DFID FoodTrade East and Southern Africa Evaluation Management Unit

Case Evaluation Synthesis Report

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Results in development

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List of acronyms

B2B	Business-to-business
BCURE	Building Capacity to Use Research Evidence Programme
BEST-EAC	Beans Enterprises and Structured Trade in East Africa Community
CF	Challenge Fund
CToC	Common Theory of Change
DF	Development Fund
DFID	Department for International Development
DiD	difference-in-difference
EAC	East African Community
EAGC	Eastern Africa Grain Council
EMU	Evaluation Management Unit
EQ	evaluation question
FGD	focus group discussion
FTESA	FoodTrade East and Southern Africa
G&S	grades and standards
GAP	good agricultural practices
G-Soko	Grain *soko* (market)
GToC	Grant Theory of Change
ICMO	Intervention-Context-Mechanism-Outcome
KSh	Kenyan shillings
KII	key informant interview
MRM	Monitoring and Results Measurement
MT	metric tonne
MTE	mid-term evaluation
NGO	non-governmental organisation
PHH	post-harvest handling
PHL	post-harvest loss
PMU	Programme Management Unit
QDS	quality-declared seed
REACTS	Regional East African Community Trade in Staples
SACCO	Savings and Credit Cooperative Organisation
SHF	smallholder farmer
STS	structured trading system
ToC	Theory of Change
TSh	Tanzanian shillings
USh	Uganda shillings
VAC	village aggregation centre
W4P	Warehouse for the Poor
WAFM	West Africa Food Markets Programme
WFP	World Food Programme
WRS	warehouse receipt system

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Executive summary

This report presents the synthesis of the endline qualitative case studies and quantitative surveys and forms a major part of the overall final evaluation of Food Trade East and Southern Africa (FTESA). FTESA was a five-year trade (2013–18) enhancement and promotion programme funded by DFID (£35 million) to support food staples market development and tackle market failures. It covered mainly five countries (Kenya, Tanzania, Uganda, Rwanda and Zambia) although it originally planned to operate in nine countries (Burundi, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe). It focused on staple food crops, especially maize, rice and beans (including soya).

The final evaluation is summative, following a theory-based approach that allows for multiple lines of enquiry. It focuses on assessing programme results (accountability) and generating lessons, exploring what change materialised, the extent of that change and FTESA's contribution, and how and why, for whom and in what circumstances. Six qualitative case studies and two quantitative surveys feed into the synthesis. The fieldwork for both the case studies and the surveys focused at the farmer level. The case studies and quantitative surveys cover grants to the following organisations:

Grantees	Country coverage	Fieldwork	Case study	Survey
Eastern Africa Grain Council (EAGC)	Kenya, Tanzania and Uganda	Kenya	x	
Joseph Initiative	Uganda	Uganda	x	x
Kaderes Peasant Development	Tanzania	Tanzania	x	x
Kilimo Trust	Kenya, Rwanda, Tanzania and Uganda	Kenya	x	
Mount Meru Millers	Tanzania, Zambia	Tanzania	x	
Virtual City	Kenya	Kenya	x	

Main findings and conclusions

To what extent have improved trade support systems increased production and trade (EQ3)?

Overall, evidence due to FTESA-led improvements in trade support systems shows mixed success, partly due to delays in implementation including where some interventions are reliant on the completion of other activities (e.g. a WRS requires the warehouse to be in place to the required standards), and short timeframes for results to transpire. There was some good progress and achievements on activities that set the foundations for improvements in trade support systems. Despite differences in context and implementation models, some of the grants helped farmers reduce post-harvest losses, increase volumes and quality of produce stored and aggregated, as well as improving farmers' position in the market, but the results fall short of expectations. Training on post-harvest handling, in combination with the incentive of higher prices for aggregated better-quality produce, helped farmers understand the value of improving post-harvest handling and aggregating produce, as well as motivated farmers to improve post-harvest handling and store and aggregate their produce with others, reaching required standards, and marketing collectively to access better markets, given the right incentives and demonstrated benefits – namely, better prices and market access.

However, in many cases the aggregation volumes fell short of the volumes expected. Barriers to storage and aggregation and improving quality curtailed the achievement of expected results, including construction delays, issues of trust and lack of better markets. Some of the grants were unable to deliver key output milestones within the relatively short timeframes. Also, access to finance remains a major challenge, with considerable institutional barriers existing in the financial markets, where in many cases banks remain risk averse about lending to smallholder farmers.

[Strength of evidence - strong]

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To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade (EQ4)?

Some cases present evidence of improvements in the availability and use of improved inputs and farmers simultaneously applying GAP due to FTESA-funded activities, although in most cases the gains are not widespread in terms of number of farmers reached (e.g. Kaderes, Joseph, Mount Meru), with supplies of inputs and numbers trained lower than expected. Where farmers applied GAP and used improved inputs, productivity and quality improved in most cases.

There is strong evidence that farmers are willing to adopt new/improved inputs and practices where the benefits are clear (demonstration effects and proof of concept) and are in line with farmer's own risk appetite. The use of known and respected institutions to mobilise farmers enhanced the credibility of the intervention and generated trust, especially in contexts where farmers were risk averse and had lower levels of education, leading to greater participation rates and adoption of new and/or improved inputs and practices. The use of the lead farmer approach worked well when farmers considered the lead farmer as experienced and successful, increasing their credibility, with farmers more likely to apply training provided by them.

In some cases, gaps in service provision, such as lack of finance, reduced uptake of new and/or improved inputs. Also, despite efforts to improve access to quality inputs, delays in accessing inputs at the required quantity and quality limited the benefits. Factors outside of the direct control of the programme (e.g. fake seeds, government policy leading to delays in accessing improved seed, weather) reduced the benefits of applying better practices. There is limited evidence across the grants that improved inputs and GAP, alone, resulted in higher prices and sales, since this requires access to better markets (see evaluation question 5).

[Strength of evidence: strong]

To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets (EQ5)?

Increased smallholder farmer participation in structured regional markets was a central focus for FTESA and grantees. Case study grantees worked predominantly with smallholder farmers. The grantees helped smallholder farmers improve yields, production and quality, as well as store and aggregate greater volumes, although there were implementation challenges which curtailed the achievement of expected results (see evaluation questions three and four). While production (supply-side) interventions had some success, there was less progress in improving market opportunities. The integration of smallholder farmers in structured regional markets was not widespread during the programme's lifespan. There is some evidence that farmers are 'market-ready' and able to sell to a wider range of buyers. The interventions helped many of the farmers understand that storing produce and deferring sales can lead to higher prices, and that aggregating and marketing collectively can increase access to better markets and increase farmers bargaining power leading to increased prices. While there is some evidence of increased sales at better prices, sales volumes fell significantly short of expected results. Access to new and better markets was a challenge for many farmers, with many farmers over-relying on the grantee to provide the market.

The programme was unable to reach the scale and levels of volume and trade expected, and fell substantially short of reaching volumes required to have an impact at the regional level, including influencing market prices, partly given under-performance but largely due to unrealistic expectations. Nevertheless, FTESA helped 'lay the foundations' for greater integration in future. There is some evidence that grantees and farmers will continue with activities carried out under FTESA beyond the life of the grant, potentially allowing for a greater maturation effect. Farmers are only likely to continue with changes in practices if they can get sustained benefits through access to better markets.

[Strength of evidence – strong]

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To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change (EQ2)?

The grants showed limited evidence of systemic change and only early signs of the potential for spreading new behaviours to others. This was largely due to the status of implementation, where several activities were yet to deliver 'proof of concept' and demonstrate consistent and enduring benefits to a critical mass of participants to build buy-in and adoption of the new practices, and then encourage others to crowd in. Also, in many cases, farmers over-relied on support from the grantee for access to inputs, services (particularly training) and markets (see evaluation questions 3, 4 and 5), limiting sustainability and systemic change. Nevertheless, there is anecdotal evidence that FTESA interventions show potential for systemic change in a few cases, indicated by examples of farmers adopting new methods and maintaining changes in practice, some copying by non-participating farmers, and other actors crowding in.

In addition to proof of concept and demonstration effects, enablers of behavioural change amongst participants include transparency and trust between market actors, with the most frequently cited barriers hindering change were the absence of supporting rules and limited capital.

[Strength of evidence – medium]

To what extent has FTESA benefited consumers (EQ6)?

Given the limited scale of most of the interventions, including geographical reach with several projects having a limited footprint across the region, the programme has not generated the substantial volumes required to pass through the market to lead to price smoothing at a regional level, partly due to the under-performance of G-Soko. While there is no systematic reporting on the benefits to the end consumer, there is anecdotal evidence that grantees are producing improved-quality and value-added products.

[Strength of evidence – low]

To what extent is FTESA a collection of individual interventions or a coherent portfolio (EQ1)?

The FTESA portfolio of grants offered opportunities for projects to benefit from complementarities and synergies between them. There is some evidence of inter-linkages and complementarities materialising between FTESA grantees that generated results in excess of what was achievable through an individual grant, where some grantees were able to tap into support provided by others to increase the impact of their interventions including combining support at different points along the value chain. Partnerships have enabled grantees to capitalise on each other's services. However, there are concerns regarding the sustainability of some of these interactions, particularly those reliant on development fund interventions rather than commercial entities.

The most frequently cited connection is with the EAGC grant, with the intention that several different FTESA-funded grantees would use the G-Soko platform and create a group of early adopters. However, the failure of G-Soko to take off successfully and demonstrate consistent results through early adopters significantly reduced the opportunity for synergies and seriously hampered FTESA's ability to create a portfolio that delivered more than the sum of its parts through grantees using the platform and accessing larger markets, with others copying. This limited sustainability and curtailed the impact of the FTESA programme in the wider market.

Linkages between FTESA grantees were in part facilitated by the FTESA PMU but were also due to the grantee's knowledge of the other grantees, existing relationships and/or searching out synergies themselves. In several cases, the PMU attempted to build linkages into the design of projects after awarding the grants.

[Strength of evidence - medium]

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Lessons learned

To what extent have improved trade support systems increased production and trade (EQ3)? To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade (EQ4)? *(The lessons are similar for both evaluation questions 3 and 4, so we combine them here to avoid repetition)*.

The experience across the cases shows that farmers changed and improved their practices when there was transparency and trust between the farmer groups and grantees and confidence in the intervention. Positive demonstration effects reinforced training, improved application of new practices by demonstrating the benefits first-hand, and were important catalysers to generating trust, and increasing uptake of unproven methods and crops. However, such changes are only likely to endure where farmers consistently experience 'proof of concept' including securing better markets. Where farmers did not change behaviour, or reverted to previous practices, due for instance to lack of demonstrated benefits and trust in the implementer and/or intervention, such behaviour reflects rational risk perceptions of farmers unwilling to change practices, or maintain new practices, if expected benefits do not materialise.

Given that smallholder farmers remain a high-risk borrower for banks, the experience across grants highlights the importance of building the creditworthiness of smallholder farmers, ensuring the appropriate systems and guarantees are in place to reduce such real risks and improve repayment rates.

The cases show that some of the activities (e.g. warehouse construction) took longer than anticipated, with knock on delays to other aspects of the intervention (e.g. WRS). While perhaps obvious, the experience highlights the importance of sequencing interventions and the time required to establish the building blocks. Challenges in implementation and lack of markets curtailed the achievement of expected results, especially at the outcome and impact levels, and undermined the potential sustainability of interventions.

The one-off nature of activities, especially training, reduces the sustainability of benefits since farmers typically require follow up demonstrations and repeated interactions with trainers to build confidence in adopting new crops, inputs and methods, as well as to help adapt practices as challenges arise over time.

To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets (EQ5)?

Like the learning under evaluation questions three and four, an important enabler to developing successful and sustainable commercial relationships between farmers and buyers is transparency and open communications in trading relationships, with both parties honouring their commitments consistently, which helps build trust (e.g. farmers supplying contracted quantities on time and at the right quality; buyers purchasing and collecting on time according to agreed payment terms; etc.). Wider experience shows that farmers' negative experiences with buyers and agro-dealers in the past led to entrenched negative perceptions of some actors in the value chain, which are rational based on their experience. For instance, farmers signing too many contracts with off-takers is symptomatic of farmers 'hedging their bets' based on previous experience that buyers may not honour their contracts including payment terms. Cases of off-takers delaying purchases and payments perpetuated farmers' perceptions of lack of certainty that the transaction will take place, breaking down trust, and encouraging side-selling by farmers. Also, limited trades through the G-Soko platform reduced the appetite for using it. Farmers need consistent demonstration effects to adopt a new way of doing business, otherwise they will quickly revert to previous ways of doing business given their, often immediate, cash needs. Moreover, while farmers are often rational decision-makers aware of the benefits of improving practices, they are often unwilling to invest resources (even with consistent demonstration effects of improved yields, reduced losses, etc.) if they are uncertain that the extra investment will pay off through improved markets and sales.

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To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change (EQ2)?

The innovative nature of many activities requires enough time to experiment at a small scale before rolling out interventions to others. Systemic change takes time to materialise, particularly where there are deeply entrenched ways of doing business that projects seek to change. Moreover, some of the projects designed to deliver systemic change over a relatively short period of time attempted to reach scale too quickly, before positive demonstration effects emerged. The importance of delivering expected results, and the slow start-up of many projects, created pressure to scale up quickly. However, this is often self-defeating since systemic change requires demonstration of early success first so that others follow, enhancing the sustainability of the interventions. Rolling out too quickly can lead to mistakes and insufficient time to learn by doing and, more importantly, disincentivises participants (existing and potential) who are not yet convinced of the potential benefits of changing their way of doing business, limiting sustainability. The assumption that the benefits generated through the grantees' interventions are a catalyst to longer term changes in ways of doing business that are sustainable (i.e. do not require continued funding) is only likely if other actors 'crowd into' the system and provide incentives for farmers to maintain and continually improve changed practices, but those other actors need the incentive to do so.

In sum, changes are only likely to continue and spread in the longer term if: (i) benefits from additional effort materialise and endure (i.e. better markets); (ii) where there are mechanisms for continual updating of knowledge and learning to ensure better practices continue and can adapt to the external environment (e.g. new technologies, new threats) alongside consistent positive demonstration effects that lead to wider adoption rates; and, (iii) where the market provides supporting functions, such as access to credit. The main lesson learned from the grants is the need to crowd in commercial players to provide services and markets which are not dependent on external funding (i.e. creating the right commercial incentives).

Attempting to achieve market level changes through a five-year programme that provides grants through an award mechanism requires time to experiment and learn before identifying and scaling up promising interventions. Such funds typically encounter difficulties fostering systemic change not only because of the short timelines but also because creating systemic change usually requires ongoing support for piloting, learning and iterating before expanding.

To what extent has FTESA benefited consumers (EQ6)?

The main lesson is that the ambitions for the programme were set too high in the design. The programme was unable to reach the scale and levels of volume and trade required to have an impact at the regional level, including influencing market prices, largely due to unrealistic expectations of what the projects could achieve over relatively short timeframes and limited geographical reach.

To what extent is FTESA a collection of individual interventions or a coherent portfolio (EQ1)?

The programme's strategy to develop a coherent portfolio of projects that complemented each other through successive rounds was a relevant approach to generate results in excess of the programme's component parts. However, the FTESA experience demonstrates the importance of building in inter-linkages directly in the design of the grants and overall portfolio. Also, the reliance on one grant (EAGC/G-Soko) to generate most of the synergies was a risky strategy, shown by its under-performance.

Recommendations

To what extent have improved trade support systems increased production and trade (EQ3)? To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade (EQ4)? *(The recommendations are similar for both evaluation questions 3 and 4, so we combine them here to avoid repetition)*.

Similar programmes should give more attention to the time required to roll out activities that form the foundations (e.g. outputs: warehouses constructed and operational and used; electronic platforms developed and fully operational and functional and used) before higher level results (e.g. outcomes and impacts: volumes, sales, prices, trade) are likely to materialise. Moreover, some elements of an intervention are dependent on the completion of activities, and similar programmes should give more attention to the importance of sequencing different elements of an intervention, and the time required to do so.

Similar programmes should ensure grantees (or similar) develop effective exit strategies so that participants are not dependent on the grantee for inputs and training and that permanent market actors have the incentive to provide, scale and adapt training as new technologies and practices become available. These actors can support farmers with their challenges as they arise, providing advice and adaptation to effectively utilise new methods and inputs. Similar programmes should explore how to engage permanent market actors directly to improve long-term access to such services.

Similar programmes should also take a more comprehensive, multi-faceted approach necessary to improve access to finance, focusing on improving the credit worthiness of farmers.

To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets (EQ5)?

Similar programmes should give more attention to the demand-side and facilitating relationships and contractual arrangements that are open, transparent, based on regular communication, which incentivises both parties – buyer and seller – to fully honour their commitments in a timely manner. Moreover, future programmes should allow enough time for interventions to be up-and-running and broker relationships (through trusted partners) across the value chain, and ideally include enough time for multiple transactions to take place to allow for ongoing learning and adaptation where challenges arise or good practice emerges.

To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change (EQ2)?

For similar programmes, we recommend a more measured approach to scaling up, as well as reduced ambition on results (i.e. lower targets), which gives time for experimenting, piloting, learning, adaptation etc. and demonstrating results before scaling up (projects should not, and cannot, attempt to pilot/experiment and scale-up simultaneously). This also requires longer periods of support to interventions for demonstration effects to transpire. DFID should consider whether they can develop similar future programmes with a longer timespan to give adequate time for systemic change to materialise.

To what extent has FTESA benefited consumers (EQ6)?

Similar programmes that aim to influence prices at a regional level should consider whether this is a realistic expectation given the scope and timeframe of the programme, as well as the multitude of other factors that influence prices at the regional level. Perhaps a more realistic approach is not to include such ambitious aims in future programmes, and associated theories of change, which are likely not achievable.

To what extent is FTESA a collection of individual interventions or a coherent portfolio (EQ1)?

DFID should ensure that the design of future portfolio-approach programmes, which rely on inter-linkages and complementarities to generate expected results, includes more active hands-on support from PMUs (or similar) in designing projects, requiring more extensive technical assistance and mechanisms to generate real-time learning and foster coordination and collaboration between implementing partners.

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1. Introduction

This report presents the **synthesis of the endline qualitative case studies and quantitative surveys** and forms a major part of the overall final evaluation of Food Trade East and Southern Africa (FTESA).

1.1. Purpose of the overall evaluation

The final evaluation is summative, following a theory-based approach, and focuses on assessing **programme results and generating lessons,** exploring what change materialised (or may materialise in the future), the extent of that change and FTESA's contribution, and how and why, for whom and in what circumstances/contexts.

The **main audience** is the Department for International Development (DFID) and FTESA implementing partners. The evaluation generates **wider learning** for DFID (and potentially others) on market development programmes, including informing the scaling up and/or rolling out of similar programmes: for example, FTESA's successor programme (FoodTrade and Resilience Africa) and FTESA's sister programme, West Africa Food Markets (WAFM) Programme.

To ensure that the evaluation is **useful**, and therefore **used** by the intended audience, the FTESA Evaluation Management Unit (EMU) engaged with both the FTESA Programme Management Unit (PMU) and DFID, checking understanding and presenting preliminary findings ahead of submitting deliverables, without compromising independence of the evaluation. However, the FTESA PMU's contract ended in April 2018, limiting the EMU's ability to share preliminary findings with the PMU.

1.2. Purpose of the case studies and synthesis

Six **qualitative case studies** and two **quantitative surveys** feed into the synthesis. The fieldwork for both the case studies and the surveys focused at the farmer level. The qualitative case studies revisit grants subject to baseline case studies, except for one cancelled grant. The case studies and quantitative surveys cover grants to the following organisations.

Table 1: Overview of case studies

Grantees	Country coverage	Fieldwork	Case study	Survey
Eastern Africa Grain Council (EAGC)	Kenya, Tanzania and Uganda	Kenya	x	
Joseph Initiative	Uganda	Uganda	x	x
Kaderes Peasant Development	Tanzania	Tanzania	x	x
Kilimo Trust	Kenya, Rwanda, Tanzania and Uganda	Kenya	x	
Mount Meru Millers	Tanzania and Zambia	Tanzania	x	
Virtual City	Kenya	Kenya	x	

Both the qualitative case studies and quantitative surveys provide a summative assessment of programme performance, while the case studies generate qualitative evidence explaining change and providing lessons:

- **What:** What change materialised (or may materialise in the future) and the extent of that change and FTESA's contribution (using contribution analysis).
- **How, why, for whom and in what circumstances:** In addition to reporting on results achieved ('what'), each study explores 'who' was involved (e.g. women) and 'how' and 'why' they benefited, and in what circumstances, exploring the influence of the features of the intervention and contextual factors (enabling and constraining factors) on the underlying mechanisms that helped generate change (using realist enquiry).

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- **Sustainability:** Whether any changes will endure after programme closure.

In this synthesis, we combine, compare and contrast the evidence from the case studies and surveys against expected results, evaluation questions (EQs) and underlying theories. The synthesis answers EQs 1–6 and sub-EQs on what; how, why, for whom and in what circumstances/contexts; and whether changes are likely to be sustainable. The synthesis identifies and explores emerging patterns and themes to produce: findings, conclusions, lessons learned and recommendations against the EQs and sub-EQs.

1.3. Report structure

- Section 1 provides details on the evaluation purpose.
- Section 2 provides background on FTESA, outlines the Common Theory of Change (CToC), expected results and interventions.
- Section 3 summarises the case study and synthesis design and methods including EQs; data collection, analysis and synthesis approaches; and, limitations. Further details are in the annexes and the Case Study Design Report.
- Section 4 synthesises the findings of the case studies and quantitative surveys against the EQs.
- Section 5 provides main findings and conclusions against the EQs.
- Section 6 provides lessons learned for future programming against the EQs.
- Section 7 provides recommendations for future programming against the EQs.
- Section 8 includes all annexes (e.g. documents consulted, evaluation matrix).

2. FoodTrade East and Southern Africa

2.1. Overview

FTESA was a five-year trade (2013–18) enhancement and promotion programme funded by DFID (£35 million) to support food staples market development and tackle market failures. It covered mainly five countries (Kenya, Tanzania, Uganda, Rwanda and Zambia) although it originally planned to operate in nine countries (Burundi, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe). It focused on staple food crops, especially maize, rice and beans (including soya).

The programme aimed to improve functioning of national and regional staple food market systems and generate benefits for households and consumers by ensuring staple foods are more widely available at affordable, more stable prices. It operated through two main instruments:[1]

- The Challenge Fund (CF), which aimed to stimulate innovative private sector investment in staple food value chains; and
- The Development Fund (DF), which aimed to unblock systemic constraints within staples supply chains.

FTESA used a market-based approach to working with enterprises. It sought to increase production and trade in staple foods by addressing market imperfections and stimulating innovation. The programme aimed to improve market access for producers and suppliers within staples value chains and link producers to a wider customer base. FTESA focused on improving outreach and market access for smallholder farmers (SHFs) in domestic and regional markets.

A PMU, contracted to DAI, was responsible for managing and supporting programme implementation. The PMU's main roles were:[2]

- **Grants management:** awarding and managing grants (grant selection, due diligence, contracting, disbursing funds, monitoring and verifying, etc.) under two main funding models (CF and DF).
- **Technical resource:** serving as a leading centre of thinking, providing technical assistance and learning (including M&E).
- **Broker:** brokering relationships and influencing with the aim of delivering achievable policy and regulatory change.

2.2. Theory of change

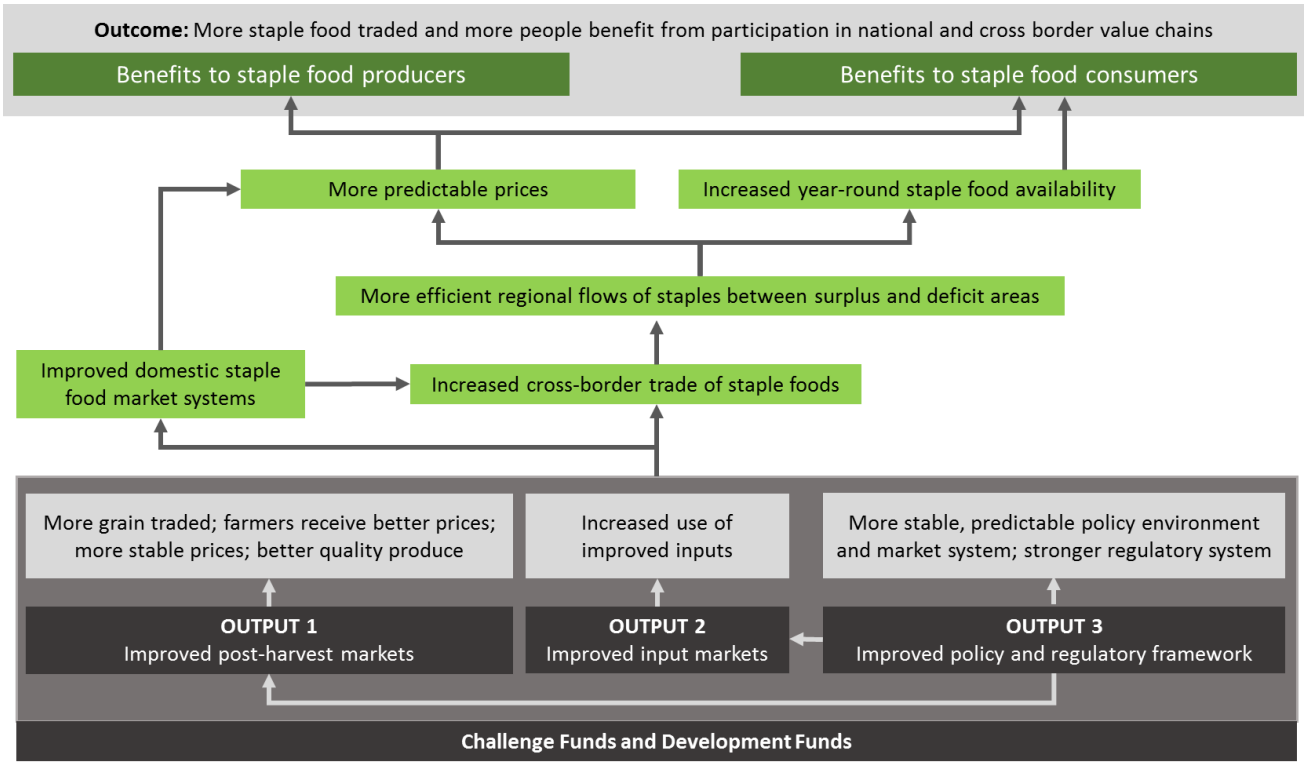
The evaluation design follows a theory-based approach that allows for multiple lines of enquiry. The EQs and CToC underpin the evaluation design. We applied a realist evaluation approach to exploring the underlying causal mechanisms that generate change, and the influence of contextual factors, from which we attempt to draw generalisable conclusions.

The CToC sets out the pathways of change for the programme structured around three interconnected main 'output' areas: improved post-harvest markets; improved input markets; and improved policy and regulatory environment. The CToC and output ToCs (Annex 8.2) set out the hypothesised **pathways** between activities and expected results, including the **long-term change** that the programme sought to influence to deliver programme outputs, outcomes and impact (Figure 1). A series of assumptions about

1 Through the Challenge Fund (CF), FTESA supported for-profit companies to develop new business models that provide solutions to food staple market failures while delivering commercial benefits as well as jobs, income and market access for smallholder farmers (SHFs). The CF aimed to lower investment risks by providing matching grants and concessional loans (between £150,000 and £1 million per grant). The CF aimed to encourage the private sector to take on greater risk to invest. The requirement was that all innovations had both national and cross border impact, supporting staple food trade in at least two of the nine focus countries. FTESA provided partial funding of up to 49% of an intervention. The Development Fund (DF) worked parallel to the CF, investing in governmental or non-governmental, not-for-profit entities with innovative ideas that connect SHFs to regional markets. It also invested in policy dialogue between private sector and policymakers.
2 Itad, FTESA Mid-term Evaluation Report (February 2017).

how change happens underpins the CToC. The Intervention-Context-Mechanism-Outcome (ICMO) configurations include details on assumptions and important contextual factors (see evaluation matrix, Annex 8.3).

Figure 1: FTESA Common Theory of Change



Stated simply, FTESA's CToC was as follows: by identifying and addressing market and government failures that characterise staple food markets, including improving farmers' capacity to produce, store and aggregate grain, and market more staple food, this will lead to 'more staple food traded and more people benefiting from participation in national and cross-border value chains (outcome)' which in turn will contribute to the 'improved functioning of national and regional staple food markets systems including more stable food prices across the region' (impact). In particular:

- By connecting **farmers** to more efficient input and output markets and by improving the enabling environment for trade, this will help farmers produce, store and aggregate greater volumes and sell more produce at better (higher and/or more stable) prices. For instance, better storage and aggregation facilities, alongside better access to markets, will enable and incentivise farmers to increase production and storage, sell more, and receive better (higher or more stable) prices, enhancing the incentive to invest. Increased production and trade, and better prices, will lead to higher incomes for farmers. In contexts where farmers do not have access to good quality facilities, are risk averse, face restricted markets and are price takers selling to middlemen, important underlying assumptions include, for example (see Annex 8.3):
    - Farmers will choose to store produce in facilities;
    - Farmers find training credible and can and will put it into practice;
    - Suppliers (e.g. inputs) have the confidence to provide inputs in advance of payment;
    - Market actors trust warehouse receipt systems (WRSs) linked to storage and aggregation facilities;
    - Farmers feel motivated to organise themselves to aggregate their produce.

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- By enabling **buyers and sellers** to make decisions with less risk, this will encourage farmers to increase the amounts produced and traded, increasing competition in the market system. Markets will become less prone to sudden shocks as they will work at a regional level, rather than as a series of disconnected national or sub-national systems, with produce moving from surplus to deficit areas. A well-functioning market will help mitigate the price fluctuations caused by poor harvests, bumper harvests and other local variables. This will enable farmers, traders and other market players to operate with less price risk, encouraging further investment in the market (a virtuous circle). In contexts with restricted market access and linkages between businesses (namely buyers and sellers) in the value chain and disjointed small-scale and individual farming operations, important underlying assumptions are, for example (see Annex 8.3):
    - By creating contractual obligations that guarantee purchases and provide prompt payments to farmers, farmers will have the confidence and incentive to invest in increasing production, quality, and storage and aggregation;
    - A critical mass of farmers aggregate quantities that satisfy the minimum quantity delivery requirements of buyers;
    - Buyers pay more for aggregated quantities and quality.
    - WRSs deter farmers from quick sales of produce at the farm gate, encouraging storage and reducing post-harvest loss (PHL), leading to increased sales and better prices, and smoothed and/or increased incomes.
- The larger the pool of potential buyers and sellers and fewer barriers to production and trade, the more opportunity there is for food to flow from areas of surplus production (and low prices) to areas of demand (and high prices) and thus mitigate price differences between them. An increase in staple food bought and sold in national markets will encourage more cross-border trade between areas of surplus and deficit. This will contribute, in turn, to the better functioning of regional markets, with more stable food prices across the region. As the performance of the market system continues to improve, this will manifest itself through increased competitiveness, higher trade volumes and improved provision of inputs and services, all adding further to the virtuous circle.

2.3. Expected results

2.3.1. Outcomes

As stated in the logframe, the **impact** of the FTESA programme was: *improved functioning of national and regional staple food market systems.* The **overall outcome** of the FTESA programme was: *more staple food traded and more people benefit from participation in national and cross-border value chains.*

Impact indicators 1. Percentage differential between hungry and harvest season prices for key food staples. 2. (a) Number of consumer households in areas with more stable intra-annual food prices; (b) Number of consumers in areas with more stable intra-annual food prices (includes all household members of consumer households). 3. Volume of regional food trade between programme countries. 4. Number of traders not supported by FTESA or similar initiatives trading through the G-Soko platform.
Outcome indicators 1. Net additional farm gate price received by FTESA beneficiaries relative to local comparator. 2. Volume of staple food sold by FTESA farmer beneficiaries (metric tonne, MT). 3. (a) Number of additional farmers benefiting from national and cross-border value chains; (b) Number of additional individuals benefiting from national and cross-border value chains (including household members). 4. Number of improvements to regional trade policy (its implementation to which policy facility-led activities contributed).

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2.3.2. Outputs

To achieve the above outcomes and impact, FTESA targeted constraining sets of market failures in the following areas:

- **Output 1:** Improved post-harvest markets (storage and aggregation; market information; value chain coordination; warehouse receipt and supplier credit; grades and standards).
- **Output 2:** Improved input markets (including seeds and fertilisers).
- **Output 3:** Improved policy and regulatory environment.

Output 1 indicators 1.1. Number of male/female farmers accessing new/improved storage/aggregation services/facilities as a result of FTESA. 1.2. Number of male/female farmers accessing improved market information system as a result of FTESA. 1.3. Number of male/female farmers accessing improved value chain coordination (e.g. application of grade and standard to their products, improved logistic and virtual marketplace) as a result of FTESA. 1.4. Number of male/female farmers accessing warehouse receipt and supplier credit as a result of FTESA. 1.5. Number of private sector entities that adopt common grade and standard as a result of FTESA.
Output 2 indicators 2.1. Volume of new or improved inputs (seeds, fertiliser) traded by programme partners (MT) as a result of FTESA. 2.2. Number of male and female farmers using improved inputs as a result of the activities of programme beneficiary input suppliers.
Output 3 indicators 3.1. Number of achievable regulatory and policy changes identified for which a dedicated influencing strategy is developed. 3.2. Number of achievable regulatory and policy changes for which a dedicated influencing strategy is being implemented. 3.3. Number of identified regulatory or policy changes for which public–private dialogue platform functioning as outlined in each influencing strategy.

2.4. Summary of key characteristics of country case study sample

2.4.1. Sampling criteria

In 2015, we selected interventions (grants) for case studies based on a long-list of criteria.[3] The most important criteria for selection were as follows:

- Interventions that were sufficiently similar (homogeneous) to enable the testing of programme theories across several interventions to enable cross-case comparison. For example, those interventions providing support to storage and aggregation (e.g. EAGC, Joseph, Kaderes, Kilimo, Mount Meru and Virtual City).
- Interventions that represent a significant proportion of programme investment (e.g. EAGC, Joseph, Kilimo and Mount Meru).
- Interventions that enable the exploration of specific lines of enquiry emerging during programme implementation.

The disadvantage of our one-off sampling approach means we did not include 'new' grants awarded after the baseline phase. Grants awarded later benefited from experience and lesson learning from earlier grants so there is potential bias in selection towards grants that may have started from a 'lower' base due to the

3 Itad FTESA EMU Inception Report (March 2014).

earlier stage of programme 'evolution'. However, the advantage is that more time has elapsed to explore possible outcomes.

2.4.2. Sample

Our sample covered four challenge and two development fund grants, accounting for 37% of the grant total funds disbursed and 34% and 40% of the challenge and development fund totals disbursed respectively.[4] All six grants covered output 1, five grants covered output 2, and one grant covered output 3. The selection also represents the main countries where FTESA was most active (Kenya, Tanzania and Uganda) (see Table 2).[5]

- *EAGC development of structured grain trade system:* In partnership with industry stakeholders, the grant aimed to support the development of a private, sector driven market platform (G-Soko) linking buyers and sellers in staple foods.
- *Joseph Initiative Rural Injini project:* Developing village-level infrastructure to support smallholder farmers with access to inputs, storage, finance and markets.
- *Kaderes Warehouse for the poor project:* Providing smallholder farmers access to storage and finance.
- *Kilimo Trust Beans Enterprises and Structured Trade project:* Establishing trade systems that link smallholder farmers with large buyers of beans, including exporters, processors and institutions.
- *Mount Meru Millers:* Promotion of soybean production among smallholder farmers in Tanzania and Zambia, through technical assistance, inputs, financing, storage and markets.
- *Virtual City Agro voucher solutions:* Business model enabling sharing of transactional revenues among all market actors.

Table 2: Overview of grants

Grant	CF/ DF	Round	Years	Output	Funds disbursed £	Countries	Intervention model
Mount Meru	CF	Early bird	2014-18	1, 2	933,302	Tanzania, Zambia, Kenya	Off-taker
Virtual City	CF	Early bird	2014-17	1, 2	566,978	Kenya, Rwanda, Tanzania, Uganda	Trade platform
Joseph Initiative	CF	Round 2	2014-17	1, 2	981,311	Uganda, Kenya, Rwanda	Off-taker
Kaderes	CF	Round 2	2014-17	1, 2	450,000	Tanzania	Lead firm consortium
EAGC/G-Soko	DF	2014	2014-18	1, 3	3,647,720	Kenya, Tanzania and Uganda	Storage, policy, trade platform
Kilimo Trust	DF	2015	2015-18	1, 2	1,300,243	Kenya, Rwanda, Tanzania and Uganda	Lead firm consortium

[4] Figures calculated using 'funds disbursed' from data PMU provided to the EMU for August 2018 VfM analysis.

[5] Itad (2018) Portfolio Review.

3. Evaluation design and methods

3.1. Evaluation questions

The qualitative case studies and synthesis answer EQs 1–6 and associated sub-EQs, beginning with EQs 3–5 before broadening the analysis to consider EQs 1, 2 and 6. The quantitative survey provide information to answer EQs 3–5. The evaluation matrix (Annex 8.3) includes detailed EQs and sub-EQs, as well as programme theories and more detailed theories (ICMO configurations) tested which help answer some of the questions.

Portfolio-level (complementarity/synergies)

1. **To what extent is FTESA a collection of individual interventions or a coherent portfolio?**
    a. **What:** To what extent has the combination of interventions generated results in excess of the programme's component parts (i.e. generated complementarities/synergies)?
    b. **How, why and for whom and in what circumstances/contexts:** How and why have these complementarities/synergies materialised? What were the mechanisms at play? Who has benefited from the complementarities/synergies? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to generating benefits in excess of the programme's component parts?
    c. What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?

Market-level (systemic change/sustainability)

2. **To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change?**
    a. **What:** To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change? Is there any evidence it has done so, so far?
    b. **How, why and for whom and in what circumstances/contexts:** How and why have changes materialised, or are likely to materialise? What are the likely mechanisms for the spread of behaviour changes across networks of actors? Which actors are pivotal to the spread of new behaviours? Who is likely to benefit? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to generating systemic change?
    c. What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?

Individual-level (producer/farmer/trader/firm/consumer)

3. **To what extent have improved trade support systems (output 1: storage, aggregation, information, value chain coordination, grades and standards, credit) increased production and trade?**
    a. **What:** To what extent has FTESA improved trade support systems? To what extent has production and trade increased as a result? Where there has been an increase in trade, to what extent has this trade been cross-border or within national boundaries?
    b. **How, why, for whom and in what circumstances/contexts:** How and why have these changes materialised? What were the mechanisms at play? Who has benefited? What circumstances (conditions, enabling/constraining factors) were conducive (or not) to generating benefits for producers, farmers, traders and firms?
    c. What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?

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4. **To what extent have improved availability and use of inputs (output 2: inputs) and application of good agricultural practices (GAP) increased production and trade?**
    a. **What:** To what extent has FTESA improved availability and use of inputs? To what extent has production and trade increased as a result?
    b. **How, why, for whom and in what circumstances/contexts:** How and why have these changes materialised? What were the mechanisms at play? Who has benefited? What circumstances (conditions, enabling/constraining factors) were conducive (or not) to generating benefits for producers, farmers, traders and firms?
    c. What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?
5. **To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets?**
    a. **What:** To what extent has FTESA brought smallholder farmers into structured regional markets?
    b. **How, why and for whom and in what circumstances/contexts:** How and why have these changes materialised? What were the mechanisms at play creating these changes? How have smallholder farmers participated in these markets? Who has benefited (poor people, women)? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to bringing in smallholder farmers?
    c. What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?
6. **To what extent has FTESA benefited consumers?**
    a. **What:** To what extent has FTESA delivered benefits for consumers?
    b. **How, why, for whom and in what circumstances/contexts:** How and why have these changes materialised? What were the mechanisms at play creating these changes? Who has benefited? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to generating benefits for consumers?
    c. What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?

3.2. Evaluation design and methods

3.2.1. Qualitative case studies

3.2.1.1. Design

The qualitative case studies are summative, following a theory-based approach, and focus on assessing programme results and generating lessons. A theory-based approach allows an exploration of the underlying theories and the likelihood that the programme caused the intended results. [6] The case studies explore:

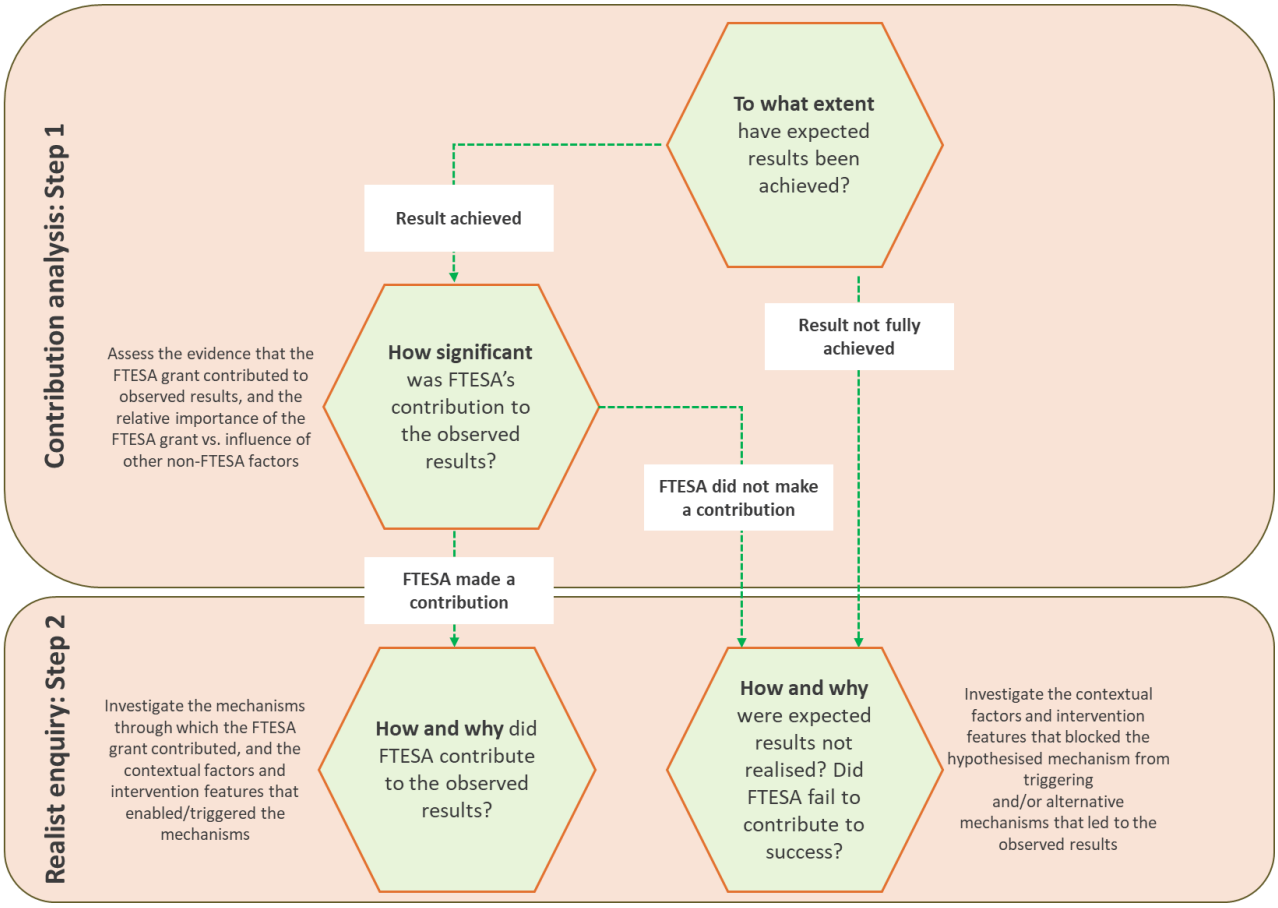
- **What:** What change materialised (or may in future) and the extent of that change and FTESA's contribution (using contribution analysis).
- **How, why, for whom and in what circumstances:** In addition to reporting on results achieved ('what'), each study explores 'who' was involved (e.g. women) and 'how' and 'why' they benefited, and in what circumstances, exploring the influence of the features of the intervention and contextual factors (enabling and constraining factors) on the underlying mechanisms that helped generate change (using realist enquiry).

6 For further details see Itad, FTESA EMU Qualitative Case Study and Synthesis Design (March 2018).

- **Sustainability:** Whether any changes will endure after programme closure.

Contribution analysis in each case study explores **what results occurred** and **the role played by the intervention** compared to other influences, providing evidence and a line of reasoning from which we can draw plausible conclusions about the **contribution of interventions**. The **realist enquiry** builds theory on **how and why change happens, and for whom and in what circumstances/contexts does the intervention work** and tests theory with evidence. We also explored the likely sustainability of effects. Figure 2 shows how we combined contribution analysis and realist enquiry, and Annex 8.7 provides more details on the steps taken.

Figure 2: Combining contribution analysis and realist enquiry



3.2.1.2. Data collection methods

We carried out the fieldwork in two phases: March 2018 (Kilimo Trust, Mount Meru Millers, Kaderes and Virtual City) and June-July 2018 (EAGC and Joseph Initiative). We revisited all grants subject to baseline case studies, except for one cancelled grant. The case studies were based on a desk review of documents and data, largely PMU and grantee reports including monitoring data, and primary qualitative data collected through key informant interviews (KIIs) and focus group discussions (FGDs). We purposively sampled stakeholders to interview to cover a range of people participating in and/or affected by the projects.

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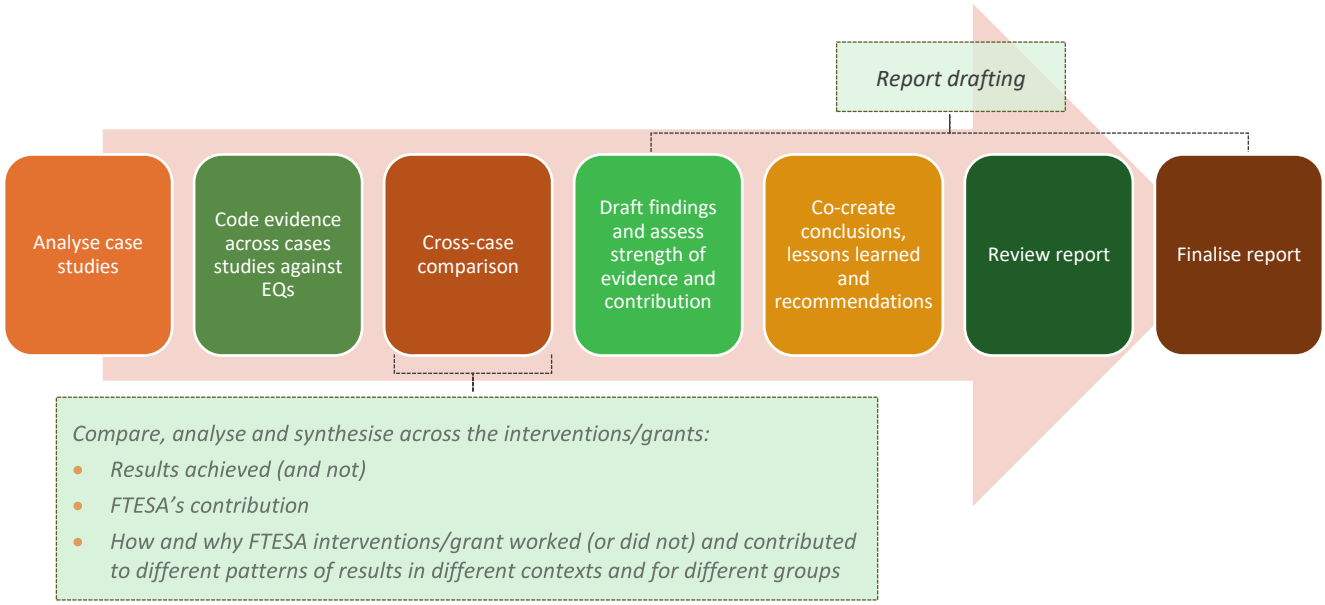
3.2.2. Quantitative case studies

We conducted quantitative endline household surveys for the two grants subject to quantitative baseline surveys. We carried out before-and-after analysis for Kaderes and difference-in-difference for Joseph Initiative to assess impact on beneficiaries. Annex 8.7 provides more details on the methods used.

3.3. Synthesis approach

The synthesis is based on a thematic analysis of the data from the case studies and surveys. We apply a **comparative case study analysis** approach to the synthesis.[7] This involves analysis and synthesis of similarities, differences and patterns across the cases to generate findings, conclusions and lessons against evaluation questions, programme theories and ICMOs. We systematically coded the qualitative case studies and quantitative surveys and analysed the data using templates to record data against evaluation questions, programme theories and ICMOs (Annex 8.3).[8] Figure 3 summarises the synthesis process:

Figure 3: Synthesis steps



3.4. Data quality and strength of evidence

We need to ensure that we have a *sufficient degree of confidence* about the extent to which observed results have occurred and FTESA's contribution to those observed changes, as well as how and why FTESA contributed or not. We assessed the quality of data and strength of evidence in the case studies, as explained in Annex 8.7.

3.5. Limitations and challenges

We list several limitations/risks to the quality of the case studies, surveys and synthesis:

- Lack of programme data on outcomes and impact, etc. Poor and inconsistent monitoring data generated by the interventions themselves.
- Challenges engaging with grantees who no longer receive funding from FTESA, and with target beneficiaries who were disappointed with the programme.

7 Goodrick, D. (2014), Comparative Case Studies, Methodological Briefs
8 Dalkin, S.M.; Greenhalgh, J.; Jones, D.; Cunningham, B. and Lhussier, M. (2015) 'What's in a Mechanism? Development of a Key Concept in Realist Evaluation' Implementation Science 10.1: 49

- Cases are less comparable where they focus on activities at different points along the value chain, reducing our ability to synthesise information across several cases and generalise findings.
- Staff turnover (e.g. loss of key staff) since baseline: loss of institutional memory, capacity and credibility.
- Grantees unwilling to share required data due to commercial or other sensitivities.
- Lack of data on who the projects are working with.
- Limitations on the extent to which we can delve into how and why change happens when delays in implementation mean that many outcomes (the starting point for a realist enquiry) are yet to occur.
- Not including any recent grants that benefited from experience and lesson learning so there is potential bias in selection towards grants that may have performed less well compared to later grants.

4. Findings

This section sets out the findings of the synthesis against the evaluation questions, sub-questions and underlying theories (see the evaluation matrix in Annex 8.3 for details). Annex 8.5 and 8.6, as well as individual case reports, include details on implementation status and actual results against expected results for each grant.

4.1. To what extent have improved trade support systems increased production and trade? (EQ3)

Main findings and conclusions [strength of evidence - strong]: Overall, evidence due to FTESA-led improvements in trade support systems shows mixed success, partly due to delays in implementation including where some interventions are reliant on the completion of other activities (e.g. a WRS requires the warehouse to be in place to the required standards), and short timeframes for results to transpire. There was some good progress and achievements on activities that set the foundations for improvements in trade support systems. Despite differences in context and implementation models, some of the grants helped farmers reduce post-harvest losses, increase volumes and quality of produce stored and aggregated, as well as improving farmers' position in the market, but the results fall short of expectations. Training on post-harvest handling, in combination with the incentive of higher prices for aggregated better-quality produce, helped farmers understand the value of improving post-harvest handling and aggregating produce, as well as motivated farmers to improve post-harvest handling and store and aggregate their produce with others, reaching required standards, and marketing collectively to access better markets, given the right incentives and demonstrated benefits – namely, better prices and market access.

However, in many cases the aggregation volumes fell short of the volumes expected. Barriers to storage and aggregation and improving quality curtailed the achievement of expected results, including construction delays, issues of trust and lack of better markets. Some of the grants were unable to deliver key output milestones within the relatively short timeframes. Also, access to finance remains a major challenge, with considerable institutional barriers existing in the financial markets, where in many cases banks remain risk averse about lending to smallholder farmers.

4.1.1. What?

Overall, evidence due to FTESA-led improvements in trade support systems shows mixed success, partly due to delays in implementation including where some interventions are reliant on the completion of other activities (e.g. a WRS requires the warehouse to be in place to the required standards), and short timeframes for results to transpire. There was some good progress and achievements on activities that set the foundations for improvements in trade support systems.

Improved access and use of storage and aggregation facilities

Several of the grantees received funding to improve storage and aggregation (Kaderes, Mount Meru, EAGC, Joseph) or connect farmers to facilities (e.g. Kilimo). Across these cases, there was progress on activities that set the foundations for improvements in trade support systems: for example, farmers registered; training on post-harvest handling and grades and standards; construction and upgrading of warehouse and aggregation facilities; linking farmers with aggregators and warehouses; forming partnerships between buyers and sellers; etc. There are examples of these activities contributing to increased storage, aggregation and reduced post-harvest losses, as well as contracts between farmers and buyers and sales realised at higher prices. However, it is important to note that the grants covered here are earlier grants which focused less on aggregation compared to later FTESA funding rounds where FTESA identified a gap and attempted to fill it largely through new grants.

Joseph constructed 70 aggregation centres (called Joseph Centres) which were well utilised with significant volumes aggregated, however many of the centres closed once Joseph reduced their purchases from

farmers.[9] The EAGC, through its certification of warehouses and support to aggregation centres, helped increase volumes aggregated at warehouses and aggregation centres. However, the number of warehouses certified and aggregation centres supported falls short of the original target, storage capacity is underutilised in many certified warehouses, and the flows of commodities from VACs to certified warehouses are lower than envisaged.[10]

Delays in implementation, especially warehouse and aggregation centre construction or refurbishment, limited potential progress for several grantees. Kaderes and Mount Meru did not fully complete the construction of storage facilities before the end of the FTESA programme. The facilities, while very close to completion, were not yet operational and farmers continued to store on the farm or sell at harvest.[11] Environmental challenges beyond Kaderes' control, namely an earthquake, impacted on the construction of the warehouse. Also, Kaderes dropped the planned aggregation centres due to rising costs of warehouse construction. Kilimo, through its lead firm approach, relied on other firms (e.g. Raphael and Kaderes) to provide additional storage and aggregation, however, Raphael and Kaderes faced delays in constructing facilities, hence farmers continue to store as before using home stores.[12]

Delays in completing the establishment and upgrading of storage and aggregation facilities led to knock-on delays for other planned activities (e.g. WRSs and access to credit). However, in the case of the EAGC, where warehouses and aggregation centres were available, and many improved, the WRS did not take off due to implementation challenges largely due to delays with establishing and rolling out G-Soko.[13]

Improved access to training on post-harvest handling including grades and standards, reducing post-harvest losses and increasing quality

Several cases provide evidence of the benefits of FTESA funded activities on post-harvest handling, storage and aggregation. For example, for Kaderes, even though farmers were not using the warehouse, there is strong evidence that post-harvest losses reduced and quality increased due to training.[14] For EAGC, there is evidence that certifying warehouses, improving VACs, and training warehouse operators and farmers on post-harvest handling (including grades and standards) contributed to increased storage, aggregation, improvements in post-harvest handling and reduced post-harvest losses, as well as better quality produce. By contrast, Joseph farmers experienced increased post-harvest losses, despite receiving training on post-harvest handling, when Joseph significantly reduced their purchases from farmers.[15]

Improved access to finance

Across most of the cases, there is limited evidence of tangible improvements in access to credit by smallholder farmers as a direct result of FTESA, due to delays in implementation (e.g. WRSs) and the risks involved with dealing with smallholder farmers. Smallholder farmers remain a high-risk borrower for most banks and there was little evidence that this longstanding perception was changing.

For Kaderes, the WRS is not operational yet. Similarly, there were delays in the roll out of Virtual City's voucher system and EAGC's WRS linked to G-Soko. However, grantees have made the necessary partnerships with financial institutions to provide credit and payment vehicles.

Mount Meru formed a partnership with NMB Bank to roll out a Mastercard Foundation-funded programme called e-Kilimo, where farmers can trade their agricultural goods and receive payments electronically, advancing credit to farmers. However, no farmer has accessed credit facilities, even with guaranteed

9 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).
10 Itad, EAGC Endline Qualitative Case Study (July 2018).
11 Itad, Kaderes Endline Qualitative Case Study (July 2018); Itad, Mount Meru Endline Qualitative Case Study (July 2018)
12 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
13 Itad, EAGC Endline Qualitative Case Study (July 2018).
14 Itad, Kaderes Endline Qualitative Case Study (July 2018); Itad, Kaderes 2017 Monitoring Study Report (April 2018).
15 Itad, Joseph Initiative Quantitative Impact Assessment (July 2018).

market, price and farming contracts due to the perceived and real risk involved in dealing with individual farmers. Similarly, for Kilimo, while some farmers accessed credit, banks were reluctant to provide farmers with credit facilities in the absence of solid proof of their ability to repay or a bank guarantee from Kilimo.[16] Access to finance for farmers has continued to be challenge with Joseph, despite an initial partnership with one bank.[17]

Improved market integration, higher volumes sold and better prices

Across the cases there is some evidence of improved sales for farmers due to FTESA activities. There is evidence that farmers bargaining power and negotiating skills with buyers has increased by marketing collectively. Through training and advice, farmers realised that they can negotiate and command a higher price with buyers for larger, aggregated quantities that reach required quality standards that provides convenience for the buyer wanting to source larger quantities.[18] However, for the EAGC, few trades took place via the G-Soko trading platform due to various challenges associated with its development and roll out.

In some cases, farmers knowledge about the market increased, enabling them to make better decisions regarding selling versus storage, encouraging them to store until prices increased, whilst applying the knowledge acquired through training on post-harvest handling to ensure they maintain the quality of the produce for the duration of storage (e.g. Kaderes). Farmers participating in the Kilimo project also reported higher prices, however, there were cases where the lead firms paid below the market price, as well as issues regarding the quality of some of the farmers produce.

Nevertheless, in most cases, market access remains a challenge. For example, Joseph farmers expected Joseph to buy their produce, despite there being no guarantee that they would. Farmers interviewed had not sold to Joseph for four seasons. Kaderes farmers reported selling beans via their 'usual' routes to traders at the farm gate since Kaderes was not buying. Farmers often still need assistance to find and reach out to a wider range of buyers, including those willing to pay more for their aggregated quantities. Also, as noted above, for some grantees, lack of progress in establishing storage and aggregation facilities and WRSs has delayed the potential opportunity of improved returns associated with deferring sales through storage.

4.1.2. How, why, for whom and in what circumstances?

In some cases, delays in implementation means that participants are not yet using storage and aggregation facilities and there are knock-on effects elsewhere, for instance, access to credit through WRSs and deferred sales through storage. The routes to achieving the results reported in many cases were not due to storage and aggregation facilities per se (except for Joseph and EAGC), but rather **due to training which increased knowledge and changed behaviour** of farmers (understanding the benefits of aggregation, deferred sales etc. and improving farmer bargaining power) and/or because farmers **respond to the incentive provided by the promise of a market** (e.g. Kaderes). For Kaderes, farmers **responded to the visual signal** of a huge warehouse (up to 13,000MT) situated within their neighbourhood. Some farmers dropped out as the market they anticipated (Kaderes as the main buyer) did not materialise, but many remained since they had high levels of **trust in the grantee** and expected purchases in future.[19] The closure of the Joseph Centres and minimum quantity requirements (20MT) for a 'home pick up' by Joseph are out of the reach of most farmers, which sent a negative signal to farmers about the long-term prospects of dealing with Joseph as well as other off-takers, resulting in a **loss of confidence** and **low levels of trust** in the relationship with Joseph and other off-takers.[20]

16 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
17 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).
18 Itad, EAGC Endline Qualitative Case Study (July 2018).
19 Itad, Kaderes Endline Qualitative Case Study (July 2018); Itad, Kaderes 2017 Monitoring Study Report (April 2018).
20 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).

Storage rates at EAGC certified warehouses were lower than anticipated due to a variety of reasons related to trust and incentives. Many farmers have **a long-standing mistrust of third parties handling their stocks**, particularly given their produce usually accounts for most of their livelihood. Coupled with a lack of progress with G-Soko and the WRS, limiting any positive demonstration effects of using these facilities, farmers have little incentive to move their produce to a certified warehouse.[21]

Adoption and adherence to new standards for some farmers (e.g. Joseph) **remains a challenge**, where the level of effort required to meet the standards acts as a disincentive, especially when there are no assurances that buyers will purchase their grain and farmers will receive higher prices for better quality produce.[22]

For banks it is still very **risky to provide credit facilities to farmers in their individual capacities**. Across the cases, there is strong evidence that there remains **lack of trust coupled with the perception that smallholder farmers, particularly at an individual level, are high-risk** customers for banks. Farmers typically lack credit/banking history and bank guarantees and no time to create 'creditworthiness' within the lifetime of a project. Moreover, the cases found that the presence of formal contracts with guaranteed prices and markets was not necessarily enough to provide enough comfort for banks.[23]

4.1.3. What indications are there of sustainability?

For many grantees, lack of progress in providing storage and aggregation and the associated knock-on delays to other elements of the interventions, which are reliant on these facilities being up and running, means it is too soon to make a judgment on the likely sustainability of the results reported to date. However, there is some evidence that post-harvest losses are reducing, storage and aggregation is increasing, and bargaining power has increased, and that these changes will continue as farmers see the benefit, if they can access markets.

4.2. To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade? (EQ4)

Main findings and conclusions [strength of evidence: strong]: Some cases present evidence of improvements in the availability and use of improved inputs and farmers simultaneously applying GAP due to FTESA-funded activities, although in most cases the gains are not widespread in terms of number of farmers reached (e.g. Kaderes, Joseph, Mount Meru), with supplies of inputs and numbers trained lower than expected. Where farmers applied GAP and used improved inputs, productivity and quality improved in most cases.

There is strong evidence that farmers are willing to adopt new/improved inputs and practices where the benefits are clear (demonstration effects and proof of concept) and are in line with farmer's own risk appetite. The use of known and respected institutions to mobilise farmers enhanced the credibility of the intervention and generated trust, especially in contexts where farmers were risk averse and had lower levels of education, leading to greater participation rates and adoption of new and/or improved inputs and practices. The use of the lead farmer approach worked well when farmers considered the lead farmer as experienced and successful, increasing their credibility, with farmers more likely to apply training provided by them.

In some cases, gaps in service provision, such as lack of finance, reduced uptake of new and/or improved inputs. Also, despite efforts to improve access to quality inputs, delays in accessing inputs at the required quantity and quality limited the benefits. Factors outside of the direct control of the programme (e.g. fake seeds, government policy leading to delays in accessing improved seed, weather) reduced the benefits of applying better practices. There is limited evidence across the grants that improved inputs and GAP, alone, resulted in higher prices and sales, since this requires access to better markets (see evaluation question 5).

21 Itad, EAGC Endline Qualitative Case Study (July 2018).
22 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).
23 Itad, Mt. Meru Millers Ltd. Endline Qualitative Case Study (July 2018); Itad, Kilimo Trust Endline Qualitative Case Study (July 2018); Itad, EAGC Endline Qualitative Case Study (July 2018).

4.2.1. What?

Some cases present evidence of improvements in the availability and use of improved inputs and farmers simultaneously applying GAP due to FTESA-funded activities, although in most cases the gains are not widespread in terms of number of farmers reached (e.g. Kaderes, Joseph, Mount Meru), with supplies of inputs and numbers trained lower than expected. Delays in accessing inputs at the required quantity and quality also limited the benefits.

- Kilimo partnered with agricultural research specialists to produce improved seeds and recruit farmers to produce the seed, improving the availability of certified seeds to farmers.[24] A partnership between Kaderes and Kilimo improved access to, and use of, improved seeds using the lead farmer model. However, volumes were low so the benefits were not widespread.[25] Similarly, Joseph directly procured certified seeds and fertilisers and delivered them to farmers but quantities supplied were very small.
- Mount Meru had too few agronomists attempting to deliver training services across large numbers of farmers and geographical areas.[26] This contrasts with the lead farmer approach taken by Kaderes, with each lead farmer responsible for training a manageable number of smallholder farmers.[27]

Where farmers applied GAP and used improved inputs, productivity and quality improved in most cases (e.g. Kilimo, Kaderes).[28] One Kaderes group reported that using improved seeds led to output increases of 15–20%, with others reporting a doubling of output compared to traditional seeds.[29] For Kilimo, increased **use of improved seeds by the farmers led to productivity increases, with production per acre** more than tripling.[30] Some farmers also reported **improved quality of output** (e.g. Kaderes).[31] There is **limited evidence across the grants that improved inputs and GAP, alone, resulted in higher prices and sales, since this requires access to better markets** (see evaluation question 5).

4.2.2. How, why, for whom and in what circumstances?

There are several factors that contributed to activities supporting improved inputs and GAP working well. For example, **where the interventions work through known institutions which the farmers trust, this enhances the credibility of the intervention**, especially in contexts where farmers often have low levels of education and are risk averse. For example, Mount Meru targeted farmers for the soybean enterprise who had previously supplied them with sunflowers and farmers noted this as a key factor influencing their decision to take up the new riskier crop: they already had experience with the grantee and knew and trusted them.[32] This was also the case for Kaderes where registered farmers were already producing and selling coffee supported by Kaderes. Also, Kaderes reached farmers through existing institutional structures, local Savings and Credit Cooperative Organisations (SACCOs), which farmers trusted, helping mobilise farmers to join the project.[33] For Kilimo, partnerships with credible research institutions was an important factor in getting farmers to embrace new seed varieties.[34] However, **several factors outside of the direct control of the programme** (e.g. fake seeds, government policy leading to delays in accessing improved seed, weather), **reduced the benefits of applying better practices**.

Demonstration effects are key for reinforcing training and generating trust. There is strong evidence (e.g. Kaderes, Joseph, Virtual City) that farmers are willing to adopt new/improved inputs and practices where

24 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
25 Itad, Kaderes 2017 Monitoring Study Report (April 2018); Itad, Kaderes Endline Qualitative Case Study (July 2018).
26 Itad, Mt. Meru Millers Ltd. Endline Qualitative Case Study (July 2018).
27 Itad, Kaderes Endline Qualitative Case Study (July 2018).
28 Itad, Kaderes Endline Qualitative Case Study (July 2018); Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
29 Itad, Kaderes Endline Qualitative Case Study (July 2018).
30 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018)
31 Itad, Kaderes Endline Qualitative Case Study (July 2018).
32 Itad, Mt. Meru Millers Ltd. Endline Qualitative Case Study (July 2018).
33 Itad, Kaderes Endline Qualitative Case Study (July 2018).
34 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).

the benefits are clear (demonstration effects and proof of concept) and are in line with farmer's own risk appetite. For example, the provision of GAP training, coupled with demonstration plots, allowed Joseph farmers to see the productivity benefits of using certified seed as opposed to local seed.[35] Practical trainings enabled farmers to get a true sense of requirements to use seeds and, importantly, the benefits that accrue from adopting new technologies. For Kaderes, many farmers described a **'lightbulb moment'** through demonstration effects when they witnessed the success of farmers who had put the training into practice.[36]

Virtual City provided evidence of the importance of demonstrating that interventions work and deliver benefits **beyond doing 'business as usual'**. Some shopkeepers were reluctant to use the app to order inputs as they did not see anything wrong with the existing system and, more importantly, were either not aware or convinced of the benefits of changing their ways of doing business, so lacked the incentive and motivation to participate. Moreover, it also suggests that the intervention may not be responding to a real need.[37]

Some cases suggest that the **lead farmer approach works well**, especially when farmers consider the lead farmer as experienced and successful, increasing their credibility (e.g. Kaderes), with farmers more likely to apply training provided by them.[38] The perceived **credibility of the lead farmer and the grantee directly influenced participation rates** (e.g. Kaderes). However, the lead farmer approach was not always effective; for example, in the Kilimo case, lead farmers had limited reach to farmers.[39] Most of the cases raised concerns regarding the **frequency and sustainability of training**. Training needs are ongoing and farmers require repeated interactions with extension officers as well as follow up training.[40]

Gaps in service provision, such as lack of finance, reduced uptake of new and/or improved inputs. Some cases highlight the need for capital to participate successfully in some of the interventions. For instance, a lack of labour hampered efforts by Kaderes farmers to increase output, as did a lack of initial capital to purchase seeds, tarpaulins, etc.[41] Virtual City's app requires mobile phones and data bundles. By contrast, Mount Meru farmers had no upfront cost in committing to the new enterprise, so were more willing to experiment.

4.2.3. What indications are there of sustainability?

For most cases, sustainability hinges on securing market access and making better deals which in turn deliver benefits for the farmers (e.g. increased incomes), providing an incentive to continue applying improved inputs, technology and GAP. Positive demonstration effects have the potential to crowd in other farmers, and deliver sustainable and systemic change. However, many of these effects are still materialising given the stage of implementation. Sustained benefits are only likely with a critical mass of adopters and adequate time for demonstration effects to lead to behavioural changes that are unlikely to reverse. Moreover, training needs are ongoing and require continuing support and repeated interactions and evidence across most of the cases suggests this is lacking.

35 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).
36 Itad, Kaderes Endline Qualitative Case Study (July 2018).
37 Itad, Virtual City Endline Qualitative Case Study (July 2018).
38 Itad, Kaderes Endline Qualitative Case Study (July 2018).
39 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
40 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).
41 Itad, Kaderes Endline Qualitative Case Study (July 2018).

4.3. To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets? (EQ5)

Main findings and conclusions [strength of evidence – strong]: Increased smallholder farmer participation in structured regional markets was a central focus for FTESA and grantees. Case study grantees worked predominantly with smallholder farmers. The grantees helped smallholder farmers improve yields, production and quality, as well as store and aggregate greater volumes, although there were implementation challenges which curtailed the achievement of expected results (see evaluation questions three and four). While production (supply-side) interventions had some success, there was less progress in improving market opportunities. The integration of smallholder farmers in structured regional markets was not widespread during the programme's lifespan. There is some evidence that farmers are 'market-ready' and able to sell to a wider range of buyers. The interventions helped many of the farmers understand that storing produce and deferring sales can lead to higher prices, and that aggregating and marketing collectively can increase access to better markets and increase farmers bargaining power leading to increased prices. While there is some evidence of increased sales at better prices, sales volumes fell significantly short of expected results. Access to new and better markets was a challenge for many farmers, with many farmers over-relying on the grantee to provide the market.

The programme was unable to reach the scale and levels of volume and trade expected, and fell substantially short of reaching volumes required to have an impact at the regional level, including influencing market prices, partly given under-performance but largely due to unrealistic expectations. Nevertheless, FTESA helped 'lay the foundations' for greater integration in future. There is some evidence that grantees and farmers will continue with activities carried out under FTESA beyond the life of the grant, potentially allowing for a greater maturation effect. Farmers are only likely to continue with changes in practices if they can get sustained benefits through access to better markets.

Increased smallholder farmer participation in structured regional markets was a central focus for FTESA and grantees. Case study grantees worked predominantly with smallholder farmers. The evidence strongly suggests that lack of storage, aggregation and collective marketing is a fundamental barrier to improving farmers' position in the market and their ability to command higher prices.

The grantees helped smallholder farmers improve yields, production and quality, as well as store and aggregate greater volumes, although there were implementation challenges (including delays) which curtailed the achievement of expected results (see evaluation questions three and four). While production (supply-side) interventions had some success, there was less progress in improving market opportunities. The integration of smallholder farmers in structured regional markets was not widespread during the programme's lifespan. There is some evidence that farmers are 'market-ready' and able to sell to a wider range of buyers. The interventions helped many of the **farmers understand that storing produce and deferring sales can lead to higher prices**, and that **aggregating and marketing collectively can increase access to better markets and prices** as buyers prefer the convenience of purchasing aggregated produce (that reaches required standards) which creates competition amongst buyers for their produce, **leading to farmers increasing their bargaining power**. While there is some evidence of increased sales at better prices through aggregation and collective marketing, **sales volumes fell significantly short of expected results, including sales to grantees**. Access to new and better markets was a challenge for many farmers, with many farmers over-relying on the grantee (e.g. Kaderes, Joseph) to provide the market, while a few grantees (e.g. EAGC, Kilimo) facilitated connections between farmer groups and buyers.

- Kaderes farmers increased volumes and sales but the grantee has not recently purchased beans due to their own lack of storage facilities and contracts with buyers.[42] The 8% price premium offered by Joseph for maize grains initially attracted farmers to the scheme and provided a credible market outlet.[43] However, after 2016, Joseph stopped purchasing from farmers.

42 Itad, Kaderes Endline Qualitative Case Study (July 2018).
43 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).

- For Kilimo, some farmers found the payment terms with market leaders not acceptable (farmers preferring immediate cash payments rather than on credit; prices offered below local market prices; delays in collection and therefore payment). This led to side-selling, with farmers selling to other local buyers who could offer prompt payments, despite farmers having signed contracts with market leaders.[44] EAGC helped connect farmer groups with buyers, drawing on relationships developed through its ongoing business-to-business (B2B) activities, however, lack of progress with G-Soko significantly reduced the potential to increase market access.

The programme was unable to reach the scale and levels of volume and trade expected, and fell substantially short of reaching volumes required to have an impact at the regional level, including influencing market prices, partly given under-performance but largely due to unrealistic expectations. Nevertheless, FTESA helped 'lay the foundations' for greater integration in future, including improving storage and aggregation facilities and improving farmers understanding of the benefits of collective marketing through aggregation and the ability to negotiate better prices.[45]

There is some evidence that grantees and farmers will continue with activities carried out under FTESA beyond the life of the grant, potentially allowing for a greater maturation effect. Farmers are only likely to continue with changes in practices if they can get sustained benefits through access to better markets.

4.4. To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change? (EQ2)

Main findings and conclusions [strength of evidence – medium]: The grants showed limited evidence of systemic change and only early signs of the potential for spreading new behaviours to others. This was largely due to the status of implementation, where several activities were yet to deliver 'proof of concept' and demonstrate consistent and enduring benefits to a critical mass of participants to build buy-in and adoption of the new practices, and then encourage others to crowd in. Also, in many cases, farmers over-relied on support from the grantee for access to inputs, services (particularly training) and markets (see evaluation questions 3, 4 and 5), limiting sustainability and systemic change. Nevertheless, there is anecdotal evidence that FTESA interventions show potential for systemic change in a few cases, indicated by examples of farmers adopting new methods and maintaining changes in practice, some copying by non-participating farmers, and other actors crowding in.

In addition to proof of concept and demonstration effects, enablers of behavioural change amongst participants include transparency and trust between market actors, with the most frequently cited barriers hindering change were the absence of supporting rules and limited capital.

The grants showed **limited evidence of systemic change and only early signs of the potential for spreading new behaviours to others**. This was largely due to the status of implementation, where several activities were yet to deliver 'proof of concept' and demonstrate consistent and enduring benefits to a critical mass of participants to build buy-in and adoption of the new practices by participants, and then encourage others to crowd in.[46] Also, in many cases, farmers over-relied on support from the grantee for access to inputs, services (particularly training) and markets (see evaluation questions 3, 4 and 5), limiting sustainability and systemic change.

Nevertheless, there is **anecdotal evidence that FTESA interventions show potential for systemic change** in a few cases, indicated by examples of farmers adopting new methods and maintaining changes in practice, some copying by non-participating farmers, and other actors crowding in:

44 Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).

45 Itad, EAGC Endline Qualitative Case Study (July 2018).

46 Itad, EAGC Endline Qualitative Case Study (July 2018).

- Non-participants copied and took up cultivation practices that Kaderes farmers demonstrated successfully.[47]
- Some Kaderes farmers produced seeds on their own, emulating the lead farmers and working directly with the agricultural researchers, suggesting that farmers see it as worthwhile and potentially sustainable.[48]
- There are examples of farmers making investments in new crops like beans (e.g. Kilimo).[49] Kaderes persuaded its farmers to grow beans in addition to coffee.[50] However, Mount Meru and Joseph reported reluctance by some farmers to grow certain crops.[51]
- There is also evidence of farmer groups making their own investments in storage and aggregation infrastructure (e.g. EAGC).
- Kilimo's approach facilitated the involvement of several market actors to address market constraints at different levels of the system, with some actors joining without a binding memorandum of understanding (or similar) indicating that they bought into the approach.[52] However, most (EAGC, Joseph, Kilimo, Mount Meru) had limited success crowding in financial service providers, given the continuing perceived risk of lending to them, limiting sustainability.
- In some cases (e.g. EAGC), farmers now understand the benefits of aggregating and marketing collectively, changing their mindset towards marketing grain, increasing their bargaining power and potential access to new and better markets.[53]

In addition to proof of concept and demonstration effects, enablers of behavioural change amongst participants include transparency and trust between market actors, with the most frequently cited barriers hindering change were the absence of supporting rules and limited capital.

4.5. To what extent has FTESA benefited consumers? (EQ6)

Main findings and conclusions [strength of evidence – low]: Given the limited scale of most of the interventions, including geographical reach with several projects having a limited footprint across the region, the programme has not generated the substantial volumes required to pass through the market to lead to price smoothing at a regional level, partly due to the under-performance of G-Soko. While there is no systematic reporting on the benefits to the end consumer, there is anecdotal evidence that grantees are producing improved-quality and value-added products.

Benefits to consumers at this stage are difficult to assess and rely on improved functioning of markets which is yet to occur at scale. The intention was that the FTESA programme would smooth prices by moving grain from surplus to deficit areas, and storing grain during gluts for release when supplies fall, as well as improving the quality of grain. The price smoothing benefits require that FTESA-funded interventions play a very large role in grain trade around the region, with enough throughput to affect prices. However, across the cases, volumes traded in the grain market are too small to lead to region-wide price smoothing.

The programme intended G-Soko to play a large role in the grain trade across the region, bringing in suppliers and buyers above-and-beyond FTESA grantees, making it easier and less costly to trade across regional markets. Both the quality and price-smoothing benefits required that G-Soko efficiently handle enough throughput to affect prices. However, few trades took place via the platform. As a result, it did not provide the price discovery mechanism as intended. Its potential benefit to consumers through price

[47] Itad, Kaderes Endline Qualitative Case Study (July 2018).
[48] Itad, Kaderes Endline Qualitative Case Study (July 2018).
[49] Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
[50] Itad, Kaderes Endline Qualitative Case Study (July 2018).
[51] Itad, Mt. Meru Millers Ltd. Endline Qualitative Case Study (July 2018); Itad (2018) Joseph Initiative Endline Qualitative Case Study.
[52] Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
[53] Itad (2018) *EAGC Endline Qualitative Case Study*.

smoothing is unlikely to occur given challenges in both its design and implementation. Moreover, even with substantial throughput, it would be difficult to attribute price smoothing to G-Soko as there are many other factors in play that impact on trade volumes and consumer prices.[54]

Whilst there is no available evidence we can cite of benefits to consumers, it is likely that the aggregation and collective marketing model has improved quality (e.g. reduced aflatoxins) and increased volumes and therefore availability of produce in the market, potentially stabilising prices for consumers, but only at a local level given relatively small volumes. Improved quality of grain is an important and credible benefit, particularly given the prevalence of contaminants, such as aflatoxin, in many grains, which cause long-term organ damage in humans. Also, given changing demand toward processed, value-added products, especially in urban centres, and a growing market for quality, demand for such produce is likely to increase.[55]

4.6. To what extent is FTESA a collection of individual interventions or a coherent portfolio? (EQ1)

Main findings and conclusions [strength of evidence - medium]: The FTESA portfolio of grants offered opportunities for projects to benefit from complementarities and synergies between them. There is some evidence of inter-linkages and complementarities materialising between FTESA grantees that generated results in excess of what was achievable through an individual grant, where some grantees were able to tap into support provided by others to increase the impact of their interventions including combining support at different points along the value chain. Partnerships have enabled grantees to capitalise on each other's services. However, there are concerns regarding the sustainability of some of these interactions, particularly those reliant on development fund interventions rather than commercial entities.

The most frequently cited connection is with the EAGC grant, with the intention that several different FTESA-funded grantees would use the G-Soko platform and create a group of early adopters. However, the failure of G-Soko to take off successfully and demonstrate consistent results through early adopters significantly reduced the opportunity for synergies and seriously hampered FTESA's ability to create a portfolio that delivered more than the sum of its parts through grantees using the platform and accessing larger markets, with others copying. This limited sustainability and curtaild the impact of the FTESA programme in the wider market.

Linkages between FTESA grantees were in part facilitated by the FTESA PMU but were also due to the grantee's knowledge of the other grantees, existing relationships and/or searching out synergies themselves. In several cases, the PMU attempted to build linkages into the design of projects after awarding the grants.

Here we explore whether FTESA grantees took advantage of intended and unintended synergies and complementarities between grantee interventions. The FTESA portfolio of grants offered opportunities for projects to benefit from complementarities and synergies between them. There is some evidence of inter-linkages and complementarities materialising between FTESA grantees that generated results more than achievable through an individual grant, where some grantees were able to tap into support provided by others to increase the impact of their interventions including combining support at different points along the value chain. Partnerships have enabled grantees to capitalise on each other's services. However, there are concerns regarding the sustainability of some of these interactions, particularly those reliant on development fund interventions rather than commercial entities.

The most frequently cited connection is with the EAGC. The PMU focused much of their efforts on building inter-linkages and complementarities across the portfolio around the EAGC grant, with the intention that several different FTESA-funded grantees would use the G-Soko platform and create a group of early adopters. Also, the EAGC and Virtual City worked together to develop and run the G-Soko platform. For those grantees with warehouses (e.g. Kaderes, Classic, Shalem), EAGC inspected their warehouses, and in some cases certified them and provided the necessary equipment to use G-Soko, making them 'G-Soko ready'. The EAGC also provided training on post-harvest handling, including grades and standards, to other

[54] Itad (2018) *EAGC Endline Qualitative Case Study*.

[55] Itad (2016) *FTESA Mid-term Evaluation*; Itad (2018) *EAGC Endline Qualitative Case Study*.

grantees' warehouse operators, aggregation centres and farmers. However, whilst many grantees became 'G-Soko ready', few grantees traded on the G-Soko trading platform. Of those grantees (e.g. Shalem, Farm Africa, Raphael Group) that traded (or attempted to trade) on the platform, indications suggest that they are unlikely to do so in the future given several challenges using the platform.[56] Problems with G-Soko reduced the potential for demonstration effects through FTESA grantees using the platform (as early adopters), disincentivising many users (existing and potential) from using the platform, reducing the sustainability of the platform. The failure of G-Soko significantly reduced the opportunity for synergies and seriously hampered FTESA's ability to create a portfolio that delivered more than 'the sum of its parts' through grantees using the platform and accessing larger markets, with others copying, curtailing the impact of the programme in the wider market. [57]

Other examples of synergies include partnerships between Kaderes and Kilimo, which built on complementarities and synergies between the grantees. Kaderes tapped into Kilimo's expertise and working partnerships to deliver activities related to inputs under the project. Kaderes and Raphael, both FTESA grantees, were also two of the lead firms in Kilimo's consortia approach.[58]

Linkages between FTESA grantees were in part facilitated by the FTESA PMU but were also due to the grantee's knowledge of the other grantees, existing relationships and/or searching out synergies themselves. The PMU attempted to build linkages with G-Soko after awarding grants, or in grant agreements for more recent grants (e.g. Farm Africa).[59]

56 Itad, EAGC Endline Qualitative Case Study (July 2018).
57 Itad, EAGC Endline Qualitative Case Study (July 2018).
58 Itad, Kaderes Endline Qualitative Case Study (July 2018); Itad, Kilimo Trust Endline Qualitative Case Study (July 2018).
59 Itad, EAGC Endline Qualitative Case Study (July 2018).

5. Main findings and conclusions

To what extent have improved trade support systems increased production and trade (EQ3)?

Overall, evidence due to FTESA-led improvements in trade support systems shows mixed success, partly due to delays in implementation including where some interventions are reliant on the completion of other activities (e.g. a WRS requires the warehouse to be in place to the required standards), and short timeframes for results to transpire. There was some good progress and achievements on activities that set the foundations for improvements in trade support systems. Despite differences in context and implementation models, some of the grants helped farmers reduce post-harvest losses, increase volumes and quality of produce stored and aggregated, as well as improving farmers' position in the market, but the results fall short of expectations. Training on post-harvest handling, in combination with the incentive of higher prices for aggregated better-quality produce, helped farmers understand the value of improving post-harvest handling and aggregating produce, as well as motivated farmers to improve post-harvest handling and store and aggregate their produce with others, reaching required standards, and marketing collectively to access better markets, given the right incentives and demonstrated benefits – namely, better prices and market access.

However, in many cases the aggregation volumes fell short of the volumes expected. Barriers to storage and aggregation and improving quality curtailed the achievement of expected results, including construction delays, issues of trust and lack of better markets. Some of the grants were unable to deliver key output milestones within the relatively short timeframes. Also, access to finance remains a major challenge, with considerable institutional barriers existing in the financial markets, where in many cases banks remain risk averse about lending to smallholder farmers.

[Strength of evidence - strong]

To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade (EQ4)?

Some cases present evidence of improvements in the availability and use of improved inputs and farmers simultaneously applying GAP due to FTESA-funded activities, although in most cases the gains are not widespread in terms of number of farmers reached (e.g. Kaderes, Joseph, Mount Meru), with supplies of inputs and numbers trained lower than expected. Where farmers applied GAP and used improved inputs, productivity and quality improved in most cases.

There is strong evidence that farmers are willing to adopt new/improved inputs and practices where the benefits are clear (demonstration effects and proof of concept) and are in line with farmer's own risk appetite. The use of known and respected institutions to mobilise farmers enhanced the credibility of the intervention and generated trust, especially in contexts where farmers were risk averse and had lower levels of education, leading to greater participation rates and adoption of new and/or improved inputs and practices. The use of the lead farmer approach worked well when farmers considered the lead farmer as experienced and successful, increasing their credibility, with farmers more likely to apply training provided by them.

In some cases, gaps in service provision, such as lack of finance, reduced uptake of new and/or improved inputs. Also, despite efforts to improve access to quality inputs, delays in accessing inputs at the required quantity and quality limited the benefits. Factors outside of the direct control of the programme (e.g. fake seeds, government policy leading to delays in accessing improved seed, weather) reduced the benefits of applying better practices. There is limited evidence across the grants that improved inputs and GAP, alone, resulted in higher prices and sales, since this requires access to better markets (see evaluation question 5).

[Strength of evidence: strong]

Itad

To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets (EQ5)?

Increased smallholder farmer participation in structured regional markets was a central focus for FTESA and grantees. Case study grantees worked predominantly with smallholder farmers. The grantees helped smallholder farmers improve yields, production and quality, as well as store and aggregate greater volumes, although there were implementation challenges which curtailed the achievement of expected results (see evaluation questions three and four). While production (supply-side) interventions had some success, there was less progress in improving market opportunities. The integration of smallholder farmers in structured regional markets was not widespread during the programme's lifespan. There is some evidence that farmers are 'market-ready' and able to sell to a wider range of buyers. The interventions helped many of the farmers understand that storing produce and deferring sales can lead to higher prices, and that aggregating and marketing collectively can increase access to better markets and increase farmers bargaining power leading to increased prices. While there is some evidence of increased sales at better prices, sales volumes fell significantly short of expected results. Access to new and better markets was a challenge for many farmers, with many over-relying on the grantee to provide the market.

The programme was unable to reach the scale and levels of volume and trade expected, and fell substantially short of reaching volumes required to have an impact at the regional level, including influencing market prices, partly given under-performance but largely due to unrealistic expectations. Nevertheless, FTESA helped 'lay the foundations' for greater integration in future. There is some evidence that grantees and farmers will continue with activities carried out under FTESA beyond the life of the grant, potentially allowing for a greater maturation effect. Farmers are only likely to continue with changes in practices if they can get sustained benefits through access to better markets.

[Strength of evidence – strong]

To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change (EQ2)?

The grants showed limited evidence of systemic change and only early signs of the potential for spreading new behaviours to others. This was largely due to the status of implementation, where several activities were yet to deliver 'proof of concept' and demonstrate consistent and enduring benefits to a critical mass of participants to build buy-in and adoption of the new practices, and then encourage others to crowd in. Also, in many cases, farmers over-relied on support from the grantee for access to inputs, services (particularly training) and markets (see evaluation questions 3, 4 and 5), limiting sustainability and systemic change. Nevertheless, there is anecdotal evidence that FTESA interventions show potential for systemic change in a few cases, indicated by examples of farmers adopting new methods and maintaining changes in practice, some copying by non-participating farmers, and other actors crowding in.

In addition to proof of concept and demonstration effects, enablers of behavioural change amongst participants include transparency and trust between market actors, with the most frequently cited barriers hindering change were the absence of supporting rules and limited capital.

[Strength of evidence – medium]

To what extent has FTESA benefited consumers (EQ6)?

Given the limited scale of most of the interventions, including geographical reach with several projects having a limited footprint across the region, the programme has not generated the substantial volumes required to pass through the market to lead to price smoothing at a regional level, partly due to the under-performance of G-Soko. While there is no systematic reporting on the benefits to the end consumer, there is anecdotal evidence that grantees are producing improved-quality and value-added products.

[Strength of evidence – low]

Itad

To what extent is FTESA a collection of individual interventions or a coherent portfolio (EQ1)?

The FTESA portfolio of grants offered opportunities for projects to benefit from complementarities and synergies between them. There is some evidence of inter-linkages and complementarities materialising between FTESA grantees that generated results in excess of what was achievable through an individual grant, where some grantees were able to tap into support provided by others to increase the impact of their interventions including combining support at different points along the value chain. Partnerships have enabled grantees to capitalise on each other's services. However, there are concerns regarding the sustainability of some of these interactions, particularly those reliant on development fund interventions rather than commercial entities.

The most frequently cited connection is with the EAGC grant, with the intention that several different FTESA-funded grantees would use the G-Soko platform and create a group of early adopters. However, the failure of G-Soko to take off successfully and demonstrate consistent results through early adopters significantly reduced the opportunity for synergies and seriously hampered FTESA's ability to create a portfolio that delivered more than the sum of its parts through grantees using the platform and accessing larger markets, with others copying. This limited sustainability and curtailed the impact of the FTESA programme in the wider market.

Linkages between FTESA grantees were in part facilitated by the FTESA PMU but were also due to the grantee's knowledge of the other grantees, existing relationships and/or searching out synergies themselves. In several cases, the PMU attempted to build linkages into the design of projects after awarding the grants.

[Strength of evidence - medium]

6. Lessons learned

To what extent have improved trade support systems increased production and trade (EQ3)? To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade (EQ4)? *(The lessons are similar for both evaluation questions 3 and 4, so we combine them here to avoid repetition)*.

The experience across the cases shows that farmers changed and improved their practices when there was transparency and trust between the farmer groups and grantees and confidence in the intervention. Positive demonstration effects reinforced training, improved application of new practices by demonstrating the benefits first-hand, and were important catalysers to generating trust, and increasing uptake of unproven methods and crops. However, such changes are only likely to endure where farmers consistently experience 'proof of concept' including securing better markets. Where farmers did not change behaviour, or reverted to previous practices, due for instance to lack of demonstrated benefits and trust in the implementer and/or intervention, such behaviour reflects rational risk perceptions of farmers unwilling to change practices, or maintain new practices, if expected benefits do not materialise.

Given that smallholder farmers remain a high-risk borrower for banks, the experience across grants highlights the importance of building the creditworthiness of smallholder farmers, ensuring the appropriate systems and guarantees are in place to reduce such real risks and improve repayment rates.

The cases show that some of the activities (e.g. warehouse construction) took longer than anticipated, with knock on delays to other aspects of the intervention (e.g. WRS). While perhaps obvious, the experience highlights the importance of sequencing interventions and the time required to establish the building blocks. Challenges in implementation and lack of markets curtailed the achievement of expected results, especially at the outcome and impact levels, and undermined the potential sustainability of interventions.

The one-off nature of activities, especially training, reduces the sustainability of benefits since farmers typically require follow up demonstrations and repeated interactions with trainers to build confidence in adopting new crops, inputs and methods, as well as to help adapt practices as challenges arise over time.

To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets (EQ5)?

Like the learning under evaluation questions three and four, an important enabler to developing successful and sustainable commercial relationships between farmers and buyers is transparency and open communications in trading relationships, with both parties honouring their commitments consistently, which helps build trust (e.g. farmers supplying contracted quantities on time and at the right quality; buyers purchasing and collecting on time according to agreed payment terms; etc.). Wider experience shows that farmers' negative experiences with buyers and agro-dealers in the past led to entrenched negative perceptions of some actors in the value chain, which are rational based on their experience. For instance, farmers signing too many contracts with off-takers is symptomatic of farmers 'hedging their bets' based on previous experience that buyers may not honour their contracts including payment terms. Cases of off-takers delaying purchases and payments perpetuated farmers' perceptions of lack of certainty that the transaction will take place, breaking down trust, and encouraging side-selling by farmers. Also, limited trades through the G-Soko platform reduced the appetite for using it. Farmers need consistent demonstration effects to adopt a new way of doing business, otherwise they will quickly revert to previous ways of doing business given their, often immediate, cash needs. Moreover, farmers are often rational decision-makers aware of the benefits of improving practices, however, they are often unwilling to invest resources (even with consistent demonstration effects of improved yields, reduced losses, etc.) if they are uncertain that the extra investment will pay off through improved markets and sales.

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To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change (EQ2)?

The innovative nature of many activities requires enough time to experiment at a small scale before rolling out interventions to others. Systemic change takes time to materialise, particularly where there are deeply entrenched ways of doing business that projects seek to change. Moreover, some of the projects designed to deliver systemic change over a relatively short period of time attempted to reach scale too quickly, before positive demonstration effects emerged. The importance of delivering expected results, and the slow start-up of many projects, created pressure to scale up quickly. However, this is often self-defeating since systemic change requires demonstration of early success first so that others follow, enhancing the sustainability of the interventions. Rolling out too quickly can lead to mistakes and insufficient time to learn by doing and, more importantly, disincentivises participants (existing and potential) who are not yet convinced of the potential benefits of changing their way of doing business, limiting sustainability. The assumption that the benefits generated through the grantees' interventions are a catalyst to longer term changes in ways of doing business that are sustainable (i.e. do not require continued funding) is only likely if other actors 'crowd into' the system and provide incentives for farmers to maintain and continually improve changed practices, but those other actors need the incentive to do so.

In sum, changes are only likely to continue and spread in the longer term if: (i) benefits from additional effort materialise and endure (i.e. better markets); (ii) where there are mechanisms for continual updating of knowledge and learning to ensure better practices continue and can adapt to the external environment (e.g. new technologies, new threats) alongside consistent positive demonstration effects that lead to wider adoption rates; and, (iii) where the market provides supporting functions, such as access to credit. The main lesson learned from the grants is the need to crowd in commercial players to provide services and markets which are not dependent on external funding (i.e. creating the right commercial incentives).

Attempting to achieve market level changes through a five-year programme that provides grants through an award mechanism requires time to experiment and learn before identifying and scaling up promising interventions. Such funds typically encounter difficulties fostering systemic change not only because of the short timelines but also because creating systemic change usually requires ongoing support for piloting, learning and iterating before expanding.

To what extent has FTESA benefited consumers (EQ6)?

The main lesson is that the ambitions for the programme were set too high in the design. The programme was unable to reach the scale and levels of volume and trade required to have an impact at the regional level, including influencing market prices, largely due to unrealistic expectations of what the projects could achieve over relatively short timeframes and limited geographical reach.

To what extent is FTESA a collection of individual interventions or a coherent portfolio (EQ1)?

The programme's strategy to develop a coherent portfolio of projects that complemented each other through successive rounds was a relevant approach to generate results in excess of the programme's component parts. However, the FTESA experience demonstrates the importance of building in inter-linkages directly in the design of the grants and overall portfolio. Also, the reliance on one grant (EAGC/G-Soko) to generate most of the synergies was a risky strategy, shown by its under-performance.

7. Recommendations

To what extent have improved trade support systems increased production and trade (EQ3)? To what extent have improved availability and use of inputs and application of good agricultural practices increased production and trade (EQ4)? *(The recommendations are similar for both evaluation questions 3 and 4, so we combine them here to avoid repetition).*

Similar programmes should give more attention to the time required to roll out activities that form the foundations (e.g. outputs: warehouses constructed and operational and used; electronic platforms developed and fully operational and functional and used) before higher level results (e.g. outcomes and impacts: volumes, sales, prices, trade) are likely to materialise. Moreover, some elements of an intervention are dependent on the completion of activities, and similar programmes should give more attention to the importance of sequencing different elements of an intervention, and the time required to do so.

Similar programmes should ensure grantees (or similar) develop effective exit strategies so that participants are not dependent on the grantee for inputs and training and that permanent market actors have the incentive to provide, scale and adapt training as new technologies and practices become available. These actors can support farmers to address challenges as they arise that require advice and adaptation to effectively utilise new methods and inputs. Similar programmes should explore how to engage permanent market actors directly to improve long-term access to such services.

Similar programmes should also take a more comprehensive, multi-faceted approach necessary to improve access to finance, focusing on improving the credit worthiness of farmers.

To what extent and how has FTESA brought (or facilitated) smallholder farmers into structured regional markets (EQ5)?

Similar programmes should give more attention to the demand-side and facilitating relationships and contractual arrangements that are open, transparent, and based on regular communication, which incentivises both parties – buyer and seller – to fully honour their commitments in a timely manner. Moreover, future programmes should allow enough time for interventions to be up-and-running and broker relationships (through trusted partners) across the value chain, and ideally include enough time for multiple transactions to take place to allow for ongoing learning and adaptation where challenges arise or good practice emerges.

To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change (EQ2)?

For similar programmes, we recommend a more measured approach to scaling up, as well as reduced ambition on results (i.e. lower targets), which gives time for experimenting, piloting, learning, adaptation etc. and demonstrating results before scaling up (projects should not, and cannot, attempt to pilot/experiment and scale-up simultaneously). This also requires longer periods of support to interventions for demonstration effects to transpire. DFID should consider whether they can develop similar future programmes with a longer timespan to give adequate time for systemic change to materialise.

To what extent has FTESA benefited consumers (EQ6)?

Similar programmes that aim to influence prices at a regional level should consider whether this is a realistic expectation given the scope and timeframe of the programme, as well as the multitude of other factors that influence prices at the regional level. Perhaps a more realistic approach is not to include such ambitious aims in future programmes, and associated theories of change, which are likely not achievable.

To what extent is FTESA a collection of individual interventions or a coherent portfolio (EQ1)?

DFID should ensure that the design of future portfolio-approach programmes, which rely on inter-linkages and complementarities to generate expected results, includes more active hands-on support from PMUs

(or similar) in designing projects, requiring more extensive technical assistance and mechanisms to generate real-time learning and foster coordination and collaboration between implementing partners.

8. Annexes

8.1. References

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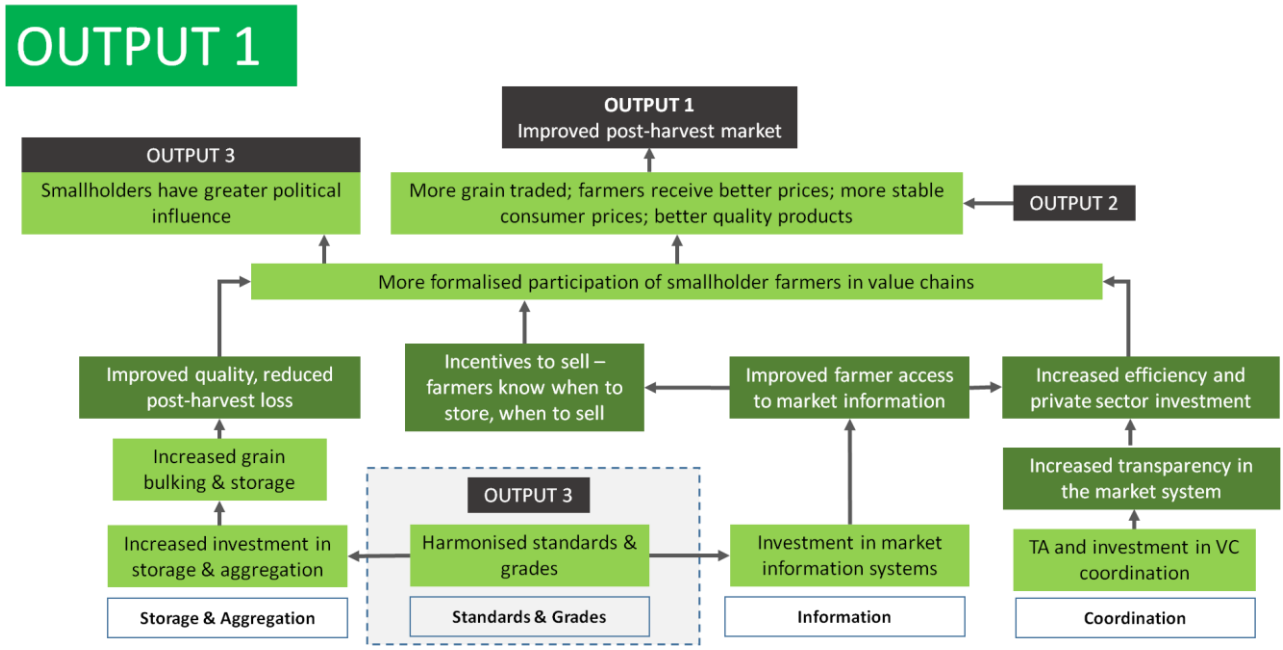
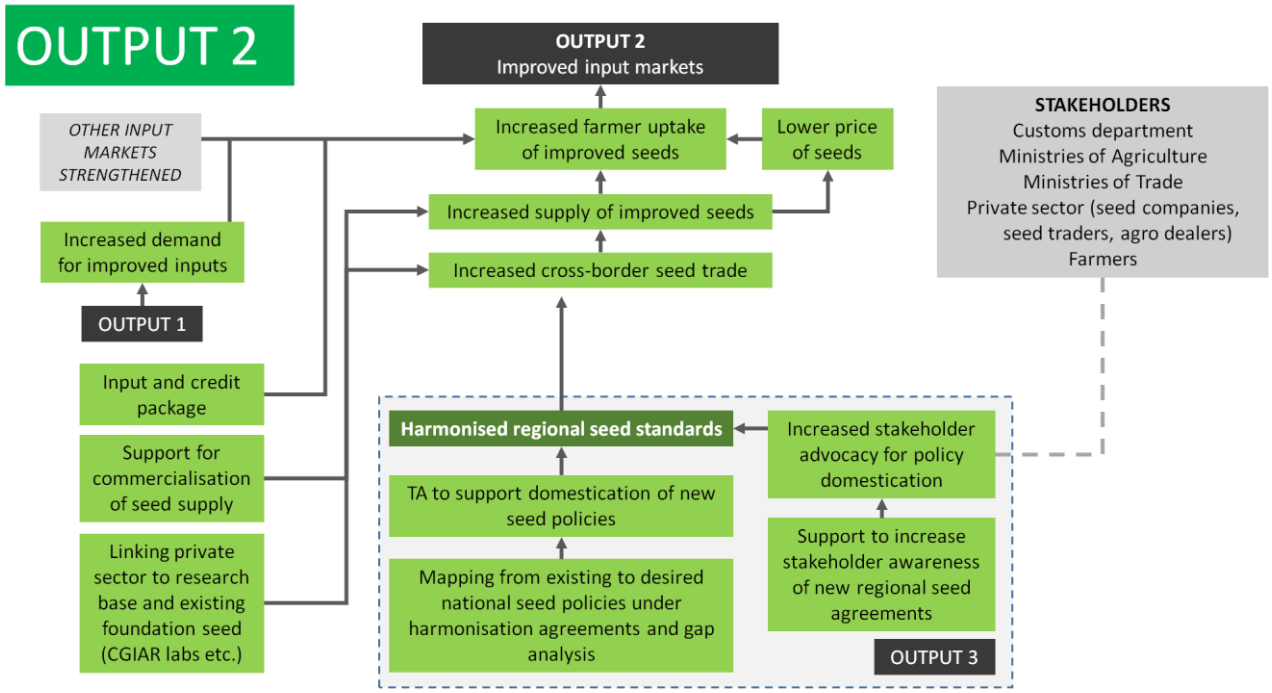
8.2. Output Theories of Change





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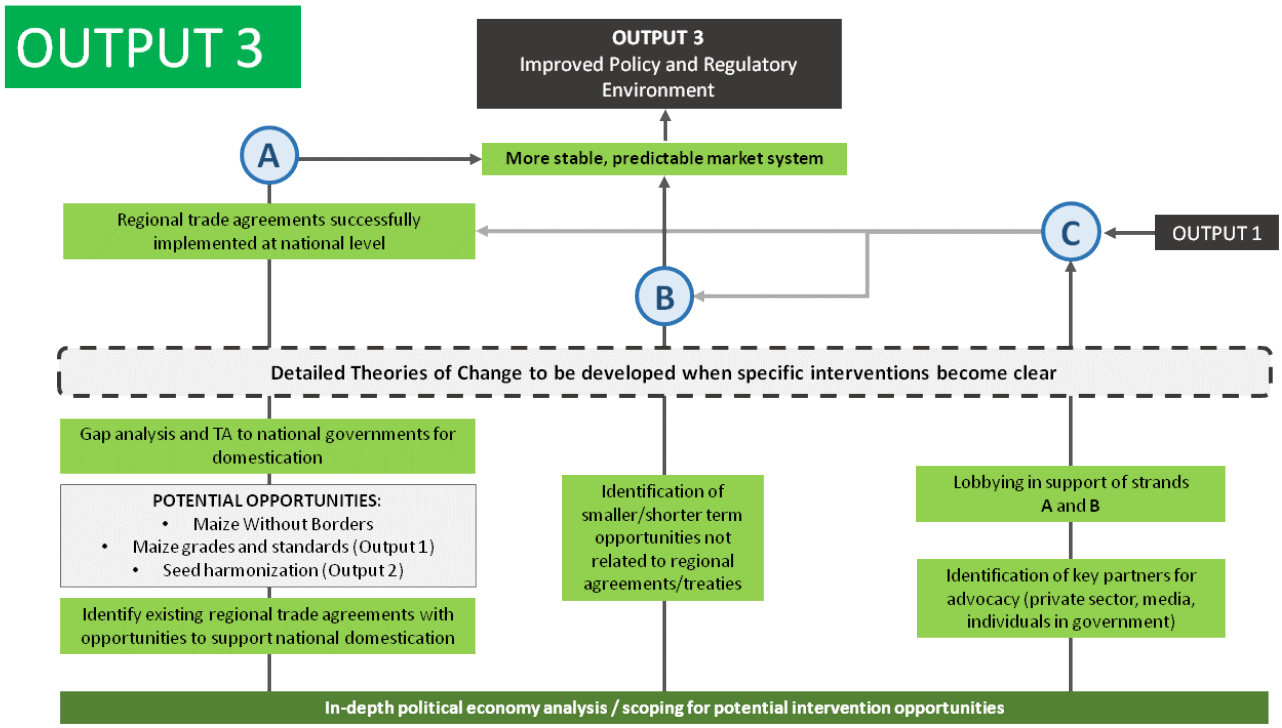
OUTPUT 3
OUTPUT 3
Improved Policy and Regulatory Environment
A
More stable, predictable market system
Regional trade agreements successfully implemented at national level
C
OUTPUT 1
B
Detailed Theories of Change to be developed when specific interventions become clear
Gap analysis and TA to national governments for domestication
POTENTIAL OPPORTUNITIES:
• Maize Without Borders
• Maize grades and standards (Output 1)
• Seed harmonization (Output 2)
Identify existing regional trade agreements with opportunities to support national domestication
Identification of smaller/shorter term opportunities not related to regional agreements/treaties
Lobbying in support of strands A and B
Identification of key partners for advocacy (private sector, media, individuals in government)
In-depth political economy analysis / scoping for potential intervention opportunities

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8.3. Evaluation matrix

EQ and SEQs	Programme theories	ICMOs	Realist enquiry
Portfolio-level (complementarity/synergies)			
1) **To what extent is FTESA a collection of individual interventions or a coherent portfolio?** a) What: To what extent has the combination of interventions generated results in excess of the programme's component parts (i.e. generated complementarities/synergies)? b) How, why and for whom and in what circumstances: How and why have these complementarities/synergies materialised? What were the mechanisms at play? Who has benefitted from the complementarities/synergies? What circumstances (conditions, enabling/ constraining factors) are conducive (or not) to generating benefits in excess of the programme's component parts? c) What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?	By addressing market constraints/failures, through funding interventions where there are identifiable complementarities and synergies, and creating linkages between interventions (grant and non-grant), FTESA interventions will generate results that are greater than if the interventions were implemented in isolation, and these results will continue beyond programme close.	i. By identifying and targeting synergies and complementarities between grantees – where markets are inefficient, market information is lacking, asymmetries exist and market actors lack incentives to work together – market actors are more willing and able to work together and develop new mutually beneficial partnerships, increasing transactions between parties, and improving market efficiency. ii. By identifying farmers, through grantees, who can feed produce into the Gsoko platform – where markets lack transparency and price discovery – and who can collectively channel sufficient volumes of produce from farmers through the platform to enable price discovery, and through linking sufficient buyers to the platform, farmers will access a large number of potential buyers and auction their grains to the highest bidder through Gsoko's price discovery mechanism, improving market efficiency.	Are grantees collaborating? To what extent? Who? How and why are grantees collaborating? In what circumstances? What are the results? Any unanticipated outcomes? What do you think caused these changes? How has FTESA contributed? Are these changes likely to endure?
Market-level (systemic change/ sustainability)			
2) **To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change?** a) What: To what extent is FTESA likely to improve the functioning of national and regional staple food markets and generate systemic change? Is there any evidence it has done so, so far? b) How, why and for whom and in what circumstances: How and why have changes materialised, or are likely to materialise? What are the likely mechanisms for the	By addressing market constraints/failures through funding interventions with potential to generate wider change in the market (beyond the intervention itself), FTESA interventions deliver changes in market functioning that trigger widespread changes in behaviour (interest, motivations, practices) that are maintained after external support has ended, leading to higher volumes sold, better prices received, greater integration into value chains, and higher profits.	i. Where sufficient volumes are traded through Gsoko, leading to price discovery and market transparency, traders will have more access to buyers who are willing to pay for higher quality produce, and will therefore be more willing to offer a premium to farmers for higher quality grain, incentivising farmers to increase investments in production and PHH as they are consistently rewarded with higher margins for producing good quality grains, and farmers will change their preferences for quick cash payments	Have motivations, interests, behaviours, practices, relationships, etc. of actors in the supply chain changed? To what extent? For whom? How and why? In what circumstances? What are the results? Any unanticipated outcomes?

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EQ and SEQs	Programme theories	ICMOs	Realist enquiry
spread of behaviour changes across networks of actors? Which actors are pivotal to the spread of new behaviours? Who is likely to benefit? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to generating systemic change? c) What indications are there of <u>sustainability</u>? What is the likelihood these will be sustained after direct support has ended?		at the harvest season, as they become convinced that storing grains brings higher sales well after the harvest season, and receipts/vouchers enable them to wait for prices to rise. ii. Through a precursor network of early adopting traders using Gsoko, linked to groups of farmers aggregating produce that demonstrate consistent performance, this will lead to the spread of behaviour to larger networks of traders and farmers, delivering changes in market functioning that, in turn, trigger further changes in behaviour (interest, motivations, practices) beyond the intervention.	What do you think caused these changes? How has FTESA contributed? Are these changes likely to endure?
Individual-level			
3) **To what extent have improved trade support systems (output 1: storage, aggregation, information, value chain coordination, grades and standards, credit) increased production and trade?** a) <u>What:</u> To what extent has FTESA improved trade support systems? To what extent has production and trade increased as a result? Where there has been an increase in trade, to what extent has this trade been cross-border or within national boundaries? b) <u>How, why, for whom and in what circumstances:</u> How and why have these changes materialised? What were the mechanisms at play? Who has benefitted? What circumstances (conditions, enabling/constraining factors) were conducive (or not) to generating benefits for producers, farmers, traders and firms? c) What indications are there of <u>sustainability</u>? What is the likelihood these will be sustained after direct support has ended?	**a. Storage and aggregation** By addressing market constraints/failures through improving storage (e.g. warehouse) and aggregation facilities, FTESA interventions will increase access to good quality storage and aggregation facilities for traders and farmers, and in some cases provide access to buyers (the storage and aggregation operators themselves or buyers who want to buy in bulk) which will: i. enable farmers and traders to **store** surpluses at harvest time when prices are lower and sell when prices are higher, leading, in time, to better (higher and/or more stable) prices and increased incomes; ii. enable farmers and traders to **store** surpluses and reduce PHL, leading to greater volumes sold and increased incomes; iii. encourage farmers to increase production, leading to more produce **stored** and sold, and increased incomes; iv. give farmers greater bargaining power with traders as they have an alternative (**storage**) to selling and do not need to sell all their produce (to avoid spoilage), leading, in time, to better (higher and/or	**a. Storage and aggregation** i. Store: Providing good quality storage and aggregation facilities, where farmers do not have access to good quality facilities and/or do not trust existing facilities, and *where farmers are able to produce a surplus*, encourages farmers to choose to store produce in facilities rather than store produce at home. This will reduce PHL, leading to greater volumes sold and increased incomes ii. Store: Providing a receipt as evidence of ownership of stocks at the warehouse/ aggregation centres gives farmers a guarantee and reassurance that their stocks will not be misappropriated, encouraging farmers to store when prices are low and sell later when prices are higher, leading, in time, to greater volumes sold, better prices and increased incomes. iii. Store: Providing a receipt that can be used to access credit, motivates farmers to store produce. iv. Sell: Providing good quality storage and aggregation facilities, which buy from the farmers with partial payments offered upfront and future payments based on higher prices received later,	What [*insert storage, credit, etc.*] are being accessed or used or adopted? To what extent? How and why? By whom? In what circumstances? What are the results (prices, yields, etc.)? Any unanticipated outcomes? What do you think caused these changes? How has FTESA contributed? Are these changes likely to endure?

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EQ and SEQs	Programme theories	ICMOs	Realist enquiry
	more stable) prices and increased incomes; v. improve the quality of produce stored, allowing storage and aggregation facilities to sell produce as higher quality, and therefore at higher prices, and these price increases will be passed on to the traders and farmers who store or sell to the warehouses, leading to increased incomes of traders and farmers. vi. enable traders and farmers to **store** their produce with others, and negotiate better prices for bulk purchases with buyers, leading to greater sales and better (higher and/or more stable) prices, and increased incomes. vii. allow bulking of products, reaching minimum quantity orders for warehouses, silos and mills, etc., increasing the range of buyers including buyers who are willing to pay more and therefore increasing market access, leading to greater **sales** and better (higher and/or more stable) prices, and increased incomes. viii. provide a market for farmers and traders who can **sell** their produce to the storage or aggregation facility, encouraging farmers to grow more produce, leading to more produce sold and increased incomes. ix. enable farmers to locally aggregate farm produce, reducing the need for individual deliveries to warehouses, reducing transaction costs and increasing margins. x. increase competition in the market for storage, offering more choice, reducing costs and increasing margins for farmers, leading to increased (net) incomes.	*where farmers face restricted markets and are price takers selling to middlemen*, reduces the pressure for short-selling at a lower price and leads to farmers choosing to sell to the warehouse for a promised higher price, receiving some upfront payment that can be used to purchase inputs. This will incentivise farmers to increase production and productivity and sell further produce to the warehouses, leading to increased incomes. v. Sell: Construction or upgrading of warehouses, aggregation and processing centres, *where farmers do not have access to good quality facilities and face restricted markets*, signals to farmers that they can trust the implementer as a serious buyer of their crops, encouraging farmers to increase production to sell to the implementer, leading to increased incomes. vi. Store/sell: Dissemination of information to farmers about the benefits of bulking produce with others in order to access high-value buyers, who purchase in bulk and pay more per unit, *where farmers and farmer groups are not aware of these benefits*, motivates farmers to organise themselves into farmer groups to aggregate produce and sell in bulk to new buyers, leading to increased sales, better prices and increased income. vii. Sell: Upgrading and certification of storage and aggregation facilities, *where there are few good quality/certified facilities*, signals to buyers that they can trust the facility, encouraging buyers to purchase from these facilities. viii. Store: Upgrading and certification of storage and aggregation facilities, *where there are few good quality/certified facilities*, signals to farmers/traders that they can trust the facility, encouraging farmers/traders to store in these facilities. Higher quality then leads to better prices,	

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EQ and SEQs	Programme theories	ICMOs	Realist enquiry
		reduced PHL, increased volumes sold and increased incomes. ix. Store: increased competition in the market for storage, offers more choice, reducing costs and increasing margins for farmers, leading to increased (net) incomes.	
	b. Market information By addressing market constraints/failures through improving market information, FTESA interventions will increase access to market information (on prices over time and space; on market requirements) for traders and farmers, providing more accurate and timely information, enabling them to make more informed decisions on production, storage, sales, leading to: i. increased trade between surplus and deficit areas, leading to better (higher and/or more stable) prices, greater sales and smoothing or increasing incomes; ii. more produce stored during surplus periods and released during shortage periods, leading to better (higher and/or more stable) prices, greater sales and smoothing or increasing incomes; iii. identification of more profitable selling and buying opportunities, leading to better informed decisions on production and storage, improving market efficiency and leading to more volumes produced, sold and traded. iv. better prices negotiated with traders, reducing the margin received by traders, and increasing farmer incomes.	i. Providing accurate, real-time market information (e.g. on price), *where there are high seasonal price volatilities in agricultural markets and farmers do not have access to accurate and timely information and are price takers at the farm gate*, enables farmers to make better decisions on production, storage, sales, etc., including when to store and when and where to sell, and to negotiate better prices based on price signals, leading to better prices received and smoothing or increasing incomes, increasing farmers ability to withstand shocks. ii. When market information services combine with other investments along the value chain (e.g. storage), farmers are enabled to use market information to decide when to sell or store, leading to better prices thus smoothing or increasing incomes. iii. Providing accurate, real-time market information (e.g. on price), *where there is imperfect information that undermines transactions between parties*, reduces the risk of non-performance of trade contracts, making transactions more transparent, increasing market efficiency. iv. Providing accurate, real-time market information (e.g. on price) to smallholder farmers, *where imperfect information problems often undermine transactions between parties and skews bargaining power in favour of the traders*, means farmers can make informed choices about who to sell to and when, negotiating better prices, leading	

EQ and SEQs	Programme theories	ICMOs	Realist enquiry
		to increases in incomes.	
	c. Value chain coordination i. By addressing market constraints/failures through off-takers who guarantee purchases (e.g. through formal contractual obligations between buyer and seller), FTESA interventions will provide a guaranteed market for sellers, and creates an incentive for farmers to increase production to sell to the buyer, leading to greater volumes, sales and increasing incomes. ii. By addressing market constraints/failures through off-takers who guarantee purchases (e.g. through formal contractual obligations between buyer and seller), FTESA interventions will enable off-takers to provide more stable volumes to the market, improving market functioning, stimulating structured investments, and stabilising the markets. iii. By addressing market constraints/failures through the provision of trading platforms linking buyers and sellers and providing information on available stocks etc., FTESA interventions will stimulate market transparency and price discovery, reducing price unpredictability and potential collusion, enabling market actors to make better informed decisions.	i. By developing linkages between buyers (e.g. off-takers) and sellers (e.g. farmers), including contractual obligations that guarantee purchases and provide prompt payments to farmers, often including partial 'on-spot' payments and remaining payments based on higher prices received later, *where there is restricted market access and linkages between businesses (namely buyers and sellers) in the value chain*, this gives farmers the confidence and incentive to invest in increasing production, quality, and storage and aggregation, provides immediate cash-flow requirements, and also gives suppliers (e.g. inputs) the confidence to provide inputs in advance of payment. i. By signing up a critical mass of farmers to an out-grower scheme linked to a warehouse or aggregation centre, *where farming operations are disjointed, small scale and individual*, this enables the accumulation of aggregate quantities that satisfy the minimum quantity delivery requirements of buyers (including those who upgrade/process produce – i.e. higher value markets), increasing market access and efficiency, and improving value addition, leading in time to more sales, better prices and increased incomes for farmers. [Assuming price increases passed on to farmers] Organising farmers into clusters, *where farming operations are disjointed, small scale and individual*, this enables the accumulation of aggregate quantities that satisfy the minimum quantity delivery requirements of buyers (including those who upgrade/process produce – i.e. higher value markets), increasing market access and efficiency, and improving value addition, leading to more sales, better prices and	

EQ and SEQs	Programme theories	ICMOs	Realist enquiry
		increased incomes for farmers. [Assuming price increases passed on to farmers] iii. When there is a guarantee of sufficient supply to market off-takers, *where supplies from smallholder farmers are often irregular*, it enables off-takers to plan better, providing more stable volumes to the market, improving market functioning, stimulating structured investments, and stabilising the markets. iv. Creation of a trading platform, *where there is restricted market access and linkages between buyers and sellers in the value chain and market information is inadequate*, provides linkages between buyers and sellers, thereby increasing market access, and provides greater price transparency. This enables market actors to make better informed decisions including moving produce from surplus to deficit areas where prices are higher – *when transport is available, adequate and affordable* – or store during surplus periods and release when prices are higher, therefore increasing trade, stabilising prices, smoothing/ increasing incomes, improving market efficiency and reducing food insecurity.Creation of a trading platform that links certified warehouses that adhere to quality standards, *where inconsistent quality of produce necessitates the physical inspection of commodities*, allows buyers to purchase produce without the need for physical inspection, reducing the transactions costs of buying and selling produce, improving market efficiency over time.	
	Credit By addressing market constraints/failures through **improving credit facilities and providing legitimate and recognised forms of collateral** (e.g. forward contracts, warehouse receipts, etc.), FTESA	i. Providing farmers who store produce with a warehouse receipt that can be partially cashed-in or used as collateral, *where farmers lack collateral, lack access to finance, experience cash flow constraints and lack inputs*, motivates the farmers	

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EQ and SEQs	Programme theories	ICMOs	Realist enquiry
	interventions will increase access to credit and inputs, enabling farmers to use credit to increase investments in inputs and other services, and improve cash flow, deterring farmers from selling immediately, leading to increased production, higher productivity, reduced PHL, improved produce quality, greater sales, better prices and increased incomes.	to store and obtain a receipt, 'cashing-in' on some of the receipt and using it as collateral to obtain a loan/inputs, etc., deterring farmers from quick sales of all produce at the farm gate, therefore increasing the value of produce through storage and increased investments in productive activities (e.g. inputs, earlier and more frequent planting, etc.), leading to increased productivity, production and quality, and reduced PHL, leading to increased sales and better prices, and smoothed and/or increased incomes. ii. Providing farmers who store produce with voucher that can be used to access a range of services (e.g. education and health services), *where farmers typically sell immediately to pay for school and health fees*, etc., motivates the farmers to store and obtain a voucher to access services, deterring farmers from quick sales of all produce at the farm gate, therefore increasing the value of produce through storage, and reduced PHL, leading to increased sales and better prices, and smoothed and/or increased incomes. iii. Providing farmers with a forward contract (i.e. a guarantee of future purchase) that can be used as collateral, *where farmers lack collateral, lack access to finance, experience cash flow constraints and lack inputs*, provides financiers with a 'level of comfort' that their loans/inputs, etc. will be repaid, enabling farmers to obtain loans/inputs, etc., increasing the value of produce through increased investments in productive activities (e.g. inputs, earlier and more frequent planting, etc.), leading to increased productivity, production and quality, leading to increased sales and better prices, and smoothed and/or increased incomes. iv. Farmers excluded from the formal banking system who participate in WRS are able to build their	

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EQ and SEQs	Programme theories	ICMOs	Realist enquiry
		credit-worthiness through participation, which encourages the formal banking system to lend to them in future, leading to a sustainable increase in access to finance. *NB. Assuming farmers hold the receipt, and not traders.*	
	Grades and standards i. By addressing market constraints/failures through upgrading and certifying storage and aggregation facilities, FTESA interventions will improve the quality of facilities, leading to better quality produce stored, reduced PHL, leading to better (higher and/or more stable) prices, greater sales and increased incomes. ii. By addressing market constraints/failures through improving the application of standards and grades by traders and farmers, FTESA interventions will improve the quality of produce and access to good quality storage facilities, reduced PHL, leading to better (higher and/or more stable) prices, greater sales and increased incomes. iii. By improving the quality of storage facilities certified, the quality of grain released from storage will be higher, therefore providing higher quality grain directly to consumers (or higher quality processed produce through millers/processors, etc.). iv. By producing higher quality, farmers will be able to access higher value markets and receive higher prices, leading to increased income.	i. Upgrading and certifying storage facilities – *where quality standards of storage facilities are typically low/absent and produce of varied quality is collectively stored* – signals to buyers that the produce reaches higher quality standards and increases their confidence in the quality of the produce stored, *if they trust the facility and certification process*, and encourages buyers, who value higher quality and are willing to pay a premium for quality, to purchase from the facility, leading to higher prices, which are passed on to farmers when traders deposit the produce, and higher quality consumer products. ii. By implementing consistent standards and grades, this provides an unambiguous description of quality, allowing buyers to purchase commodities without the need for visual inspection, reducing transaction costs and stimulating trade. iii. Upgrading and certifying storage facilities – *where few good quality facilities exist and are costly* – increases competitiveness of good quality facilities and improves choice, leading to more cost-effective storage solutions, lowering costs, and leading to increased incomes. iv. Upgrading and certifying storage facilities – *where farmers understand the benefits of higher quality* – encourages farmers to improve the quality of their produce and use the facilities, enabling farmers to access higher value markets, leading to better prices and increased incomes. v. By offering higher prices for higher quality produce, *where farmers do not have access to*	

EQ and SEQs	Programme theories	ICMOs	Realist enquiry
		good quality storage facilities and face restricted markets, increases farmer confidence in the market for their produce, incentivising farmers to engage in improved farming practices, resulting in, better quality produce, leading to better prices and increased income.	
4) **To what extent have improved availability and use of inputs (output 2: inputs) and application of GAP increased production and trade?** a) What: To what extent has FTESA improved availability and use of inputs and application of GAP? To what extent has production and trade increased as a result? b) How, why, for whom and in what circumstances: How and why have these changes materialised? What were the mechanisms at play? Who has benefitted? What circumstances (conditions, enabling/constraining factors) were conducive (or not) to generating benefits for producers, farmers, traders and firms? c) What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?	By addressing market constraints/failures in the input market (especially seeds) through the provision of good quality inputs, and inadequate agricultural practices through GAP training, FTESA interventions will improve agricultural practices and use of better quality inputs (including use of market-demanded seed varieties), leading to increased productivity, production, quality, resulting in higher prices, greater sales and increased incomes.	i. Seeds: Distributing quality seeds to farmers early and in sufficient quantities deters farmers from recycling old seeds, enabling farmers to use quality seeds and plant for an additional harvest, leading to increased productivity, production, quality, sales, prices and incomes. ii. Inputs: Organising farmers as clusters enables farmers to bulk purchase inputs collectively and negotiate lower prices with suppliers, reducing costs and reducing transaction costs (including time), leading to increased profits/incomes. iii. Seeds and GAP: Providing GAP training, farmers will understand the benefits of using improved seed and change their attitude, increasing usage of quality seeds, leading to increased productivity, production, quality, sales, prices and incomes. iv. Inputs and GAP: Charging farmers upfront fees for inputs improves the farmers commitment and motivation to use the inputs appropriately and apply GAP due to the investment made, increasing productivity, production and quality. v. Seeds and GAP: Providing good quality seeds and GAP training encourages farmers to improve agricultural practices, leading to increased productivity, production and quality of seeds, and agro-dealers wishing to source from reliable producers will recognise improvements in efficiency (quantities) and quality, leading to increased purchases, and therefore increased sales and income for farmers, incentivising farmers to further invest in their farms to meet agro-	What inputs (seeds, fertiliser) are being traded by programme partners? To what extent? By whom? How and why? In what circumstances? What are the results (volumes, etc.)? Any unanticipated outcomes? What do you think caused these changes? How has FTESA contributed? Are these changes likely to endure? What inputs (seeds, fertilisers) are being accessed or used? To what extent? By whom? How and why? In what circumstances? What are the results (prices, yields, etc.)? Any unanticipated outcomes? What do you think caused these changes? How has FTESA contributed? Are these changes likely to

EQ and SEQs	Programme theories	ICMOs	Realist enquiry
		processors future demands, leading to continued improvements. vi. Inputs and GAP: Providing good quality inputs and GAP training, *where farmers do not have access to quality and affordable inputs and services,* encourages farmers to improve agricultural practices, leading to increased productivity, production and quality, <u>increasing volumes of produce that meet certified warehouse standards</u>, enabling the movement of produce between regionally certified warehouses, moving produce to those areas/countries where prices are higher, leading to increased prices and incomes. vii. Inputs and GAP: Providing good quality inputs and GAP training, *where farmers do not have access to quality and affordable inputs and services*, encourages farmers to improve agricultural practices, leading to increased productivity, production and quality, <u>increasing produce volumes that meet buyer standards</u>, enabling farmers to increase sales to buyers willing to pay a premium for quality, leading to increased prices and incomes [assuming price increase is passed on]. viii. Inputs and GAP: By signing up farmers with off-takers who guarantee purchases, provide information on market requirements and provide good quality seed for in-demand varieties, *where there is a supply-demand gap in the market,* gives farmers the confidence to use the new varieties and apply improvements in agricultural practices, etc., to reach quality and market requirements, increasing production of good quality market-demanded varieties, resulting in increased productivity, quality and production of in-demand varieties, incentivising farmers to further invest in their farms to meet future demands, leading to continued improvements.	endure?

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EQ and SEQs	Programme theories	ICMOs	Realist enquiry
5) **To what extent and how has FTESA brought in (or facilitated) SHFs in structured regional markets?** a) What: To what extent has FTESA brought SHFs into structured regional markets? b) How, why and for whom and in what circumstances: How and why have these changes materialised? What were the mechanisms at play creating these changes? How have SHFs participated in these markets? Who has benefitted (poor people, women)? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to bringing in SHFs? c) What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?	By addressing market constraints/failures through increasing access to more and better quality services and inputs for SHFs (including disadvantaged/poor groups – e.g. women), FTESA interventions will enhance the availability of better quality services and inputs for SHF, leading to increased use, improved yields and production, and better quality produce, leading to better (higher and/or more stable) prices, greater sales and increased incomes for SHF.	i. Supply: Providing a wide range of support to SHF to participate in structured regional markets, *where farmers have limited access to services/inputs*, will enhance the availability of better quality services and inputs for SHF (including women and the poor). Combined with training, this will stimulate increased use by SHF, leading to improved yields and production, and better quality produce, leading to better (higher and/or more stable) prices, greater sales and increased incomes for SHF, including women and the poor. ii. Demand: Formally integrating SHFs in structured regional markets, *where farmers have limited access to formal markets*, linking SHFs to buyers, either directly or indirectly, who purchase SHF produce and pay a premium for quality, will create trust and reduce side-selling by SHF to middlemen and increase prices paid for produce.	Are SHF participating? To what extent? Who? How and why? In what circumstances? What are the results (prices, etc.)? Any unanticipated outcomes? What do you think caused these changes? How has FTESA contributed? Are these changes likely to endure?
6) **To what extent has FTESA benefitted consumers?** a) What: To what extent has FTESA delivered benefits for consumers? b) How, why, for whom and in what circumstances: How and why have these changes materialised? What were the mechanisms at play creating these changes? Who has benefitted? What circumstances (conditions, enabling/constraining factors) are conducive (or not) to generating benefits for consumers? c) What indications are there of sustainability? What is the likelihood these will be sustained after direct support has ended?	By improving availability of food across space and time, FTESA interventions will stabilise prices for consumers between surplus and deficit regions, and between harvest and hunger seasons.	i. By providing support to GAP, quality standards at warehouses and aggregation centres, and integrating farmers into formal value chains, farmers will produce and store higher quality produce, combined with higher quality standards at storage and aggregation centres, raising the quality of produce in the supply chain, which buyers will purchase, increasing consumer welfare, and stabilising prices for consumers where sufficient volumes are produced.	Have prices changed? To what extent? For whom? How and why? In what circumstances? What are the results? Any unanticipated outcomes? What do you think caused these changes? How has FTESA contributed? Are these changes likely to endure?

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8.4. Summary of case study contexts

Eastern Africa Grain Council

The EAGC project operates in a context which disincentivises SHFs from participating in more structured trading systems, as follows:

- Multiple market and government constraints hindering staple food trade and limiting farmers' capacity to produce and market more staple food
- Weak market linkages between SHFs and end buyers, including lack of outlets for SHF produce
- Limited investments in storage and aggregation systems and post-harvest handling leading to inadequate infrastructure and services
- High levels of PHL due to poor post-harvest handling practices and inadequate storage facilities
- Limited cash flow for SHFs, requiring SHFs to cash in crops as soon as they harvest
- Lack of organised farmer groups working together to aggregate volumes for collective storage and selling
- Limited market information
- High level of political interest in the grain market leading to interventionist policies and regulations creating an unpredictable operating environment for the private sector

Joseph Initiative

According to the Uganda Bureau of Statistics (2010), maize is generally produced at smallholder level and with minimal use of improved inputs. SHF contribute to over 75% of the marketable maize surplus, usually marketed on an individual basis, they typically fetch low prices. Maize yields vary across agro-ecological settings, but overall they remain low, ranging between less than 1MT/ha and 3MT/ha (2MT/ha on average), compared with a potential yield 3–7MT/ha when using external inputs and improved varieties.[60] SHFs' do not have easy access to markets because of long distances, limited information and inadequate transportation which constrains efficient market exchanges.

The key domestic markets are Kampala, comprises 50% of formal trade, the Karamoja sub region, and institutional buyers such the Uganda Grain Traders Association (UGTA), the Masindi Seed and Grain Growers Association (MSGGA), the Uganda National Farmers Federation (UNFFE), and WFP (Chemonics 2010; MAFAP 2013). The chain between producers and consumers/exporters of maize is long with minimal value addition. Most of the smaller traders sell to millers (who then sell maize meal to schools, hospitals and other institutions) and also to the large urban buyers and exporters. Large buyers, mainly based in Kampala, sell to WFP or export to neighbouring countries such as Kenya, Rwanda and Democratic Republic of Congo.

Kaderes Peasant Development

The Warehouse for the Poor (W4P) project operates in the Karagwe district of the Kagera Region in Northwest Tanzania. The rationale for W4P rests on the underlying context that the region has very favourable growing conditions for beans and, according to the grantee, farmers in the region produce a surplus crop of good quality. However, farmers tend to perceive beans largely as a food crop and Tanzania imports beans, despite the potential to produce more domestically. When smallholder farmers do sell beans, this is largely at farm gate to traders who generally are price-makers. To command a higher price for their beans and access export markets, beans grown by Tanzanian smallholders need upgrading.

60 Mugisha, J., Diiro, G., M., Ekere, W., Langyintuo A., Mwangi, W. 2011. 'Characterization of Maize Producing Households in Nakasongola and Soroti Districts in Uganda'. Country Report – Uganda. CIMMYT.

Important contextual factors occurring during the life of the project have been:

- **Tanzania food export bans:** On-and-off bans on the export of food products including beans (since 2004 and most recently in 2016 and 2017) aimed at stabilising local food prices and boosting food security. As a result, Uganda has become the biggest food exporter in the region, with Tanzania trailing behind. Bans were reinstated in June 2017.
- **Earthquake**: In October 2016 an earthquake to the magnitude of 7.5 on the Richter scale hit Karagwe district.
- **Drought**: Drought early in 2017 had far-reaching effects throughout the year.

Kilimo Trust

Recent studies indicate that demand for beans in Eastern Africa remains high and unmet by current production levels. The EAC as a block produces an average of 2.8 million MT of beans annually. While Uganda and Tanzania are net exporters of beans, Kenya experiences shortages of up to 46% of the national bean demand making it the biggest bean market in the region (Kilimo Trust, 2012).[61] Despite the demand, the varieties Kenyan consumers prefer are not being produced by the supply countries like Uganda and Rwanda in large enough quantities. Average national and regional productivity is very low – at an average of 0.59MT/ha while higher yields of 3.5MT/ha are possible – presenting opportunities for growth. Farm sizes are very small due to lack of demand for other varieties of beans therefore providing a disincentive for increased production. At the farm level, production of dry beans in Kenya is wholly undertaken by about 1.5 million SHFs using family labour. Approximately 40% of total annual beans production is marketed and the rest is kept for household consumption. Less than 1% of Kenya's total production volume is exported (only 5,716MT) while imports are averaging 93,000MT.[62]

Mount Meru Millers

Soybean production in Tanzania is estimated at 5,000MT annually, one of the lowest in the region, compared to Uganda with 190,000MT and Zambia, 261,000MT.[63] Soybean is still a relatively new crop in Singida, where the Mount Meru project is based. The majority of farmers in Singida still grow maize and sunflower. Large volumes of soybean are imported to supplement local production where the total amount of oil produced is 91,000MT while demand is estimated at between 200,000MT to 300,000MT per year.

The government of Tanzania developed the National Food Fortification Programme (NFFP), legislation which requires the food industry in Tanzania to fortify all wheat flour, maize flour and cooking oil that is processed centrally. Food fortification is a core component of the Government's Nutrition Strategy[64]. The Food Fortification Action Plan (2009) estimated that these products are consumed by half of Tanzania's population, approximately 20 million people. The programme directs the enrichment of products with key micronutrients needed in Tanzania: Vitamin A, zinc, B12, iron and folic acid. Mount Meru, beyond processing edible oil, positioned itself to produce fortified oil from the soybeans.

Virtual City

At baseline seven 'problems' were described which define the underlying context for the Agro Voucher Solution project implemented by Virtual City (see G-Soko Baseline Qualitative Case Study report):

61 Kilimo Trust 2012: From Aid to Trade: Unpacking the dynamics of dry bean value chain in the EAC (unpublished report)
62 Pulses Sector Investment Profile for Kenya (2016)
63 Food and Agricultural Organisation (FAO) Statistics, 2013
64 Under the NS, cooking oil should be fortified with vitamin A under the Fortified edible fats and oils – Specification (TZS 1313:2010 ICS 67.200.10).

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- *Problem #1*: Lack of national standards and grades, reducing the potential for regional/global trade.
- *Problem #2*: Shortage of good quality, well-managed storage; lack of functioning inventory credit and/or WRS, limiting opportunities to use stocks as collateral.
- *Problem #3*: Lack of commodity exchanges reduces market and price transparency and leads to price volatility in the long-term and reduces the opportunity to make informed decisions on selling/buying.
- *Problem #4*: Lack of market information and systems exchange information (e.g. on prices) leads to uncertainty and risk, limited investment in storage, poor decisions on when and where to sell/buy, limited bargaining power, leading to inefficiency and slow market development.
- *Problem #5*: Low trader engagement in staple value chains reduces potential information sharing, coordination and creation of systems/mechanisms that allow for sharing of risks, costs and gains among actors along the chain.
- *Problem #6*: State controlled interference of marketing boards lead to unpredictability and create distortions that either inflate or depress prices away from market levels creating both supply and demand disincentives in the market.
- *Problem #7*: On farm post-harvest grain losses and sub-optimal prices due to poor handling and limited storage options; private storage and collateral systems crowded out by government involvement; poor management of existing storage and high losses, discouraging retention of stocks within and between harvests; limited use of stocks as collateral lessen incentives and resources for investment in more productive farming.

As noted in the baseline case study report, smallholder farmers face all these challenges, made worse by their lack of bargaining power and the fragmented nature of smallholder farmers and buyers in the staple food sectors. Most smallholder farmers face acute problems accessing storage and market information and are typically price takers. Prices for staple food crops vary widely depending on the time of year, with prices at harvest time much lower than those later. Access to warehouse storage with a warehouse receipt system means farmers have the opportunity to sell later in the year when prices are higher.

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8.5. Implementation status

Grantee	Implementation status at Final Evaluation
Eastern Africa Grain Council (EAGC)	• Developed and rolled out Gsoko to certified warehouses, VACs and other users. The Gsoko platform is functional and running in Kenya, Tanzania and Uganda for trade in commodities that include: maize, beans, rice, wheat, millet, sorghum and assorted pulses. • 6,492 farmers, 52 warehouses, 16 buyers, 16 VACs and 2 banks registered to transact on the Gsoko platform. These figures only show registration, not actual use of the platform. • The project linked electronically (via smart phones) to 16 of the 147 VACs identified to transact via Gsoko. • EAGC inspected 159 warehouses and certified 74 as meeting EAGC standards in Kenya, Tanzania and Uganda, linking 52 to the Gsoko platform. • The project supported 147 VACs, helping equip and link these to warehouses, including providing basic PHH equipment (e.g. moisture meters, tarpaulins, weighing scales and sieves). According to the EAGC, the VACs can reach more than 40,000 farmers. • 10 out of 18 East African standards promoted and adopted for aggregation, warehousing and trading across East Africa. • Trained 22,798 farmers on G&S and PHH, including the benefits of applying G&S. • Trained warehouse operators on G&S and PHH, providing them with the skills necessary to reach and maintain the quality expected at a certified warehouse. • 84,126MT of grain recorded in certified warehouses, 10,680MT contributed from VACs (12.7%), and 10,183 (12%) offered for sale via Gsoko, and between 1,203 and 2,461MT (1.4-2.9%) sold via Gsoko (1.9-3.3% of the 75,000MT target) amounting to 14 trades. • According to the EAGC, farmers received prices 15–30% above local market prices, whilst the PMU reports an average increase of 36% on farm gate prices for those who traded through the Gsoko platform.
Joseph Initiative	• A total of 8,643 SHFs and traders (25% female) registered on the JITP and supplied Joseph at some point, during the life of the project. This represents 17% of the total target. The JITP could not provide a breakdown of the frequency of supply and of unit volumes supplied each season by the SHFs. There was also no distinction made between SHF and trader supplies. Therefore, there is risk of double counting. • A total of 4,148 were able to access value chain coordination services (application of grades and standards and PHH). • Farmers received only 11MT of improved seeds (only 1% of target) and 108MT of fertilisers (5%) during the lifetime of the project. • Only 293 farmers used improved inputs as a result of the activities of the project • Joseph did not provide GAP training to the farmers in the four seasons preceding this fieldwork. This is corroborated by the end line quantitative study that revealed that the proportion of farmers who received any service from Joseph (including selling to Joseph) decreased significantly between 2016 and 2018, from 65% to only 9%. • SHFs and traders supplied a total of 43,200MT of maize – 18.7MT from SHF, i.e. 45% of MRM target – during the project's life. • Opportunity Bank provided access to credit to a total of 216 farmers in season one and season two of 2015. This decreased in 2016 and no credit has been provided to SHFs since. • The proportion of SHFs experiencing PHL increased to 66.5% from a negligible 16.2% at baseline. The key causes included: losses when harvesting, pests and disease infestation and poor drying methods. • The maize gross margins (USh per acre) decreased in the in the Joseph SHFs from 2016 to 2018 by 161%. • Farmers earned a net additional income amounting to USh 10/kg as a result of the activities of the project.
Kaderes Peasant Development	• SACCOs recruited, trained and supported (17 SACCOs). • Lead farmers recruited, trained and supported (120 lead farmers across 17 SACCOs). • Training provided to farmers on good sustainable farming practices (12,000 farmers supported by the 120 lead farmers across 17 SACCOs).

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	• The warehouse structure is nearly complete but vital elements such as the drainage system are not in place. Because the warehouse is not yet complete or operating, there is no WRS in place. The grantee has moved forward with their plans to complete the warehouse to G-Soko standards with their own funds. • Seven agricultural extension workers (Kaderes field officers) and 36 farmers (28 male and 8 female) received training (through a partnership with Kilimo Trust) in the production of improved seeds and QDS, as well as GAP (integrated soil fertility management) and business skills. Following training, 31 farmers proceeded to successfully produce QDS, and five dropped out. To date, the project has produced 16MT of market-ready QDS.
Kilimo Trust	• A total of 12 consortia signed up comprised of market leaders, seed/input dealers, aggregators, financial institutions, extension workers, and SHFs who signed seasonal supply contracts. • A total of 11,299 farmers' capacity built and linked to 12 market off-takers to supply beans for the market. • A total of 113.14MT of breeder and basic seed of market preferred varieties produced. • A total of 488MT of certified/quality declared seed seeds were produced and circulated to SHFs. • A total 944 farmers trained on seed production. • Two seed breeding institutions contracted to multiply basic certified seed as well as quality declared seed (QDS). • Only 180 farmers were linked to financial institutions to access credit.
Mount Meru Millers Ltd	• A total of 13,911 farmers had been reached during the awareness campaigns from which a total of 10,794 farmers registered in the out-grower scheme. However, the output supplied does not match the numbers who have signed up onto the programme. • SHFs received 80MT of seeds. Obtaining seeds from Zambia (with the export bans) had caused noticeable delays which significantly affected distribution and uptake. • Mount Meru received 471MT of soybeans (80MT from Tanzania and 383MT from Zambia) from SHFs. The low amounts from Tanzania hampered the downstream storage and milling services of Mount Meru. Farmers also retained some output for home use and local value addition. • Mount Meru established an extension system with eight agronomists who provided technical expertise (from registration, information provision to collection of output. to SHFs. A total of eight agronomical staff were recruited to provide all round support to farmers However, because of the project's large geographical area, farmer contact with agronomists was infrequent. Therefore, the benefits of the agricultural extension services were not fully realised. • No site agents were recruited. • Two public warehouses were established at the Singida plant. However, the conveyor belt has not yet been installed and usage of the silos has not commenced. Even then, the low volumes procured from the farmers would not have made it economically viable to utilise the silos. • No soy cake was produced and marketed because there was no oil processing that took place from which the soy cake by-product could be obtained. • The establishment of WRS and the attendant number of farmers accessing warehouse receipts and bank credit did not take off. • An environmental impact assessment was conducted; all Mount Meru staff received training in quality control and the ISO 9001:2015 and hazard analysis and critical control points (HACCP) certificates for the established warehouses were issued on 18 December 2017.
Virtual City	• The Agro Voucher system so far has been implemented as a pilot project. As a B2B company, Virtual City made partnerships with two agro-suppliers (input manufacturers) – BIDCO Land O'Lakes and Cooper – to roll out the Agro Voucher solution platform (known as the *Hewani* app, for input supply in agricultural value chains) into their input supply chains. • Virtual City Ltd have so far carried out a value chain mapping of 1,237 agricultural input supply outlets (mainly agrovets as well as a handful of others including hardware stores, supermarkets). • Since October 2016, 695 agrovets have reportedly been registered into the 'ecosystem', with a smaller number of agrovets 'activated' who are already placing input orders to the distributors on the app (BIDCO distributors only). • Up to 19 February 2018, 63 agrovets had placed orders for animal feed using the app. There is currently no 'voucher' or credit component to the app.

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8.6. Summary results and programme theories

Storage and aggregation

Grantee	Expected results	Actual results
Kilimo	• N/A.	• N/A
Mount Meru	• Two public warehouses established and operating. • 4,000 farmers accessing warehouse and WRS. • 1,900MT soybean purchased from farmers.	• Two public warehouses established at the Singida plant. However, Mount Meru have not installed the conveyor belt. Usage of the four silos (each with a capacity of 5,000MT) has not commenced. However, the low volumes procured from the farmers would not make it economically viable to utilise the silos.[65]
Kaderes	• Warehouse and collection centre built and WRS developed.	• Warehouse structure 90% completed with vital elements not in place, such as the drainage system. Not operational. Aggregation centres not funded or constructed due to rising costs of warehouse construction. • Farmers applying knowledge gained through training in GAP reported decrease in PHL
Joseph	• 50,000 male/female farmers accessing new and/or improved storage/aggregation services/facilities as a result of FTESA.	• 70 extra Joseph Centres established and run, taking the total number to 80, equipped with moisture meters, weighing scales, shellers, hand tractors, mobile tablets and tarpaulins. Smallholder farmers used the centres in the first year but these were not operational/accessible to farmers in the four growing seasons preceding the endline fieldwork. • A total of 8,643 farmers and traders (25% female) registered in the JITP platform and supplied Joseph at one point during the life of the project. This represents 17% of the project's total target. The JITP platform could not provide a breakdown of frequency of supplies and unit volumes made by the farmers per season as well as a breakdown between a farmer and a trader. The lack of unique identifiers for the farmers in the JITP platform potentially causes a risk of double counting. • Smallholder farmers and traders supplied a total of 43,200MT of maize – 18.7MT from smallholder farmers, i.e. 45% of MRM target – during the project's life. • The proportion of farmers experiencing post-harvest losses increased to 66% from 16% at baseline. The key areas of losses included losses when harvesting, pests and disease infestation and poor drying methods.[66]
Virtual City	• N/A	• N/A
EAGC	• 100 warehouses certified and linked to G-Soko. • 5,000 male/female farmers accessing warehouse receipt and supplier credit as a result of FTESA.	• The number of warehouses certified and linked to the electronic trading platform (G-Soko[67]) falls short of the target of 100, as does the number of

65 A total of 471MT of soybeans had been procured from SHFs. The low supplies from farmers especially in Tanzania (80MT only) have hampered the downstream storage and milling services of Mount Meru. A total of 383MT was procured from Zambia registered farmers. Farmers are also retaining some output for home use and local value addition.
66 Ibid. 6.
67 G-Soko is the name of the platform. 'Soko' is market in Kiswahili, and the 'G' is for grain.

Grantee	Expected results	Actual results
	• Over 300,000MT of grains traded at national and regional level through STS.	village aggregation centres (VACs) supported (147 out of the 180 target). • Storage capacity remains underutilised in most certified warehouses (below 50%). Flows of commodities from VACs to certified warehouses are much lower than envisaged and very few sales took place via the G-Soko platform (less than 4% of the target, and only 14 trades). • Certifying warehouses, improving VACs, and training warehouse operators and farmers on post-harvest handling and grades and standards has led to increased aggregation at VACs, improvements in post-harvest handling, reduced post-harvest losses, increased volumes for sale and improved quality.

Value chain

Grantee	Expected results	Actual results
Kilimo	• At least 10,000 SHFs engaged in structured trade with 10 off-takers; 100 aggregators.	• 11,299 farmers' capacity built and linked to 12 market off-takers to supply beans for the market.
Mount Meru	• 1,900MT soybean purchased from farmers.	• 471MT of soybeans procured from farmers. The low supplies from farmers especially in Tanzania (80MT only) hampered Mount Meru's downstream storage and milling services. Mount Meru procured 383MT from farmers registered in Zambia. Farmers are also retaining some output for home use and local value addition.
Kaderes	• 2,612MT beans stored in warehouse and sold regionally. • 5,500 farmers sign up and access improved value chain.	• Kaderes did not buy any beans directly from the farmers for the warehouse. • 3469MT of staple food (beans) sold • Farmers' knowledge of the metric system improved and metric weighing scales provided.
Joseph	• 37,500 of male/female farmers accessing improved value chain coordination.	• 4,148 farmers accessed value chain coordination services.
Virtual City	• 36,000 farmers by 2017 use the agrovoucher (software application for ordering inputs) system.	• No evidence.
EAGC	• 5,000 male/female farmers accessing improved value chain coordination (e.g. application of grade and standard to their products, improved logistic and virtual market place) as a result of FTESA. • 75,000 farmers receive market and price information via 'sms' regularly.	• EAGC has helped connect buyers and sellers, albeit mainly off the G-Soko platform and improved the bargaining power of farmers.

Warehouse receipts and credit

Grantee	Expected results	Actual results
Kilimo Trust	• Support introduction and development of 3 innovative financing solutions for 7,500 farmers, 8 off-takers, 100 aggregators.	• Limited evidence of credit provided – up to Uganda shillings (USh) 41,620,000 to 174 farmers (an average of USh 239,000 per farmer). In Tanzania, a total of 6 farmers received TSh 5,750,000 from Access Bank. No evidence of Kilimo contribution.
Mount Meru	• 4,000 farmers accessing warehouse receipt and bank credit as a result of FTESA.	• The establishment of a WRS and farmers accessing warehouse receipt and bank credit did not take off.

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Kaderes	• 5,500 sign-up to the WRS and store their beans using the system.	• There is no WRS since the warehouse is not yet complete.
Joseph	• N/A	• 216 farmers (16% female) accessed finance in 2015, with a total of USh 84.7 million in season one and USh 46.2 million in season two; however, no credit provided to farmers since 2016.
Virtual City	• N/A	• Since October 2016, 695 agrovets registered into the 'ecosystem'. Up to 19 February 2018, 63 agrovets had placed orders for animal feed using the app. • Currently no 'voucher' or credit component to the app.
EAGC	• 5,000 male/female farmers accessing warehouse receipt and supplier credit as a result of FTESA.	• The WRS has stalled.

Grades and standards

Grantee	Expected results	Actual results
Kilimo	• At least 50,000MT/year of quality beans produced. • Number of actors adopting quality standards (10,000 farmers; 10 off-takers, 100 aggregators); 90% of the produce meets specifications. • EAC grades and standards adopted by smallholder producers and 30,000MT of beans comply.	• 7,038 farmers were able to supply better quality beans to the market leaders. However, market leaders still face challenges and often receive low-quality beans, constraining the scope of commercial transactions between the farmers and the market leaders.
Mount Meru	• N/A	• N/A
Kaderes	• Processing facility upgrades 2,612.5MT beans to first grade.	• Some evidence of increased bean quality of Kaderes participants.
Joseph	• 37,500 farmers accessing improved value chain coordination including application of grade and standard to their products.	• Quality parameters set and enforced for purchasing grains from farmers, with anything below leading to deductions in price or rejection.
Virtual City	• N/A	• N/A
EAGC	• 200 traders, millers, warehouse operators, and inspectors acquire knowledge and adopt regional grades and standards (G&S); 200 warehouse graders trained on quality assurance and compliance; 82 EAGC corporate members adopt and use East African Community (EAC) G&S.	• Improvements in quality due to training, warehouse certification, advice at VACs.

Programme theory: Storage and aggregation
By addressing market constraints/failures through improving warehouse, storage and aggregation facilities, FTESA interventions will increase access to warehouse, storage and aggregation facilities for traders and farmers, leading to better (higher and/or more stable) prices, greater sales and increased incomes: - by enabling farmers and traders to store surpluses at harvest time when prices are low and sell when prices are higher; - by reducing post-harvest losses, hence increasing sales volumes for farmers and traders; - by encouraging farmers to grow more produce, leading to more produce stored and sold; - by giving farmers greater bargaining power with traders as they do not need to sell all their produce (to avoid spoilage); - by enabling traders and farmers to aggregate their produce with others, and negotiate better prices for bulk purchases with buyers
Programme theory: Market information
By addressing market constraints/failures through improving improved market information, FTESA interventions will increase access to market information for traders and farmers, enabling them to use information to base their decisions (production, storage, sales) on more accurate and timely information, increasing trade between surplus and deficit areas and providing

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Programme theory: Storage and aggregation
better information on when to store and release produce, leading to better (higher and/or more stable) prices, greater sales and increased incomes.
Programme theory: Credit
Original programme theory: By addressing market constraints/failures through improving credit facilities, FTESA interventions will increase access to credit, enabling farmers to use credit to increase investments in inputs and other services, leading to improved yields, higher volumes, greater sales and increased incomes. *Updated programme theory:* By addressing market constraints/failures through improving credit facilities, working with financial partners who are willing to work with smallholder farmers, FTESA interventions will increase access to credit, enabling farmers to use credit to increase investments in inputs and other services, leading to improved yields, higher volumes, greater sales and increased incomes.
Programme theory: Grades and standards
Original programme theory: By addressing market constraints/failures through improving the application of standards and grades for staple foods by traders and farmers, FTESA will improve the quality of produce and access to good quality storage facilities, leading to better (higher and/or more stable) prices, greater sales and increased incomes. *Updated programme theory:* By addressing market constraints/failures through improving the application of standards and grades for staple foods by traders and farmers, and farmers are incentivised and able to reach standards, FTESA will improve the quality of produce and access to good quality storage facilities, leading to better (higher and/or more stable) prices, greater sales and increased incomes.

Inputs and good agricultural practices

Grantee	Expected results	Actual results
Kilimo	• 15MT basic seed of market-preferred varieties per quarter. • 150MT of certified/quality-declared seed (QDS) produced per season. • 7,500 farmers applying knowledge and skills in quality seed production and post-harvest management services. • Establish 10 market and promote the new seed materials for adoption.	• 113.14MT of basic seed of market-preferred varieties produced. • 488MT of certified/QDS produced and circulated to farmers. • 944 farmers trained on seed production. • Two seed-breeding institutions contracted to multiply basic certified seed and QDS.
Mount Meru	• N/A	• A cumulative total of 80MT of seeds supplied to farmers.
Kaderes	• 5,500 farmers trained and supplied with new seeds. • 5,225 farmers use improved seeds and apply good farming practices.	• 43 people trained to produce improved seeds: 7 agricultural extension workers (Kaderes field officers) and 36 farmers (28 male and 8 female). • 3 farmers proceeded to successfully produce 16MT of QDS; 12,000 farmers received GAP training via the lead farmer approach: 120 lead farmers trained, in turn training 100 farmers each.
Joseph	• 937MT improved seeds traded by programme partners. • 1,875MT fertiliser traded by programme partners. • 37,500 male/female farmers using improved inputs.	• 11MT of improved seeds and 108MT of fertilisers supplied to farmers. • 293 farmers used improved inputs due to activities of the project. • No GAP training provided by Joseph to the farmers in the 4 seasons preceding qualitative case study data collection. Proportion of farmers receiving service from Joseph (including selling to Joseph) decreased significantly between 2016 and 2018, from 65% to only 9%.
Virtual City	• 48 input suppliers use agrovoucher system. • 36,000 farmers buy inputs using agrovoucher system.	• The software application piloted by 2 agrosuppliers who specialise in animal feeds to modernise/digitise ordering processes along the

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Grantee	Expected results	Actual results
	• 7,200 farmers increase input use due to agrovouchers.	supply chain (distributors and agrovets only) – but not in staple foods cultivation.

Programme theory
By addressing market constraints/failures in the input market (especially seeds) through the provision of good quality inputs, and inadequate agricultural practices through GAP training, FTESA interventions will improve agricultural practices and use of better quality inputs (including use of market-demanded seed varieties), leading to increased productivity, production and quality, resulting in higher prices, greater sales and increased incomes.

Smallholder farmers' integration in structured markets

Grantee	Expected results	Actual results
Kilimo	• At least 10,000 SHFs engaged in structured trade with 10 off-takers; 100 aggregators. • At least 30,000MT beans traded annually across borders.	• 11,299 farmers (52% female) brought into a structured regional market. However, evidence of stalled business relationships with market off-takers suggests not all these farmers managed to make a sale during the project period. • 19,833MT of beans traded between farmers and market leaders. • A reported increase in price received by the farmers averaging a 25% increase from the base price before the project.
Mount Meru	• Out-grower scheme promoted to 8,000 farmers, 4,000 farmers sign up.	• 13,911 farmers recruited to out-grower scheme from Tanzania and Zambia. • Partnership with NMB Bank to enhance financial inclusion of farmers through the e-Kilimo platform. 134 farmers have joined the platform (through opening accounts) although no farmer has yet obtained credit from this initiative.
Kaderes	• Warehouse and WRS promoted to 11,000 farmers; 5,500 farmers sign up. • 5,225 farmers increase yields by an average of 0.5MT/ha. • 5,225 farmers increase average net attributable income by $100 per farmer at first annum, second annum £150 and third annum £200.	• 12,000 farmers have registered to grow beans for Kaderes W4P project. • Kaderes has not bought beans directly from farmers for the warehouse over the last 2 years. • Combined beans and maize gross margins increased significantly from 2015 to 2017 • 3469MT of staple food (beans) sold by FTESA beneficiaries
Joseph	• 37,500 benefit from national and cross-border value chains.	• 8,643 JITP-registered farmers benefited from national and cross-border value chains. • Maize gross margins (USh/acre) decreased for farmers from 2016 to 2018 by 161%.[68] • A net additional income amounting to USh 10/kg earned by farmers as a result of project activities.
Virtual City	• 7,200 farmers increase yields: 108kg/farmer on average per annum. • 36,000 farmers get higher prices and increase incomes. • Net additional income of target farmers as a result of the agrovoucher programme: £3,039,552 per annum by 2017.	• No direct work with SHFs.
EAGC	• 20,000 SHFs adopt appropriate post-harvest practices through VACs. • 75,000MT staple food sold by FTESA farmer beneficiaries.	• Over 20,000 SHFs benefited from project activities, selling over 10,000MT of staple food.

68 Ibid. 6

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Programme theory:
Original programme theory: By increasing access to more and better-quality services and inputs for farmers (including disadvantaged/poor groups – e.g. women), FTESA interventions will enhance the availability of better quality services and inputs for farmers, leading to increased use, improved yields and production, and better-quality produce, leading to better (higher and/or more stable) prices, greater sales and increased incomes for farmers. *Updated programme theory:* By increasing access to more and better-quality services and inputs for farmers (including disadvantaged/poor groups – e.g. women), and farmers trust the intervention, find the activities credible and markets are available, FTESA interventions will lead to increased use, improved yields and production, and better-quality produce, leading to better (higher and/or more stable) prices, greater sales and increased incomes for farmers.

Functioning of markets and systemic change

Grantee	Expected results	Actual results
Kilimo	• At least 10,000 SHFs engaged in structured trade with 10 off-takers; 100 aggregators. • At least 30,000MT beans traded annually across borders.	• Structured trade in beans rolled out in Kenya, Uganda, Tanzania and Rwanda over the past 2.5 years. • 10,750MT of beans traded between farmers and 11 market off-takers over the course of 2.5 years. • 8,546MT traded between aggregators and traders.
Mount Meru	• 1,900MT soybean purchased from farmers. • 1,539MT soy cake produced and marketed. • 361MT fortified soybean oil produced and marketed.	• No oil processing took place, so no soy cake by-product produced and sold.
Kaderes	• 2,612.5MT processed, first grade and certified beans sold to regional/international markets.	• Changes in cultivation practices of participant and non-participant farmers, through peer effects and emulation. • Reported changes in how farmers view bean cultivation – from purely a staple food crop largely grown by women to a cash crop cultivated by both women and men. • Reported changes in division of labour between men and women.
Joseph	• 37,500 additional farmers benefiting from national and cross-border value chains. • 41,400MT staple food sold by FTESA farmers.	• 33,246MT (80%) of grain sold in Rwanda (42%) and WFP (36%), (20% still stored in Joseph silos in Masindi, pending availability of a good price).
Virtual City	• 36,000 farmers get higher price from delay in selling their crops due to agrovoucher system.	• No evidence.
EAGC	• 75,000MT staple food sold by FTESA farmer beneficiaries. • Over 300,000MT of grains traded at national and regional level through structured trading system.	• Very small volumes sold through the G-Soko platform.

Programme theories
By funding interventions where there is potential to generate wider change in the market (beyond the intervention itself), FTESA interventions deliver changes in market functioning that trigger widespread changes in behaviour (interest, motivations, practices), maintained after external support has ended, leading to higher volumes sold, better prices received, greater integration into value chains and higher profits.

Consumers

Grantee	Expected results	Actual results
Kilimo Trust	• N/A	• FTESA has not yet benefited consumers through its activities under the BEST–EAC given that the results are just starting to emerge; we can only extrapolate benefits to the farmers who always retain beans as a food crop.
Mount Meru	• N/A	• The project has not yet benefited consumers as envisaged in the project design since there is no production of edible oil from the soybean supplied by the farmers and no soy cake obtained since no milling has taken place. • Mount Meru reported soymeal production and sales within Tanzania and surrounding countries of Kenya, Zimbabwe and South Africa but does not record the quantities so estimating the benefits to consumers is difficult. • Farmers have transformed soybean into local confectionary products like soymilk, soy meat, bread, cake, cookies, etc., an unexpected outcome of the project. Farmers (as consumers) have benefited from availability of products that they did not have before.
Kaderes	• N/A	• Farmers reported keeping back staple food crops (beans) for family consumption during drought, rather than selling it, making a big difference to their family wellbeing and ability to cope.
Joseph	• 840,183 additional individuals benefiting from national and cross-border value chains including household members.	• Per capita total maize consumption ranges from 28kg/year in Uganda to 125kg/year in Kenya, while it is 16.2kg in Rwanda.[69] With the trade volumes distributed to Kenya, Rwanda and sold locally in Uganda, a total of 38,361, 872,157, 87,562 consumers respectively, benefited from FTESA. We do not know the destination of the WFP procurements, but with the usual destinations being food insecure regions of Uganda, refugee camps and distressed people in Uganda, Democratic Republic of Congo (DRC) and South Sudan, an additional 210,471 consumers benefited from the programme.
Virtual City	• N/A	• No evidence of benefits to consumers in staple food markets.
EAGC	• N/A	• Given limited trade through G-Soko, the project has not led to price stabilisation across time and space for consumers; however, quality improvements (e.g. reduced aflatoxins) benefit the consumer.
Programme theories		
By improving availability of food across space, FTESA interventions will stabilise prices for consumers between surplus and deficit regions; by improving availability of food across time, FTESA interventions will stabilise prices for consumers between harvest and hunger seasons.		

Linkages and complementarities between grants

Grantee	Actual results
Kilimo	• Under the Kagera Beans Consortium, a total of 3,200 farmers in the Ngara cooperative linked to Kaderes to supply beans. Farmers supplied a cumulative volume of 1,500MT to Kaderes during the 2016–17 period. The role played by Kilimo under the FTESA project was crucial in enabling the intervention to start and progress. • Kilimo facilitated a contract for Kaderes to supply 20MT of beans to Cheptarit in Kenya. • Kilimo supported Kaderes on due diligence and organising inspection visits of its warehouse from EAGC in December 2017. Kilimo supported Kaderes and Cheptarit to access the G-Soko platform although the trading of beans on the platform had not happened at the time of the evaluation.
Mount Meru	• Collective action with EAGC to temporarily reverse a ban on importation of seed from Zambia.
Kaderes	• Partnership with Kilimo working with the agricultural research centre ARI Maruku to supply QDS and train farmers to produce QDS. Funded by the FTESA grant awarded to Kilimo Trust under the Development Fund.

69 Agona, A., J. Nabawanuka H. Muyinza n.d. "An overview of maize in Uganda" Postharvest Programme, NARO Uganda

Grantee	Actual results
Joseph	• EAGC inspection of Joseph warehouse and 2 dry silos.
Virtual City	• Virtual City provided a service to EAGC/G-Soko in developing the software for the G-Soko platform. Virtual City also supplied warehouse management and agrovoucher software for use in the EAGC/G-Soko warehouses.
EAGC	• EAGC worked with Virtual City to develop the G-Soko platform, as well as several grantees to inspect their warehouses and provide support (e.g. training and advice) on grades and standards.
Programme theories	
By funding interventions where there are identifiable complementarities and synergies, and creating links between interventions (some or all intervention components of a grant, e.g. linking grantees with G-Soko), FTESA generates results that are greater than if interventions were implemented in isolation, and these results continue beyond programme close.	

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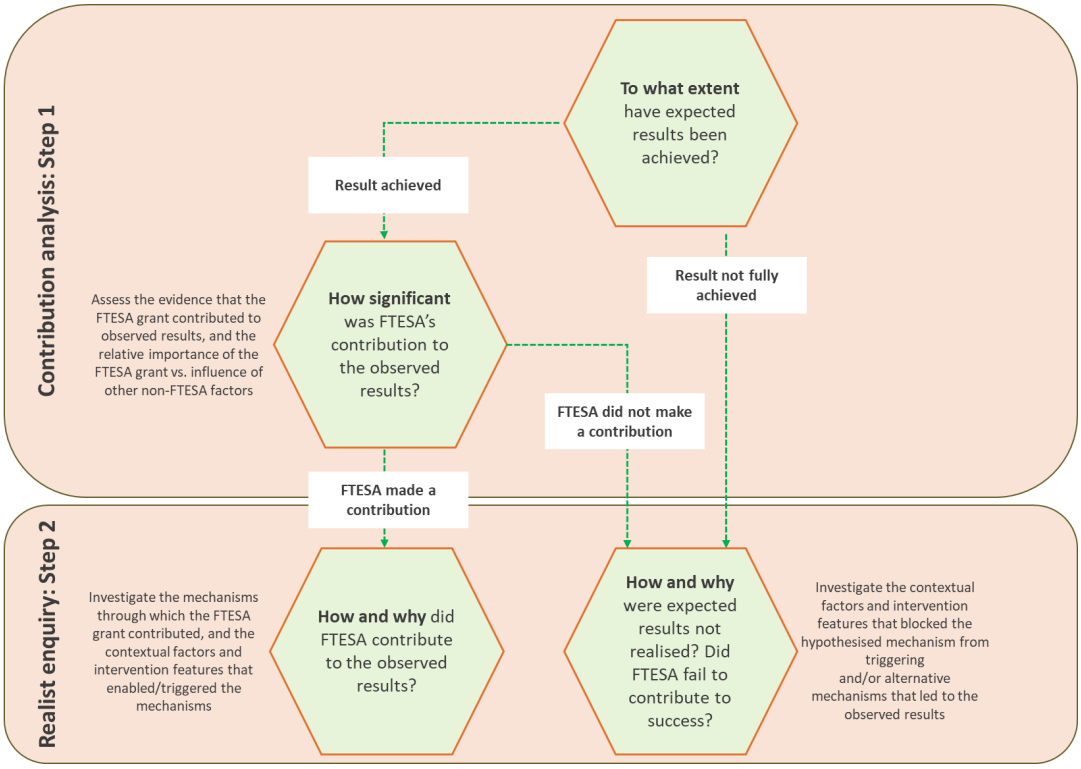
8.7. Methodological details

Combining contribution analysis and realist enquiry



Combining **contribution analysis**[70] and **realist enquiry** helps us to understand for each grant:

1. **STEP 1 – Contribution analysis:** The extent to which the intervention contributed to change and the role played by the intervention versus other factors by assessing: what change has happened, has the intervention contributed to the observed results, how much of a difference/contribution has the intervention made, and what other factors led to the change?
    a) **Change:** What is the pathway to change (drawing on GToC, programme theories and ICMOs)? Have these theorised changes happened? To what extent have these changes occurred, and for which different groups, etc.? Are there any unintended results, positive or negative? Are there are any indications of sustainability, and whether these will endure after the programme closes?
    b) **FTESA contribution:** How significant was the FTESA grant's contribution to the observed changes? What other factors (not related to the FTESA grant) led to the change?
        i. What is the evidence that the FTESA grant contributed to causing the observed changes? What is the evidence that non-FTESA factors contributed?
        ii. What is the relative importance of the FTESA grant and non-FTESA factors in explaining the observed changes? How much of a difference (contribution) has the FTESA grant made?
2. **STEP 2 – Realist enquiry:** how and why the intervention worked (or not) and for whom (e.g. youth, poor, women), and in what circumstances/contexts, exploring the influence of the features of the intervention and contextual factors (enabling and constraining factors) on the underlying mechanisms that helped to generate change (or not).
    a) **How and why** did FTESA contribute (or fail to contribute) to the observed changes? For **whom** (e.g. youth, poor, women) and in what **circumstances/contexts**?

70 Mayne, J. (2008) 'Contribution Analysis: An Approach to Exploring Cause and Effect', ILAC Brief 16.

b) What **features of the interventions/grant and contextual factors** (individual, interpersonal, organisational and institutional) triggered the **mechanisms** that contributed to the observed changes (or blocked the mechanisms from occurring)?

c) Assess likely sustainability: Whether there are any indications of sustainability, and whether the changes will endure after programme closure (exploring how and why including contextual factors).

Quantitative case studies

We conducted quantitative endline household surveys for the two grants subject to quantitative baseline surveys. We carried out before-and-after analysis[71] for Kaderes and difference-in-difference[72] for Joseph Initiative to assess impact on beneficiaries.

Kaderes quantitative survey[73]

The team undertook surveys at baseline (Q4 2015) and again in Q4 2017 to measure changes in output and outcome indicators for the Kaderes project. The team interviewed the same respondents at baseline and endline. The baseline panel consisted of an intervention group made up of farmers enrolled with Kaderes, and a suitable control group (counterfactual) not enrolled with Kaderes.[74] The intention was that the baseline design would enable comparison of the level of change in key indicators in the intervention group against the change in the control group to assess the effects of the Kaderes project on its beneficiaries and to capture the effect of the main intervention funded by FTESA, the warehouse. However, given delays in construction, the warehouse was not yet operational in December 2017. Therefore, the EMU and DFID agreed to downscale the endline survey to a monitoring survey, interviewing only Kaderes beneficiary farmers in the intervention group and not the baseline control group. We employed a before-and-after analysis to assess whether extension services (e.g. farmer training) took place between 2015 and 2017, to what extent beneficiary farmers benefited, and whether there were measurable changes in farm indicators such as gross margins and harvest volumes.

Joseph Initiative quantitative case study[75]

The survey followed a quasi-experimental impact assessment design, with difference-in-difference analysis of key indicators between the intervention and control groups at baseline and endline. We conducted surveys at baseline (Q1 2016) and endline (Q1 2018) interviewing the same respondents in a longitudinal panel design, including the Joseph Initiative intervention group and a control group (counterfactual).[76] This enabled comparison of the level of change in key indicators in the intervention group against the change in the control group, enabling an assessment of the project's effect on its beneficiaries. The survey explored whether farmers registered in the project experienced significant increases in their maize crop margins compared to farmers in the control group and whether any such changes were linked to an increase in agricultural efficiency and productivity brought about by the project.

71 Without control group.
72 With control group.
73 Itad, Kaderes 2017 Monitoring Study Report (April 2018).
74 The intervention group sample at baseline was drawn at random from farmer lists provided by Kaderes. The monitoring survey reached 210 of the 219 baseline farmers. Of the 210 surveyed farmers, 18 had either stopped agricultural activities or dropped out of the programme. This quantitative case study analyses the information from interviews with the remaining 192 farmers, 142 of which grew maize and beans on coffee intercrop systems, comparing 2017 and 2015 information from the same households, employing a panel design.
75 Itad, Joseph Initiative Endline Qualitative Case Study (July 2018).
76 We selected the intervention sample for the baseline survey from lists of farmers living in Masindi district who had signed up with the Joseph Initiative in the 12 months before enumeration. The control group is located in the northern sub-counties Butemba, Gayaza and Nsambya of Kyankwanzi district. This area lies around 50–80km away from Masindi town to the southwest of Masindi district and has similar livelihood zones as Masindi, with a focus on maize cultivation. Sample sizes were calculated with the goal to detect an increase of 50% in the average gross margin within the intervention group between baseline and endline, at 5% significance levels with 80% power. These assumptions resulted in planned sample sizes of 231 for the intervention and 360 for the control group.

Data quality and strength of evidence

1. Quality of data in the underlying case studies: to what extent can we be sure that reported outcomes and the change pathways described in the case study reports happened? Each qualitative case study describes the strength of evidence for reported outcomes based on the following indications of strength of evidence for qualitative research:[77]
    - A good degree of triangulation: (a) within interviews, (b) across stakeholders and types of stakeholders, and/or (c) across data sources.
    - The position, knowledge, analytical capacity, reflexivity[78] and potential biases of primary informants.
    - What we know about the broader context.

    We carry this assessment through into the synthesis with further aggregation of the evidence contributing to triangulation.
2. Second, in the synthesis, how confident are we that a specific programme theory explains the outcomes and change processes? Is there a range of evidence from across several projects? Or strong evidence from individual projects or activities? The extent to which we are confident that our synthesis of programme theory explains the outcomes and change processes is based on a combination of the strength of evidence for outcomes and how emerging theory compares to the ToC and baseline and MTE findings, as well as the degree and extent to which we have evidence from the projects against the programme theories and/or ICMOs.

To assess strength of evidence for (and project contribution to) outcomes and ICMOs (realist enquiry), we apply the criteria developed by the BCURE evaluation team for the realist enquiry in their final evaluation, to make systematic judgments about the strength of evidence and contribution that are comparable across the case studies:

Outcome and ICMO strength of evidence and contribution

Strength of evidence	Outcomes	Realist enquiry	Contribution
Strong evidence	High level of confidence that the outcome occurred…	High level of confidence that the outcome occurred/did not occur because of *x* mechanism, operating in *y* context and because of *z* features of the intervention…	High level of confidence that FTESA contributed to the outcome…
	• Based on a good degree of triangulation (a) within interviews, (b) across stakeholders and types of stakeholders, and/or (c) across data sources; • …considering the position, knowledge, analytical capacity, reflexivity and potential biases of primary informants; and • …also considering what we know about the broader context.		
Some evidence	More confident than not that the outcome occurred…	More confident than not that the outcome occurred/did not occur because of *x* mechanism, operating in *y* context and because of *z* features of the intervention…	More confident than not that FTESA contributed to the outcome…
	But reduced confidence due to: • …shortcomings regarding triangulation; • …concerns that the position, knowledge, analytical capacity, reflexivity and potential biases of primary informants lowers the reliability of evidence; and/or • …what we know about what is happening within the broader context.		

77 We have drawn on the approach developed under the evaluation of the Building Capacity to Use Research Evidence Programme (BCURE). This was a £15.7 million initiative funded by the DFID from 2013–17. It aimed to increase the capacity of policymakers to use research more effectively, through building the skills, incentives and systems required to access, appraise and apply evidence in decision making. The annexes of the realist Final Evaluation (Vogel and Punton, 2018) can be found here: http://itad.com/reports/annexes-final-evaluation-building-capacity-use-research-evidence-bcure-programme/ (accessed 14 June 2018).

78 In this context, reflexivity refers to self-awareness and the degree to which someone has/is able to reflect on their own biases (preconceptions, position, assumptions, values and beliefs) and the ways in which these may affect an investigation and the evidence presented.

Strength of evidence	Outcomes	Realist enquiry	Contribution
Limited evidence	Low level of confidence that the outcome occurred, given that…	Low level of confidence that the outcome occurred/did not occur because of *x* mechanism, operating in *y* context and because of *z* features of the intervention, given that…	Low level of confidence that FTESA contributed to the outcome, given that…
	• …evidence comes from a small number of sources with limited triangulation; • …there are major concerns that the position, knowledge, analytical capacity, reflexivity and potential biases of primary informants lowers the reliability of evidence; and/or • …there are contradictory insights into what is happening within the broader context.		

Coding system

We synthesised across the qualitative and quantitative case studies to answer the evaluation questions (1-6). We coded for themes that included **outcomes**, **ICMOs (kept together where possible)** and the **EQs and programme theories**. We coded manually into the case study reports. Coding into the case study documents used a combination of colour coding and using comments to add codes/ keywords to chunks of text. We **used multiple codes** for sections of text, where relevant.

OUTCOME 'PARENT' CODES
Higher prices for producers
Improved incomes
Improved quality of produce
Ability to decide when to sell
Improved productivity
Increased production
Reduced PHL
Stable prices
Improved standards
Improved markets (access/ functioning)
Access to Credit
Improved Food security
Improved coping (risk and shocks)
Improved skills/knowledge
Increased sales to (grantee/warehouses)
Increased competition
Increased trade
MECHANISM/ INTERVENTION FACTOR 'PARENT' CODES
Trust
Credibility
Positive demonstration
Working with existing institutions
Increased confidence
Belief in intervention
Actors are incentivised
Farmers/ Traders use FTESA storage
Input use
FOR WHOM - 'PARENT'
Women
Disabled people
Poor people
Better-off farmers
Male farmers
Female farmers
Young people
Suppliers: Inputs (seed); Inputs (fertiliser)
Traders
Elderly people
GENERAL CODES - 'PARENT'
Contextual Factor

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Barrier/ Constraint	
Enabler	
EQ1	
EQ2	
EQ3	
EQ4	
EQ5	
EQ6	
Systemic change • Markets • Prices • Cultivation practices	
CMO	
LESSONS LEARNED AND RECOMMENDATIONS 'PARENT'	
Lessons – project level	Implementation Partners Target beneficiaries
Lessons - programme	PMU role and function Reporting Theory of change Grantee links
Recommendations - project	Implementation Partners Targeting
Recommendations - programme	PMU role and function Reporting Theory of change Grantee links

We want the resources invested in international development to have the greatest possible impact on people's lives. We provide the insight and ideas to ensure that they do.

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