companies to follow the lead of other countries such as Zambia and South Africa, to modernize the operations within the seed sector. These efforts aim to improve to provide greater quality assurance and quality control procedures for seed production and certification (QA/QC systems). As part of this transitional process, KEPHIS and the seed companies are exploring ways to upgrade the underlying processes within their seed systems making the process faster, better and lower cost.

KEPHIS is working with Trademark East Africa to build a digital platform and portal, which will be one of the pivotal tools used to support better information management for the seed sector. Any major technology shift, will however, also require upgrading the underlying processes, business relationships that will apply to the production, ordering and procurement of EGS from KALRO and KEPHIS as well the seed companies reporting on the production, inspection, warehousing and sales of their certified seed. In the new system, KEPHIS will reduce their level of direct inspection of seed company fields, and the companies will hire new or additional staff to support self-regulated inspection of their EGS and certified seed production. The companies will then provide their seed returns to KEPHIS through a digital portal. Previous donor support has enabled key players in the seed industry to visit and learn about similar seed systems upgrades that have been made in other countries such as RSA, Zambia and the United States. In these cases, the modernization reduced some Government costs in terms of inspection, as firms took on these roles, allowing them to focus on other pressing issues. This modernization process will require changes in some operational and management actions by the seed producers, changes in how information is collected and shared, and shifts in how KEPHIS and the seed companies use and get value from the digital information management systems. All stages in the transition have certain complications and achieving a smooth transition could benefit from effective assessments, expert facilitation and capacity building.

Under this activity, S34D will work with several of the seed companies that have shown interest in hiring their own seed inspectors and paying for training in both inspection and use of technology to support the upgrading process. S34D will identify experts to support in both the training and use of technologies that will allow seed companies to report their seed production returns through a digital information portal or system. There are several existing seed information management systems available as off the shelf, Software as a Service (SaaS) offers that could be tested and evaluated with the various actors in the system. Support in this process, will help the various members to gather information on performance and share the pros and cons of the systems. Support to STAK during this period may also be helpful as STAK may take on some of the inspections and reporting roles for companies who do not wish to invest too heavily at this time, particularly the emerging companies.

Under this activity, S34D will also build STAK's capacity in providing seed certification services to seed companies and assist them to use new operating procedures with a digital QA platform, in ways that enabling STAK members to realize value from the upgrade and use of new technologies.

To achieve this, S34D will provide seed systems expertise and technology advice, to support and facilitate the various partners in their design, testing and intervention phases. The type of work this includes is to support inclusive dialogue and proto-typing or testing of systems and technologies. This will be done through a series of design meetings, capacity building sessions, test runs and performance monitoring events. S34D draws on expert support for business process development and in building capacity for actors from KEPHIS, KALRO, STAK and the private sector to use and gain value from the digital information platforms.

The **output** will be: (i) analysis of key processes that will be upgraded through the new management system; (ii) review of digital management systems targeting different levels of seed system mature businesses to emerging companies; (iii) capacity building of 2-3 STAK staff and 10-15 seed company inspection teams within target companies; (iv) provision of coaching to 10-15 target companies on a fee based service to support the transition to the new digital seed management systems; and (v) annual reporting on effectiveness of transition to a private sector led seed inspection system.

CCIR 2.2 Tools and technologies to capture quality information about seed supply in a geo-referenced manner are developed.

Activity CCIR 2.2.1. Assess the nature and genetic quality of seed (different grades) and grain of yellow beans produced and traded using DNA fingerprinting (Linked to activity 1.2.1.1) in Tanzania and Uganda (core).

Activity CCIR 2.2.2 Work with national and regional stakeholders to develop a technical road map (framework) for demand estimation / forecasting in Ethiopia (core).

CCIR 2.3 Last mile markets for new and quality-assured seed varieties are enabled by developing, piloting, adapting, and scaling feed-forward and feedback mechanisms that loop farmers' preferences, as well as provide information on new varieties and quality assured seed

Activity CCIR 2.3.1 Continue monitoring feedback for the new biofortified bean varieties disseminated for the niche market business model using ICT in Kenya (core).

Activity CCIR 2.3.2 Pilot SMS-based farmer feedback loop on seed quality ("Stop Bad Seed") in Tanzania (core).

Activity CCIR 2.3.3 Stop bad seed in Uganda (Mission).

Counterfeit seed is an increasing problem in Uganda and levels of either poor quality or fake seed have reached concerning levels. This problem is a result of several factors, such as lack of inspection services and lack of mechanisms to monitor poor seed. The problem of fake seed is increasing with large schemes to provide farmers with free seed and short-term procurements from both government and public aid and relief agencies, who are opportunistically buying bulk certified seed from companies for short-term distribution to farmers in need.

S34D (CRS, AE), in close collaboration with MAIFF and USTA, will test an SMS call back method to enable farmers to check on authenticity and introduce tamper proof labels. **SMS call back method** is a low-cost strategy that enable farmers to provide rapid feedback on seed quality. Success in the use of this method, will improve confidence in the market as farmers will have the opportunity to provide feedback to the seed certifier about low quality and fake seed. This will help to highlight bad actors and will build greater loyalty in the national seed industry. The SMS service allows the certifier or USTA to identify hotspots of counterfeit or low-quality seed and act quickly to alert farmers and shut down agro-dealers who are selling fake seed. S34D is testing this method in Kenya and plans to introduce the hotline approach into Tanzania with a **Stop bad Seed** campaign (activity CCIR 2.3.2.).

Kenya has recently introduced a tamper proof labelling system, and this has been adopted by certifiers and seed companies. This method is proving to be very successful in providing farmers with a rapid authenticity check and a means of reducing the ability of counterfeiters to sell low-quality and fake seed into the market. The **output** of this seed systems process is that it builds credibility across the industry. **The use of tamper-proof labels** provides the industry with the ability to trace seed back to suppliers, seed companies and to link back stocks to EGS systems. The use of labels provides farmers with the ability to test products for authenticity immediately. The **output** of this activity is improved consumer confidence, and this translates into consistent buying from commercial and upcoming farmers for quality seed. The use of the label feedback information can also be utilized to develop a more sophisticated analysis that can support better inventory management and offer prospects for market demand and forecasting options.

Annex 2. Cost for core, Mission and cost share funded activities.

Annex 3. Intervention and Activity Table.

Annex 4. Detailed Implementation Plan.

Annex 5. Tabular Performance Report (activity targets).

Annex 6. Travel Plan.

Annex 7. Elaboration on Award Program Description

S34D's **Goal:** Improved functioning of high-impact integrated seed systems through provision of customized services to USAID Missions and their IPs to upgrade seed systems.

S34D's **Vision:** Improved choices for smallholder farmers to access quality seed of modern varieties from pluralistic, functional and sustainable seed systems for better livelihoods and agricultural transformation.

S34D's **Strategy: Integrating seed systems**—linking informal, formal, and emergency seed sectors—to improve farmer choices and offer a portfolio of diversified and improved crops, while increasing the capacity of seed systems actors through collaboration, coordination, policy dialogue and support, and data flow. This integration is achieved through facilitating public-private partnerships, leveraging existing partners' work, and delivery of direct services. S34D will provide specified services to meet USAID's Mission needs that align with the Journey to Self-Reliance (J2SR).

Our model is to provide strategic and catalytic short/medium-term (core-funded) services to meet country plan objectives. These activities, through our extensive menu of services, can be complemented by longer-term Mission funded services.

Seed systems are generally classified into formal and informal systems. While the classifications are somewhat distinct, there are many points of intersection between them, as seed from the formal system regularly moves into the informal system for further multiplication and distribution.

Formal seed system is the system which breeds and produces seed of varieties with traceable genetic parentage, and seed which has been produced to meet legally mandated standards and is labelled as such.

Informal system includes forms of sharing and distributing seed that does not follow legally binding standards and includes farmer-selected and saved seed, and potential seed that is procured in grain markets. Seed often moves from the formal system to the informal system. For example when farmers plant certified legume seed in season 1, they will often replant the harvested grain as seed in season 2 and possibly season 3. In this process, the replanted seed will lose its certified status and is then termed as informal seed. This does not necessarily, imply any loss in quality, especially for self-pollinated crops that stay true to type through production seasons. The informal system incorporates farmer-saved seed, for their own use or to be exchanged with other farmers on a barter or cash basis. These seeds can be local landraces, or they can be modern varieties that are open-pollinated, or even some variant of a modern variety. The informal system also incorporates community-based seed multiplication and distribution, e.g. by community groups, farmer associations, and/or NGOs. Multiplication can include both local varieties and modern OPVs. If community-based seed production incorporates some level of quality control, for example some level of production inspection, it can be regarded as part of the continuum between informal and formal, or semi-formal.






Emergency / Chronic Stress (ECR) seed systems, or humanitarian and relief programming, refers to the distribution mechanism used to deliver seed from either the formal or informal systems to farmers who are suffering from acute shock or chronic poverty. This seed system often involves free distribution of seed, or access to subsidized seed. ECR seed transfers may be done through cash, unconditional vouchers or conditional vouchers. ECR seed transfers often target specific issues such as short duration, climate adapted varieties, pest or disease resistance, or nutrient dense varieties.



1.0 Collaboration and Coordination

Critical to S34D's successful implementation are its shared management and decentralized operational bases, while maintaining a single decision-making center within CRS and its Consortium Partners core team members, as represented by the Chief of Party. Coordination will be insured by the cross-programming between the Formal, Informal and Emergency, Chronic shock and Resilience (ECR) sectors, and through the extended conversations among the sector leaders. These leaders are the Formal Sector lead (the Development Seed Systems Advisor - IFDC), the Informal Sector lead (PABRA Director - CIAT), the Emergency, Chronic shock and Resilience Sector lead (the Emergency and Resilience Seed Systems Advisor - VACANT) and the MEL, Policy and Strategy Sector lead (senior advisor for MEL - CRS).

S34D recognizes the important donor-led investments in the seed sectors in Africa and has already begun expanding on those existing relationships within its Consortium Partners' team, attending regionally recognized and internationally attended seed conferences, and introducing itself to both CRS Country Offices and USAID Missions. S34D will continue to seek opportunities through the Life of Activity (LOA) to build on those donor-funded seed initiatives, as well as on USAID and US OFDA funded activities co-located within target S34D countries of operation that may have a "seed" programming interest to ensure non-duplication of activities, and whenever possible, leveraging of its technical and financial capabilities with those activities to realize synergies of effort and maximized impacts. Among the most immediate donor-funded seed sector programs and activities that S34D will seek engagement are those listed below in partners' matrix.

Table 1: S34D illustrative collaboration with partners.

Partners	IR 1.1	IR 1.2	IR 1.3	IR 2.1	IR 2.2	CC IR 1	CC IR 2
	Formal seed systems	Informal seed systems	ECR seed systems	Linking formal to informal systems	Interface btw dev & and resilient systems	Policy for pluralistic seed systems	Quality information flows for seed systems
<p>Missions</p> 	Support existing portfolios and explore new areas of support through service models	Identify key areas of intervention, as this sector is under-invested and supports non-hybrid crops	Work with missions to support analysis of criteria used for delivery and how to avoid market distortions with free seed	Review full portfolio to gain insights into investments that support and challenge linkage in these systems	Support existing portfolio's and explore new areas of support through service models	Explore options to accelerate ways to improve practices that are supported by Government and private sector	Use existing data from various indexes and ongoing projects to support better sharing of information on seed investments, sales and exchange
	Privatization of EGS. Coordinate to access EGS for maize and beyond; capacity building of NARs	Formalizing informal seed systems in Cassava, Yam, Sweet Potatoes.	Limited options with BMGF but will work to support minimum seed standards with interventions	DNA finger printing for adoption studies;	Free seed distribution – awareness raising	Metrics for seed systems (TASAI, EBA, ASI)	research on varietal adoption; Demand and market forecasting
		QDS implementation	Collaborate on ways to reduce automatic free hand out policies and practices	Platforms and linkages	Supports SSSA and Linking vouchers with seed firms	Evidence – base generation	Collaborative research at the last mile
	Works with formal sector to reach last mile and vulnerable farmers	Diagnostics of informal sector via seed and grain traders; Piloting last mile seed options	SSSAs serve as baseline and action plans. New pre-emptive and response strategies in development	COP serves as platform across systems. Routine discussions of high-profile seed issues	Guidance for tools, resilient responses; Public access to near real-time data.	Use findings from SSSA's to influence key standards in seed provision	
	Testing bundled seed business	Explore ways to support less mature seed sectors, such as		Test last mile options for target crops	Exploring free seed issues and ways to	Regional harmonization efforts	

Partners	IR 1.1	IR 1.2	IR 1.3	IR 2.1	IR 2.2	CC IR 1	CC IR 2
	Formal seed systems	Informal seed systems	ECR seed systems	Linking formal to informal systems	Interface btw dev & and resilient systems	Policy for pluralistic seed systems	Quality information flows for seed systems
	models-insurance	legumes, RTB, fodder, etc.			avoid market distortions		
2SCALE 	Public private partnerships to promote seed supplies; Training to SMEs	Building capacity of informal market entrants such as farmer coops		Linking farmers with micro-credit groups and output traders;			
 and NARS	Coordinate on EGS supply; capacity building of NARS; Training of seed companies. Support improved seed monitoring systems, using digital platforms	EGS for low margin crop seeds, and accelerating varietal turnover	Linking seed of stress tolerant varieties to vulnerable SHF	Works with seed platforms linking formal systems with grain & commodity traders	Focus on climate-smart and nutrient enhanced crops and varieties	DNA Fingerprinting; Generating evidence base	ICT-based novel approaches, such as seed catalogues and seed production and forecasting tools

1.1 Crop Focus

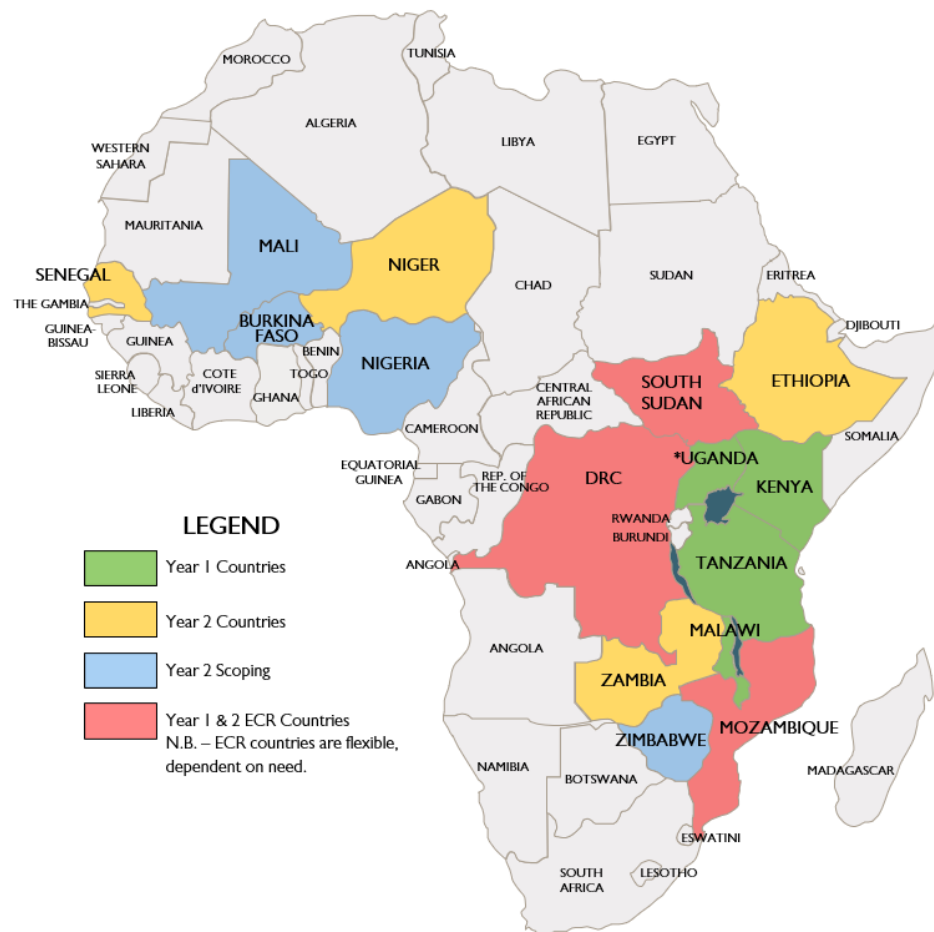
S34D will support maize, but place greater emphasis on the production and marketing of legume seeds and stress tolerant crops that will integrate with cereal systems to improve production, nutrition and income. The longer-term objective is to offer farmers a cropping mix that will enhance soil fertility and water management using rotations, intercropping and cover crops.

1.2 Geography

Following S34D's Annual Work Plan planning sessions, held in Nairobi (Oct. 2018), the S34D consortium selected to initiate work on maize-legume systems with interventions along trade corridors in East and West Africa that link several countries (Figure 5 below). The corridor approach will enable the teams to explore and support both national and regional opportunities and achieve greater sectoral efficiency through policy and practice that work across national boundaries. Activities will start within the East African maize-legume production and marketing corridor, specifically in Uganda, Kenya, Tanzania and Malawi. S34D's ECR focus countries are flexible, depending on disaster; potential year 1 and 2 countries are South Sudan, DRC, Uganda, Mozambique and Nigeria.

Figure 1: S34D planned countries of operation in year 1 and 2.

YEAR 1 & 2 COUNTRIES OF OPERATION



Revised Sept. 3, 2019

1.3 Market Strategies

S34D will work with target EGS producers from public and private sector to identify ways to improve the capacity, reliability and efficiency of upstream interventions, with the aim of improving the supply of foundation seed to seed multipliers at higher volumes at lower cost. This will enable more seed companies and seed producer groups to provide greater volumes of affordable certified seed to downstream last mile end-users – smallholder Farmers (SHFs). This activity will include the design and prototyping of new financial mechanisms to provide farmers with access to production credit opportunities that will strengthen their ability to buy quality seed. S34D will explore methods for linking informal seed actors, (kiosks sellers, farmer-led seed marketing groups, FBO's, etc.) with Formal Sector seed marketing agents to extend the seed marketing frontier. This will include CGIAR training in identification and marketing of quality seed, exploring ways to use technology to build local client networks and accessing capital for investment in key bottlenecks such as local transportation to extend the reach of Formal Sector seed suppliers to last mile end-users.

S34D's mandate also includes interventions that address chronic and emergency sites where seed distributions have become a mainstay of emergency response programming, and to countries and regions that are subject to habitual food assistance programs. S34D's Emergency, Chronic Stress and Resilience (ECR) programming activities will remain responsive to emerging needs within chronic and conflict-impacted countries and regions. It will also engage and build upon a Community of Practice (CoP) that will proactively seek, review and support changes of policy and practices within the institutional seed buying systems that are inherent to many emergency response programming scenarios. S34D will fully engage with partnering research organizations (IFDC and PABRA), extending their technical expertise to the seed value chain. This will include working with national seed agencies and NARS, to strengthen the role of farmers in varietal assessment and generation of data to accelerate the release of new varieties, then building the capacity of seed producer groups to support more localized EGS production. This means more farmers are involved in the assessment of new varieties, that are adapted to their local agronomic and nutrition needs. To achieve this S34D will work with EGS suppliers to generate the data to accelerate the release of new varieties, and then support to farmers to multiply more seed for local sales. This will lead into the multiplication and scaling up of sales of certified seed or other recognized seed classes.

S34D will work with seed production and marketing companies to upgrade their business models, strengthen their business management capacity and with OI support, link target seed companies and agro-dealers to local financial institutions to facilitate access to financing that expands their seed inventories of drought tolerant grains and legume varieties. S34D will start in the bean-legume trade corridor in southwestern Tanzania and northern Malawi, and along the cross-border trading areas between Kenya and Uganda, bringing an integrated effort between CRS, AE, PABRA and IFDC, while leveraging S34D's work with the other major seed initiatives engaged in overlapping geographic spaces. These collaborations will be informed and enriched with market surveys, use of ICT technologies to provide last mile market information to farmers, to support and inform better seed production and market decision-making. Financial services and capital access programming will be supported by OI (and other donor-led capital access initiatives such as Kenya Investment Mechanism/KIM), and seed company business assessments and management support will be conducted by Agri Experience (AE).

1.4 Service Delivery

The S34D activity is designed to provide seed systems services to support Feed the Future target countries and other countries, including emergency locations. S34D will employ a 'light touch' approach in terms of planned interventions in the initial target countries. S34D's plan is to obtain Mission

concurrence and then enter detailed discussions with the Missions to determine how best to align with their ongoing investments. S34D plans to begin implementation with a series of scoping exercises to validate partners, identify critical challenges and gaps, and to identify specific seed services to the Missions. These services will be based on the original 15 intervention areas outlined in the NFO (see annex 1) with adjustments to account for specific contextual situations by country. As the team builds rapport with the Mission teams and their activities, S34D plans to implement a limited number of core funded activities. Although some of the NFO intervention areas are earmarked as ‘Mission funded,’ in its first year of implementation, S34D plans to collect data, conduct studies and desk reviews for those Mission-funded interventions to provide Missions with a menu of seed services and tools as “demand services” for the Mission’s uptake, and to develop additional work through potential buy-ins to the leader award.

S34D’s ECR activities will operate in a slightly different mode, as this work has a more direct route to approval, directly between OFDA and the Missions. The activities will be based on scoping and SSSA studies, meaning the ECR work may proceed quicker. Central and Mission buy-ins to the leader award can support key services to upgrade seed systems within target countries by supporting various activities. S34D will work on efforts that are **directly (D) delivery of a service**, as well as efforts that are **facilitating (F) and providing the groundworks of a service**. The following list is an effort to distinguish between facilitation and direct service delivery. Please note this list is fluid and certain activities could fall under either or both D and F categories.

Key services to upgrade the **formal system** include:

- Characterize and profile formal seed systems actors and customers (F, D);
- Work on a process/model/prototype to improve market forecasting and cost estimation (F);
- Support seed production logistics to broaden crop portfolio (F);
- Develop new market strategies with firms and informal seed system players to extend market frontiers for seed (F);
- Create new financing models to support seed inventory (F);
- Utilize DNA fingerprinting, with PABRA, to assess genetic purity of seeds and planting materials (D);
- Research on farmer adoption of new varieties and constraints to adoption (D);
- Harmonize seed systems to facilitate regional seed harmonization protocols (F), and;
- Develop last mile seed business models to support marginalized communities (F, D).

Key services to upgrade the **informal system** include:

- Develop new business models that accelerate production and delivery of higher QDS (F, D);
- Link Seed producer organizations to agro-dealer networks (F, D);
- Explore options for standard seed (non-hybrid crops) (F);
- Develop new market strategies with informal actors to open new sales points and push out market frontiers (D, F);
- Develop sustainable last mile seed business models to support highly vulnerable communities (F, D);
- Provide post-harvest management and technology solutions (F, D).

Key services to upgrade the **ECR seed system** include:

- Conduct emergency Seed System Security Assessments (SSSA) to identify seed constraints and best response interventions (D);
- Develop tools to determine the effect of market-based humanitarian seed interventions to create linkages between buyers and sellers (D);

- Find effective ways to enable vulnerable farmers to test improved varieties, and track quantities and movement of seeds, such as micro-packs (D);
- Develop sustainable last mile seed business models and distribution networks to support highly vulnerable communities (F, D);
- Analyze cash versus vouchers and practices for implementation (F, D).

Key services to seed **policy services** to meet Missions needs include:

- Support government seed road maps where they do not exist to identify gaps and needs (F, D);
- Generate evidence to influence national decision making and facilitate discussions on issues, such as private sector certifications, counterfeiting, free seed distribution; different aspects of seed quality measures (F, D);
- Focus on seed policies and standards that allow for greater liberalization in seed markets (F);
- Conduct barrier analysis to adoption of seed for new varieties (D);
- Raise global awareness to limit free seed distribution to critical needs (F);
- Support measures to stop practices such as marketing counterfeit seeds (F, D);
- Coordinate with seed indices - e.g. EBA, TASAI, Access to Seeds to benchmark and improve seed systems (D, F).
- Enable seed policy by enriching evidence-base through open digitized information, and enhanced information flows about customer profiles and technology adoption at last miles (D, F).

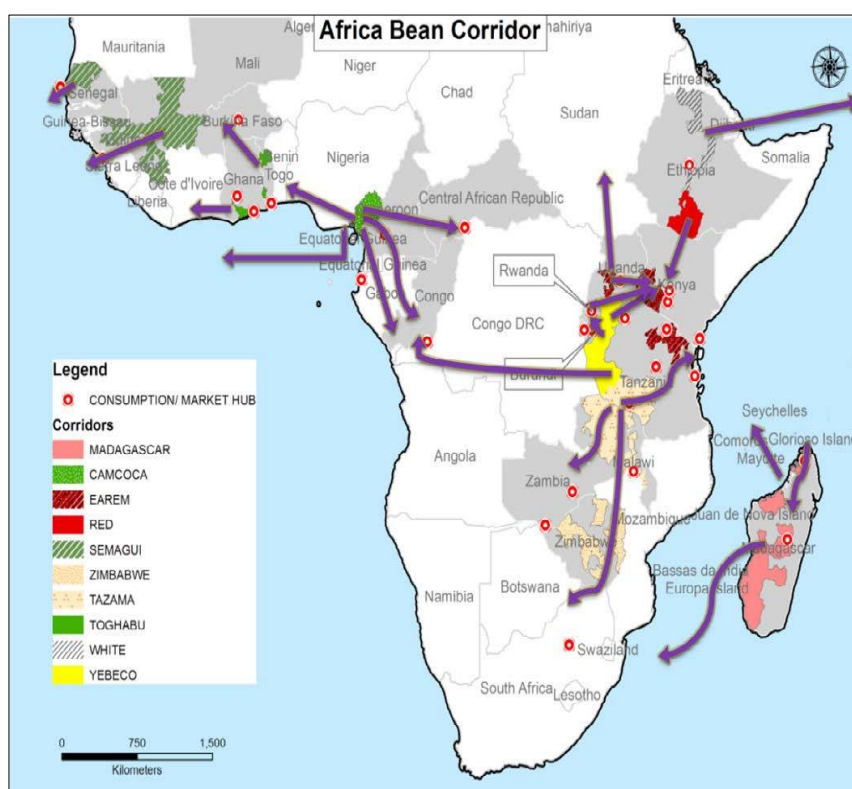
Key services to the **integration of seed systems** include:

- Expand seed systems analysis through a robust learning agenda to identify critical constraints and opportunities between formal and informal sectors (D);
- Support institutional and public policy through digitized public information and supportive evidence-base (F);
- Develop ways to gather information on seed requirements across systems, to support improved market forecasting and avoid market distortions (F);
- Strengthen interface and collaboration between development and relief to resilient seed systems (D);
- Develop and promote emergency and humanitarian responses that link relief to development (D);
- Test new business models that support improved flow of quality seed across seed systems (D, F);
- Drive an evidence-based, inclusive learning agenda that explores innovative questions about various aspects of different seed systems and their integration (D).

1.5 Working in Trade Corridors

The S34D team is keen to explore both national and regional seed systems, given that seed and crop markets are not bound by national borders. The approach aims to build on inter- and intra-country-specific investment portfolios to reach greater numbers of men and women farmers. This work will build on existing gains in formal systems, forge stronger links to informal market channels and find ways to enable informal actors to offer a broader portfolio of quality seed. S34D's initial analysis proposes to start a trade corridor focus in East and West Africa (see Figure 6). The East Africa corridor will support **Kenya, Uganda, Tanzania, Malawi (year 1 priority countries), Ethiopia** and Zambia (year 2 countries). The West Africa corridor consists of Senegal, Mali, Niger, Burkina Faso and Nigeria. Target countries in Asia might be Nepal and Bangladesh in subsequent years.

Figure 2: S34D will operate in established trade corridors in East Africa.



In Year 2, S34D will continue scoping and engaging with Senegal, Niger, Ethiopia and Zambia. Country engagement justification is discussed in section 1.8. The corridor approach provides the S34D team with opportunities to pilot and scale models across agro-ecologies and explore opportunities to support trade between countries, allowing farmers in one country to benefit from quality seeds of new varieties produced in another country. Additionally, the corridor approach, along with ‘diversified products,’ is being increasingly utilized by Feed the Future at both the country and regional levels, in recognition that smallholder farmers must grow and sell a more diverse range of crops as part of their livelihood strategy. S34D will support the farm level to market shed approach. Positive spill-over effects will be examined in the gender inclusive learning agenda for replication by other implementing partners.

S34D will continue to work in target countries based on discussions with USAID Missions and partners. The team recognizes that the success of the program is based on support through the Missions and working on methods and tools that can be developed in one country, but have applicability in other countries. Cross border trade is particularly important in the seed sector, as this allows for greater regional efficiency in terms of certification; and, perhaps more importantly, regional trade agreements for seed provide the basis for greater phyto-security which is another rapidly emerging area of concern.

1.6 Sectoral Integration

S34D is designed to look at the interfaces among seed systems (formal, informal, emergency) and to push each system to reach wider—to more crops, more geographies, a greater range of clientele—and include a broader set of seed system goals (towards resilience and nutrition, as well as enhanced production and income generation). Several basic observations on the interfaces might be warranted (although the points may be obvious):

1. *Each thrust (formal, informal, ECR) encompasses multiple systems.*

2. *Specific and deliberate activities are programmed across thrusts, even for year 1.*
3. *The ECR and Policy components – at their core – span all systems.*

1. Each thrust (formal, informal, ECR) encompasses multiple systems.

For ease of presentation, and clarity of activity plan per partner, the thrusts are listed as distinct sections in the project text and in accompanying workplan tables. However, the working reality means that each of these sectors is interlinked. The formal sector workplan moves well beyond strictly formal systems, on both the production and delivery sides. For instance, catalyzing quality declared seed systems is central as is delivery (sale) through normal kiosk stores, via mobile satellite vans and through rural based agents (CRS-PASPs, Kuza). The strategies to extend the market frontier of formal seed will be achieved through engaging the informal systems whose base is the community and not the traditional formal sector supply. The classic formal sector work is found in the 'formal thrust' and is housed in 1.1.1 on strengthening seed company efficiency. Yet even here, the seed company training will cross-cut the 'informal thrust,' as this work will also focus on a range of legumes (which are nominally housed in the informal integrated work).

Similarly, what is labeled the informal thrust encompasses significant activities of formal sector systems: broadening supply of certified seed production, sale in agro-dealer shops, supporting bundled services and stimulating formal distributor networks to sell high quality legumes to a greater range of customers (including vulnerable groups). Therefore, these current formal and informal thrusts already cross boundaries and seed systems.

2. Specific and deliberate activities are programmed across thrusts in year 1.

There are a range of specific activities which are programmed deliberately to integrate systems:

- Seed company efficiency training - across various crops
- Characterizing the corridors (with focus first on beans, groundnuts and scoping on cowpeas)
- Forecasting seed supply - formal, informal
- Testing bundled options (now housed in informal thrust)
- Using varied ICT enabled last mile business models to access new customers and their feedback
- Developing and promoting demand aggregator tools
- Platform building, e.g. first in Uganda and Tanzania and including a farmer cooperative focus

3. The ECR and Policy components at their core span all systems.

The ECR work has to draw on both formal and informal systems to achieve the impacts aspired in year 1. Explicit and novel formal sector ties are analyzing and setting guides with the formal sector in emergency seed relief (both seed companies and public research sector) by exploring cash options in emergency especially on the supply side; and, evaluating emergency response options which tie directly to private sector providers (e.g. DiNERS). The major informal-linked sector focus for year 1 is on the seed and grain traders (also in informal sector), synthesizing what S34D knows (8+ countries) and then practically exploring how they operate in the S34D foci corridors.

S34D policy work has two distinct thrusts and one of S34D's core aims is to push the seed sector boundaries towards more integrated systems and opening seed marketing venues and seed marketing agents. These new market options will crosscut the formal, informal and emergency seed sectors. Other key objectives are stopping counterfeiting of maize, legumes and other crops (so straddling S34D formal and informal thrusts) and halting or finetuning free seed.

The lion's share of S34D work is internally integrated in each thrust or programmed directly across thrusts. The notion of 'silos' is basically a product of activity presentation on paper only and for partner activity clarity (including budget clarity). S34D's work plans to be fully integrated and this underscores the initial geographic selection to initiate and integrate activities from the outset. S34D will discuss this integrated strategy with the Missions in May to capture their enthusiasm to consider a more integrated analysis and response to seed systems rather than considering them separately.

1.7 Core Funds & Longer-term Interventions

In year 1, S34D plans to establish a series of activities in target countries which were identified in an initial gap analysis. This work will leverage ongoing work by consortium members, partners, and support intensive work on seed systems by USAID Missions, other private sector actors and governments. The learning from these initial activities in a 'live lab' will help the team learn more about promising new tools that link formal and informal seed systems, and explore new business models and methods to expand last mile delivery of seed to farmers who are currently unable to access quality seed. This work will explore various partnership options with partners in government, other projects and private sector and the learnings from these activities, which may run for two to three seasons (1-2 years) and will offer lessons and results that can be shared globally and integrated into other activities with other Missions. S34D will have a limited number of longer-term activities in a specific corridor, alongside Mission initiated services, which will help support regional learning and identify methods that will have global application.

Examples of initial activities that lead to longer-term sustainability

The planned activities include several examples where S34D will test a promising new approach and build on lessons learned. For each of these strategies, S34D leverages existing corridors and platforms to link up formal, informal and ECR sector partners. This work is likely to take 2-3 years of investment to demonstrate concrete results. However, as these activities are developed, the lessons being learned will be used in other locations and as new models emerge, they can be applied to many other countries. These examples of work meet existing gaps that have been highlighted in the extensive literature on improving seed systems in East Africa. This work will support ongoing initiatives supported by the Missions and will also align with other key actors, such as PIATA, in developing more scalable and sustainable seed methods. The examples cover the following areas:

1. **Building the business capacity of target seed companies:** this work will be carried out with a select number of leading seed firms, to expand the market frontier for their seed sales and find ways to profitably diversify their crop portfolio using a territorial marketing strategy. The work will not only develop training materials, but will also develop a fee for service training program that will be delivered by third party organizations to support future engagement with the seed companies and provide mentoring for learning about and implementing more targeted marketing approaches. Demand for this type of capacity building would target the more progressive seed companies.
2. **Upgrading informal seed sales:** this work will engage in regional value chains to show how a market-based approach to a crop can be upgraded across the input to output market system within and across countries. The work will emphasize strengthening informal actors, who manage the legume seed system, and supporting new methods to improve access to seed by using less costly seed class

options such as standard seed or QDS systems¹³. Furthermore, business models under PABRA (such as the niche-market model) expand market frontiers of seed sales by both actors and venues, thus validating expansion of varietal adoption at the last mile.

3. **Last mile delivery seed models:** the S34D team will test a range of business models to develop commercially viable last mile seed delivery methods using fee-for-service agents and youth agripreneurs. It will also explore ways to accelerate the scaling strategies with digital technologies that will support links between formal and informal sectors and, potentially, these methods will also provide new options in ECR sales points. The methods will be pilot tested for two years and successful components will be linked into ongoing projects and scaled in target countries in years 3-5 with both core and Mission funds.
4. **Global Goods:** there are several global goods that are articulated and produced as outputs under both the ECR component, as well as the Policy component. For example, raising awareness about free-seed distribution; development of joint standards for SSSAs; reviewing formal and private sector links to emergency interventions; global review of seed policies and standards; generating learning and practical evidence on implementation of seed quality standards (standard seed in Kenya) – to name a few. These global goods, just like business models, can be adapted and contextualized to meet needs and fill in gaps in other geographies where seed systems are a factor for agricultural transformation.

To support scaling and sustainability, S34D will expand the learning from pilot projects and replicate successful methods in year two and work with partners to adopt new methods in other locations, where similar opportunities arise. S34D will also collaborate with partners' projects and networks to scale promising methods.

1.8 Mission Engagement

S34D is committed to establishing strong relationships with the country Missions and finding ways of providing them with updates on findings from implemented seed work, and developing ways to meet the seed development needs of the Missions for formal, informal, emergency and policy seed services. S34D will discuss with each Mission successful methods to identify ways of building and scaling ideas into new projects and, where possible, work to identify either buy-ins or Associate Awards that will further sustain more promising activities and outcomes.

As indicated in the cooperative agreement, the activity will initiate work along crop corridors in sub-Saharan Africa. S34D's initial analysis proposes a trade corridor starting with the Missions of Kenya, Uganda, Tanzania and Malawi in East Africa. Specific investments will be made based on Mission interest in Asia, West Africa and Latin America in subsequent years. Strategic and catalytic core-funded initial seed work aims to develop proof-of-concepts, technologies, tools, innovative business models, and with

¹³ Standard seed and Quality Declared Seed (QDS) are both formal classes of seed, that are recognized in Government Seed Policies, but these classes have lower levels of inspection, less rigorous seed specifications and are therefore less costly to produce than certified seed. Both QDS and standard seed are produced from authentic foundation seed, but are designated as a lower quality seed than certified seed. QDS is a seed class that was developed by FAO, to support farmer led seed production in resource poor situations. Sales of QDS are generally restricted to local areas, e.g. within a district or region and are not sold nationally. Standard seed, is a seed class is designed more for use by seed companies. The aim however is similar to QDS, in that these seed are subject to less intensive inspection and less rigorous minimum specifications, but in the case of standard seed can be sold nationally. This seed class reduces costs of production for seed companies and enables them to offer a broader range of crops and varieties, without incurring the full costs of certified seed.

Mission buy-ins and Associate Awards S34D will work with Missions, seed actors and Implementing Partners to scale-up proven seed models with to serve smallholders with improved access to quality seeds of a variety of crops.

S34D will initiate activity execution upon receiving concurrence from the USAID Missions, with a set of 'light' touch centrally funded activities that will explore the seed status in the target countries, and test some promising seed interventions. In consultation with the Missions, S34D will initiate work that addresses the "seed gap areas" identified by previous studies in the regions and engage in deeper conversations with the Mission, seed actors and in-country Implementing Partners to develop and refine a seed menu-option of services. The target Missions to engage are listed below, and the selection was based on the following set of criteria:

- Geographically located in crop corridor countries;
- Has three types of seed systems and/or policy activities;
- Supports a range of nutritious, high value and resilient crops;
- S34D consortium partners have a relative comparative advantage in those countries;
- Other seed system programs being implemented so collaboration, coordination, and co-location of activities is possible;

With these criteria, S34D has selected first, second- and third-year countries, as well as potential emergency seed response countries.

List of countries

In year 1, the activity plans to start centrally funded operations with Missions in Uganda, Kenya, Tanzania, and Malawi to support the maize-legumes corridor (see Table 2). In West Africa, in year two, the activity will work in the maize-cow-pea corridor, starting in Niger and Senegal and expand the East Africa corridor to Ethiopia and Zambia. In year three, the activity anticipates expanding to more countries in West Africa and East Africa, and potentially in Central America and Asia.

Table 2: Initial list of target Missions and justification for engagement.

Country	Region	FEED THE FUTURE	FFP	PIATA	ECR	Justification for engagement
First phase countries Year 1						
Kenya	East Africa	x	x	x		Target initial countries, within East Africa bean trade corridor. Selected to leverage partner projects and where there are all three seed systems in operation. Site represents live lab to build on existing work, extend the market frontier for formal and informal seeds, test new business models and last mile strategies.
Malawi	East Africa		x	x		
Tanzania	East Africa		x	x		
Uganda	East Africa	x	x	x	x	
Emergency / Chronic Stress Year 1						
Guatemala	Central America	x	x		x	Cash v Vouchers analysis
Mozambique*	East Africa		x	x	x	Possible interventions post Cyclone Idai
Next phase countries Year 2						
Senegal	West Africa	x	x			Partners active and strong history in testing new seed mechanisms
Zambia	East and Southern Africa					Linkage to the maize-bean corridor, using digital seed certification systems, that could help to integrate regional catalogue
Niger	West Africa	x	x		x	Scoping studies build on IFDC operations
Ethiopia	East Africa	x	x	x	x	Build on extensive partner projects
Emergency / Chronic Stress Year 2						
Nigeria	West Africa	x	x	x	x	SSSA in North East

Country	Region	FEED THE FUTURE	FFP	PIATA	ECR	Justification for engagement
Uganda	East Africa	x	x	x	x	SSSA in North Uganda (Refugees SS)
South Sudan	East Africa		x		x	Support to USAID seed distribution
DRC (Kivu)	Central Africa		x		x	Support on DFSA operations and World Bank interest in seed vouchers
Scoping phase countries Year 2						
Burkina Faso	West Africa		x	x		Links to ongoing projects and interest in Sahelian cropping systems with seed options via private sector and possible links to fodder
Mali	West Africa	x	x	x		Links between formal and emergency seed production, sales and distribution
Zimbabwe	Southern Africa					Support to Farmers interested in fodder crop seed and associated seed systems, to enable farmers to improve their feed systems and feed lots.
Nigeria	West Africa	x	x	x	x	Keen interest in RTB seed systems
Potential next phase countries Asia Year 3						
Bangladesh	Asia	x	x			Prospects to support climate smart crops, particularly drought and flood tolerant rice
Myanmar	Asia		x			Rapid activity development, seeds will be a critical part of the new portfolio
Nepal	Asia	x	x			Interest in diversification beyond rice, strong potato
India	Asia	x				Interest in rice, wheat, potato and maize. Possible linkage with Syngenta foundation
Potential next phase countries West and East Africa Year 3-4						
Ghana	West Africa	x		x		Mission shown interest in learning more
Sierra Leone	West Africa		x			Mission shown interest in learning more
Rwanda	East Africa		x	x		Following up with partners
Somalia	East Africa		x		x	Following up with partners

The activity is forming a menu of seed methods and tools as demand services for Missions' uptake. These services will be contextualized and largely driven by lessons learned. This menu will be presented to and discussed with Missions to highlight how these S34D services could fill gaps and provide expertise that aligns with Mission strategies. Central and Mission buy-ins to the leader award could support key services to upgrade the seed systems within target countries by supporting the activities listed under 1.5 Service delivery.

Steps of engagement

The S34D Mission engagement approach seeks to work with the USAID Missions to gather information on their interests and needs for upgrading and strengthening seed systems. As part of this process, S34D will also maintain close dialogue with the activity's AOR and provide justification to USAID/BFS and OFDA in Washington for planned Mission engagement, as shown in the hierarchy design below.



S34D's initial Mission engagement strategy has five parts: Concurrence, Buy-ins and Associate Awards, Planning, Implementation, and Communication.

Concurrence

The S34D team developed the Mission engagement approach taking into consideration parts of the USAID guidelines.¹⁴ When S34D team members meet people informally at meetings, events, etc., S34D will inform the AOR, who may follow up by providing important background on the activity. Through formal engagements, S34D will work with the AOR, and the COP will request the AOR's support to make initial contact with the Mission. S34D will work through CRS' country program and partners' relationship with the USAID Missions to gauge initial interest in S34D's services. After this initial interest, the AOR could introduce S34D formally to the Mission. S34D will then share potential centrally funded activities with the Mission for their feedback. After the Mission has expressed interest in S34D's centrally funded activities the AOR can assist S34D in establishing a point of contact (POC) with the Mission.

Moreover, after a POC has been established, the COP will follow up with the POC and provide detailed S34D activity information, such as table of proposed work plan activities, factsheet, S34D PowerPoint and country profile. S34D will create room for the Mission to provide feedback on the documents shared, which can be a technical meeting in-country or a remote conference call. The COP, S34D consortium partners or CRS (country program) will set up a meeting with the POC to discuss S34D work plan activities and answer any S34D questions the Mission may have. When the Mission would like to proceed with concurrence, the AOR will send the Mission Concurrence Request (MCR) to the Mission. The POC shepherds the MCR through the internal Mission clearance process. The approved MCR will be sent from the Mission to the AOR who will share with the S34D COP any Mission-specific implementation demands (these demands are most often centered around communication from the project to the Mission and various Mission approval requirements). Before moving forward, S34D will adjust the plans and also gauge the Mission's potential interest for buy ins and Associate Awards that will support the sustainability of S34D activities.

Buy-ins and Associate Award

Once formally introduced and a Mission POC established, S34D will set up a technical meeting with the POC and Mission technical staff to discuss in greater detail potential S34D Mission-funded activities. The meeting may last 30-60 minutes. The COP will inform USAID Washington, S34D consortium partners and CRS Country Programs about technical meetings with the Mission. The technical meetings will provide an opportunity to socialize S34D goals and provide an outline of the menu of services and methods that S34D can provide across the seed systems, as well as provide the Mission with an update on centrally funded activities. Prior to the meeting, the S34D team will undertake a robust analysis of the existing seed systems situation within a country, potentially through a country visit, and will consult with local partners to review country specific documentation. These documents may include the host government

¹⁴ Mission Engagement Playbook, June 2018

(ag) development strategy, USAID's Country Development Cooperation Strategy, USAID's GFSS Country Strategy, USAID and other implementing partners' activity portfolios, the status of private sector and how S34D complements, differentiates or accelerates existing investments, such as AGRA's PIATA. During the technical meeting, S34D would like to meet with other Implementing Partners and seed actors, and draft a timetable to outline the activity's engagement with the Mission and planning of the strategy meeting. The COP will share the timetable and technical meeting minutes with S34D's AOR.

Based on positive feedback from the Mission, S34D may seek a more detailed implementation meeting with the Mission (1-2 hours), Implementing Partners and other seed actors to discuss proposed activities and elaborate on partner roles and how S34D's services are valuable to USAID's agricultural investment portfolio and development objectives. The objective of this meeting, unless clarified previously, will be to identify and agree on the gaps in seed programming and intervention points that align S34D's program description and results framework. S34D will then identify and recruit relevant seed actors and together draft a concept note to present to the Mission for feedback.

With Mission input, S34D will link its (proposed) activities with the gaps identified and refine the concept note that complements the GFSS Country Plan and additional country specific development plans. This concept note will include activities, budget and justification of how S34D contributes to the USAID Mission objectives and complements other seed investments in the country. The Mission's potential for buy-in to the Leader Award's country specific activities and potential for an Associate Award may be included in the plan. The COP or POC will share this plan with the AOR for feedback from USAID Washington. S34D will include the activities from the Concept Note in S34D's AWP under Mission funded activities. While continuing to implement the centrally funded activities in country, S34D will refine the Mission buy-in activities based upon new information and Mission's feedback. If Missions are interested in buy-ins, but not necessarily in core-funded activities, S34D will engage with the Mission to develop ideas and concepts for the buy-ins with Implementing Partners and other seed actors, while keeping USAID Washington informed during this process. With the AOR's consent, S34D could assist the Mission in designing the buy-in.

ECR-only work in OFDA countries

The ECR work for year 1 will concentrate mainly on the following: a) global products, for which concurrence is not required; b) selected work in the core S34D countries, for which concurrence was obtained; and, c) a single case in Guatemala, which involved a chronic, not acute stress—and for which discussions with the Mission are ongoing. There has not been a case tested yet for ECR only work in OFDA countries or ECR work for which a rapid action plan might be needed. From the perspective of S34D (for the process for ECR-only work in OFDA countries), both BFS and OFDA must be centrally involved in deciding who needs to be informed and when. Coordination with USAID OFDA is key to make some of the preliminary introductions, if engaging with DART, etc., but also other on-the-ground responders.

Planning

S34D has received concurrence from four Missions – Kenya, Uganda, Tanzania and Malawi. Below is a preliminary timetable for the short-term Mission engagement. The engagement with the Missions, status of concurrence and planned meetings are listed below.

Table 3: S34D's Mission concurrence status by country.

	Initial meeting	Concurrence	Technical meeting	Strategy meeting
Kenya	November 2018	Completed in May	May 21	June-July
Uganda	February 2019	Completed in April	May 23	June-July
Tanzania	Pending	Completed in April	May 22	June-July
Malawi	February 2019	Completed in March	May 28	June-July
Niger	June 2019	TBD	TBD	TBD
Zambia	July 2019	TBD	TBD	TBD
Ethiopia	August 2019	TBD	TBD	TBD
Senegal	August 2019	TBD	TBD	TBD

While engaging with Missions, S34D was asked by USAID Mission staff about the differences between the AGRA's PIATA project and S34D. Some key differences between PIATA and S34D are listed in below table.

Table 4: Differences between AGRA's PIATA and S34D.

AGRA	S34D
AGRA is mainly working on formal seed	Working on Formal, Informal
AGRA is not working in emergency / chronic stress	Working on Emergency seed, chronic stress
Single system approach	Looking at how the three seed systems work together
Focus on limited number of crops, bias towards maize	Working on extending efforts for seed in a range of crops

In addition to the differences, S34D is also complementing PIATA. The complementarity options are listed in the table below.

Table 5: S34D alignment and complementarity to AGRA's PIATA.

AGRA Seed Systems Strategic Intervention Areas	Alignment and complementarity with S34D
Improved seed policies at national and regional levels	<ul style="list-style-type: none"> • Socialize national seed road maps and associated discussions and findings on exactly how to link with AGRA in specific countries. • Provide feedback on implementation of regional harmonization at national levels to fill in knowledge gaps on implementation.
Early Generation Seed Supply	<ul style="list-style-type: none"> • Link S34D Seed producers to the AGRA seed companies to access good quality starting planting material. • Link up with AGRA efforts so S34D partners and seed producer groups have better access to EGS for a variety of crops.
Expanding certified seed markets	<ul style="list-style-type: none"> • Link up with willing and able AGRA seed companies to establish, scale last mile efforts under S34D activity. • Link up with AGRA private seed companies to access quality seeds. Coordinate S34D relief-to-development efforts
Increased awareness among local farmers	<ul style="list-style-type: none"> • Fill in gaps with studies and lessons learnt using data gathered using PoS applications • Expand and accelerate AGRA's efforts of linking seed producer groups with local grain traders and other output market nodes.
Increasing the density and sustainability of agro-dealer networks in key agro-ecologies	<ul style="list-style-type: none"> • Best to not duplicate agro-dealer support but accelerate and expand in different territories. • Share findings from learning studies to understand customer segments served by the agro-dealers, as well as customer preferences especially smallholders.

Communication

The COP will inform the AOR about the initial contact, progress on discussions with Missions, and shall share all documents in the process and from the technical and strategy meetings and copy AOR in communication with the Missions. Suggestions or input provided by the AOR and the Missions shall be promptly included in S34D's engagement approach. Resources will be set aside to do both desktop research and intelligence gathering, as well as for in-country technical and strategy visits by S34D.

---- End of FY20 AWP ----