Project Brief

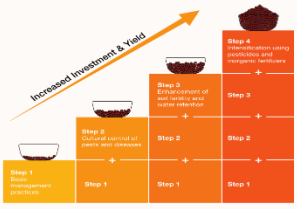
Climate Smart Agriculture Technology Scaling Project

Introduction

Maize, beans, and coffee are among the six key commodities prioritized by the Uganda Government (GoU) National Development Plan III (NDPIII) for value addition for increased household incomes, export earnings, and import substitution. However, current crop production levels do not match the standard yield levels. Coffee yields stand at 700 kg ha-1yr-1, which is far below the potential 3.5t ha-1 yr-1 estimated by the Uganda Coffee Development Authority (UCDA) for Robusta coffee. Similarly, maize yields are at 1.6 tons, compared to the potential 5 tons per hectare. Beans are at less than a ton, compared to the potential 3 tons per hectare.

The International Institute of Tropical Agriculture (IITA) and National Agricultural Research Organization (NARO) are at the forefront of research on climate smart agriculture (CSA). Together, the partners are promoting increased smallholder farmer adoption of CSA to build resilience and increase smallholder farmer livelihoods in Uganda.

Since 2013, IITA and NARO with support from USAID and other development partners supported the co-design and testing of various technologies to enhance smallholder farmer climate resilience and livelihoods, while promoting private sector investment in Climate Smart Agriculture (CSA) in the longer-term



Project Focus

The project will take a market-based approach to the adoption of the successful technologies, ensuring that these are embedded into existing government and private sector extension systems for national scaling. The transition to scaling will see the transfer of the knowledge and skills to government and private sector extension workers, smallholder farmers, and other key stakeholders at the district levels to ensure sustainable production, enhanced climate change resilience, and improved livelihoods beyond the project lifecycle. Dialogue at a national level will enable sharing of learning and advocate for policy adaptation to provide the long-term framework and investment in continued scaling and ensuring market linkages for exports. The learning and knowledge generated from this project will be presented to a broad spectrum of the regional and global partners engaging in agricultural sustainability dialogue and resourcing for the future.

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Technologies to Scale

Stepwise Approach

offers smallholder farmers a stepped approach to investing in their coffee - building on sets of affordable management practices that offer incremental increases in yields and income (https://www.iita.org/wp-content/uploads/2019/10/Final_Brief_StepwiseApproach_21022019.pdf) The Stepwise approach has so far been tested in both Arabica and Robusta coffee-growing areas of Mount Elgon and Central Uganda respectively with positive results.

Stepwise Smartphone Application

an extension worker and farmer support tool that offers the user a guided walk through of the different steps, providing practical recommendations on good agricultural practices (GAPs) and CSA practices https://www.iita.org/wp-content/uploads/2019/10/Final_Brief_StepwiseSmartphoneApplication_190303.pdf

Shade Tree Advice Smartphone Application

offers farmers recommendations of appropriate shade trees to grow in coffee

Seasonal Characteristics Tool

which works on a computer and mobile platform and targets extension workers and farmers directly with early warning weather messages and Uganda National Meteorological Authority (UNMA) seasonal forecasts (which are regularly updated).

Black Coffee Twig Borer Trap

captures both Black Coffee Twig Borer (BCTB) and Coffee Berry Borer (CBB)- two of the most prevalent pests coffee farmers are grappling with.

Early Maturing, Pest and Disease Tolerant Maize and Beans Varieties

The National Agricultural Research Laboratories (NARL) developed early maturing, pest, and disease tolerant varieties – (Beans - NABE 15, NABE 16, and Maize – LONGE 5, LONGE 7H, LONGE 10H, LONGE 11H). These have also been found to lead to yield increases within a range of 75%.

New Robusta Coffee Wilt Disease-Resistant (CWD-r)

These varieties resist Coffee Leaf Rust and Red Blister. New varieties also offer increased percentage of screen 18 beans and good cup quality, thus contributing to improved coffee quality for exports.

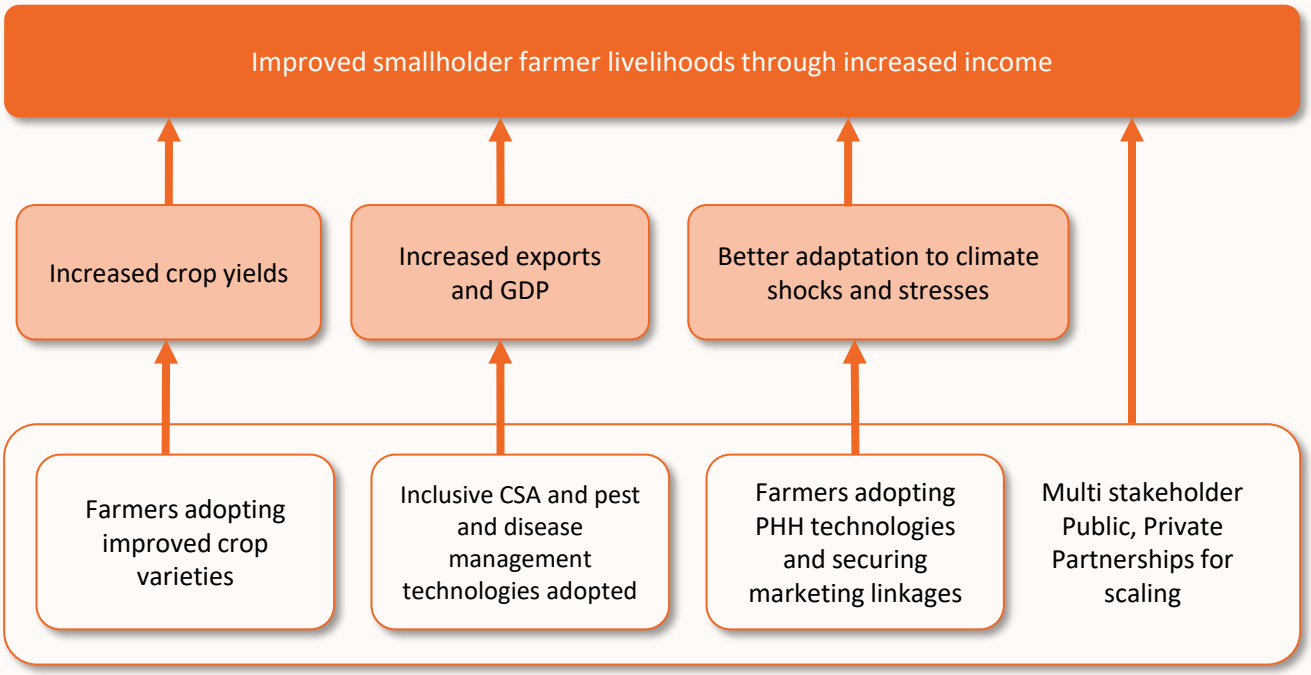
Solar Dryers, Wash Stations and Crib Drying and Storage Facilities

These are post-harvest handling (PHH) technologies for maize, beans and coffee and have registered a positive impact on quality enhancement and reduction in post-harvest losses. These technologies are easily adopted by smallholder farmers and have proven to minimize post-harvest losses and enable farmers to safely store produce during plentiful times to sell off at higher market prices. Proper storage also gives farmers increased household food and nutrition security during periods of drought and scarcity of food.

Improved Banana Varieties

These will be multiplied offering high yielding and resistance to Black Sigatoka disease and the banana weevil

Theory of Change



Results Area/ Outputs

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Public-Private Partnership

Public and private sector (PPP) collaboration has been strengthened in the agricultural sector with USAID support and the creation of an enabling environment for agricultural extension provision in Uganda. Regular PPP platform engagement contributes to increased harmonized decision making at both the national and district levels. Collaboration with private sector impact partners contributed to success of the CSA technologies being scaled under this project. For instance, in the case of the coffee technologies, IITA and the National Coffee and Cocoa Research Institute, worked closely with Olam and Hans Neumann Stiftung (HRNS) in south western and central Uganda respectively in the testing of the Stepwise approach – a climate-smart investment pathway for smallholder coffee farmers (Final_Brief_StepwiseApproach_21022019.pdf).

Application of the Stepwise approach was seen to increase coffee yields in Mount Elgon by more than 70% when implemented fully, and in central Uganda, almost 60% increased adoption of good agricultural and climate-smart practices were observed. The success of the Stepwise approach in Mount Elgon led to Olam's further commitment to expanding CSA technologies across its business systems and is positively changing the way it works with its farmers. On a National level, in collaboration with government partners, Stepwise is a recommended approach towards achieving the Uganda Presidential roadmap towards 20 million bags by 2025.

At a global level, Stepwise is incorporated into the coffee and climate and climate toolbox (https://coffeeandclimate.org/toolbox/) an online platform established to tackle the impact of climate change on coffee.

Through continued collaboration with a broad section of stakeholders, including the Ministry of Agriculture, Fisheries and Animal Husbandry (MAAIF) the CSA Technology Scaling Project will ensure adoption of all seven of the CSA technologies into National extension policies and plans, District level by-laws, and private sector extension systems. Harmonization of efforts will allow for more efficient leveraging of resources and commitment to sustainable scaling beyond the project. With a focus on behavioral change message development and communications this result area will demonstrate key behavioral change at the household level in commitment to sustainable good agricultural and climate-smart practices.

Implementing Partner	Technology to scale	Districts
IITA International Institute of Tropical Agriculture	1. The Stepwise Approach 2. Stepwise smartphone Application 3. Shade Tree Advice Smartphone Application	Luweero, Oyam, Apac, Sironko, Manafwa, Bundibugyo, Isingiro, Bushenyi
NaCORI National Coffee Research Institute	1. New Robusta Coffee Wilt Disease-Resistant (CWD-r) varieties resist Coffee Leaf Rust and Red Blister. 2. Black Coffee Twig Borer Trap 3. New Robusta Coffee Wilt Disease-	Nakasongola, Nwoya, Amuru, Mbale, Luuka, Abim, Moroto, Nakapiripirit, Kisoro, Ntungamo, Kasese,
NARL National Agricultural Research Laboratories	1. Seasonal characteristics tool 2. Early maturing, pest and disease tolerant maize and beans varieties 3. Solar dryers 4. Wash stations	Nakaseke, Gulu, Lira, Kamwenge, Iganga, Rakai, Kabarole

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Part of the USAID Enhancing Resilience and Adaptive Agriculture Livelihoods in Uganda