

# End-line impact assessment of the 2017-2021 DGD-funded programme implemented by Rikolto

## Tanzania

### Country Report

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### List of abbreviations

ADE	Aide à la Décision Economique
AMCOs	Agricultural Marketing Cooperatives
AVRDC	The World vegetable Centre
B2B	Business to Business (Linkages)
BDS	Business Development Services
DGD	Directorate-general Development Cooperation and Humanitarian Aid
EAC	East African Community
EAGC	East Africa Grain Council
EQ	Evaluation Question
FFVs	Fresh Fruits and Vegetables
FGD	Focus Group Discussion
FO	Farmer Organisation
FO/FBO	Farmer Organization/Farmer Based Organization
FS	Farmer Survey (2021)
FSC	Food Smart City
FSC	Food Smart City
GAP	Good Agricultural Practices
ICT	Information, Communication and technology
LGA	Local Government Authority
MOAFS	Ministry of Agriculture and Food Security
MoCU	Moshi Cooperative University (interns)
MoU	Memorandum of Understanding
MSI	Multi-Stakeholder Initiative
MSI	Multi Stakeholder Initiative(s)
MSME	Micro, Small and Medium Enterprises
MTR	Mid-Term Report
NGO	Non-Governmental Organization
NRDS II	National Rice Development Strategy (II or 2021-2030)
PASS	Private Agricultural Sector Support (Trust)
PSM	Propensity Score Matching
QDS	Quality Declared Seed
QMS	Quality Management Systems
RCT	Rice Council of Tanzania
SACCOS	Savings and Credit Cooperative Societies
SCA	Structural Change Agendas
SRI	System of Rice Intensification
SRP	Sustainable Rice Production (standard)
TARI	Tanzania Agricultural Research Institutes
ToC	Theory of Change
TPRI	Tanzania Pesticides Research Institute

## Executive Summary

This “End-line impact assessment of the 2017-2021 DGD-funded programme implemented by Rikolto” aimed at measuring Rikolto’s impact on i) the livelihoods of farmers, ii) the business and organizational capacities of FOs, and iii) the institutional environment. It targeted two clusters: Food Smart City (FSC) and Rice, within three structural change areas: strengthening partner capacities, fostering innovations and supporting an enabling environment) and contribute changes in policies and practices that strengthen dynamic, sustainable, competitive (and transparent) inclusive food systems.

The methodology was composed of an external assessment conducted by ADE with the support of a Local Consultant (LT), and an internal assessment conducted by Rikolto Regional Team (RT), under the supervision of the LT. The external assessment focused on institutional, and Farmer Organization (FO) levels related to the Food Smart City (FSC) program, while the internal assessment focused on farmers and FO of the Rice program. The mixed methods evaluation approach comprised quantitative and qualitative approaches. The quantitative approach used Rikolto’s Farmer Survey (FS)-an analysis of data on Rice and Food Smart City (FSC) clusters, collected by Rikolto at baseline (2017), midterm (2019) and end-line (2021), while qualitative approach involved secondary data collected through review of project documents to support triangulation of information and impartiality, and primary data collected through Focus Group Discussions (FGDs) with Rikolto Team and a sensemaking and validation workshop.

The evaluation was based on 6 retrospective evaluation questions (EQs) responding to questions at Farmer Level (EQ1 and EQ2), FO level (EQ3 and EQ4) and Institutional Level (EQ5 and EQ6). Additional questions were also explored, relating to COVID-19 impact (COVID EQ 1, 2 & 3), from which the evaluation report is structured.

The DGD End-line evaluation highlights the differential impact of the programme on Rice and FSC (also referred to as Fresh Fruits and Vegetables (FFVs), due to the structural differences in the market systems, the strengths of organization of the FOs as well as differential impact of COVID-19 on the two clusters, despite targeted interventions and innovations prioritized within each of the pathways of change. Specifically, the evaluation makes the following conclusions and recommendations by the Evaluation Questions (EQs):

**EQ1: Have Rikolto’s interventions contributed to increased resilience and improved livelihoods of farming households?**

**The programme improved farmers resilience, livelihoods, environmental sustainability and food security experience, despite differential gender and generational benefit, and impacts of COVID-19. We recommend:**

- Build farmer capacities in economic calculations, particularly concerning production cost calculations and profitability of crop and cropping operations. This should also contribute to enhance their price negotiation capacities.
- Prioritize soil testing services by FOs to farmers so as to determine the nutrient-need for production and guide soil management as a way to potentially reduce soil toxicity and improve soil conservation.
- Integrate digital and ICT platforms to improve access to market information, financial services and facilitate trade, and explore and identify on- and off-farm value chains, SME innovations and technologies that can address the socio-cultural barriers, attract and retain youth and women engagement in the food systems.
- Develop joint mechanisms to effectively address or counteract the negative effects of climate change on production within the food systems by exploring access to risk insurance.

- Strengthen alternative domestic market models that sustainably work to benefit farm households, but also recognize the specific horticultural value chains to prioritize for regional and export markets.
- Facilitate adoption of food standards that are nationally and regionally recognized, to catalyse trade in safe and healthy foods across the region, pegged on international GAP standards.
- Develop gender and youth-based assessments enabling to acquire a detailed knowledge of the factors which determine differentiated access to activities, particularly differentiated access to production factors (land, capital...). On the basis of such knowledge, a formalized gender and / or youth strategy should enable to address obstacles and factors determining differentiated access to activities, as well as ensure activities best adapted to women and youth are supported (e.g. vegetables with their high turnover and limited need for land).

### EQ2: What are the spill over effects of Rikolto's policy work beyond their direct beneficiaries?

**Spill over effects in rice buoyed by collaboration initiatives with Government (at local and national levels), Rice Council of Tanzania and Kilimo Trust, manifested in benefits through better prices in the domestic market, strengthened collective marketing mechanism and changes in local policies. In the FFV, the business case supported establishment of a larger project in southern highlands under EU, establishment of TAHA's Greencert to provide local certification services previously outsourced, and upscale of intern model of FBO professionalization approach with Tanzania Cooperative Development Commission (TCDC)**

We recommend:

- Establishment of systematic mechanisms and intentional framework to monitor and assess the efficacy of pilot interventions, and their influences on local and national policies within the food systems.

### EQ3: (a) What has been Rikolto's role in strengthening FOs and making them strong business organizations for their members? And (b) What added value demonstrates the FO as a collective action mechanism for producers?

**The state of maturity of FOs determines services they need to professionalize. Low-cost, climate smart technologies and GAP improved environmental sustainability but still challenged by residual effects of synthetic farm chemicals. The B2B linkages and short chain distribution models contributed to increased production, commercialization and farmer incomes. However, FOs still have low financial and asset base to provide effective services to members and COVID-19 caused market disruptions as well as new opportunities.**

We recommend:

- To continue supporting less mature FO in the future programme so as to consolidate their role as service providers to members and key players in new emerging business models. An offer of cost and profit calculation support should be integrated within the range of services offered by an FO.
- Facilitate FOs (especially AMCOs and above to establish/rehabilitate infrastructure (including storage facilities, mechanization, transportation, processing etc) and by linking them with financial institutions to access loans towards building assets, including supporting access to finance through guarantee schemes.
- Adapt the lessons learned through piloting of SCOPE Rapid (in Uganda), as a measurement, professionalization and graduation benchmark tool for smaller and nascent FOs while continuing the SCOPE Basic for more organized/mature FOs (AMCOS and Cooperatives).

- Continually assess value chain performance from a gender and generational lens in order to highlight enablers and barriers to women and youth inclusion and address root causes of gender and generational inequalities.
- FOs to be supported to develop mechanisms to assess quality of services they receive and or provide to their members, as part of quality assurance of services so as build inherent capacities and to guide who to continue working with or not.
- Strengthen and communicate alternative models that leverage on the opportunities within the domestic market such as the short-chain distribution and kiosk models and innovate and pilot other models that target the local consumer markets in Tanzania.

**EQ4. (a) Has Rikolto succeeded in facilitating business relations between FOs and Private sector buyers? and (b) Are these business relationships, economically profitable, socially inclusive and environmentally sustainable?**

**Positive business relations between FOs and private buyers were facilitated through linkages with input providers, off takers, credit financing, complementary service providers, and targeted business development services. However, challenges associated with power imbalances; production, market and climate risks; poor management of business relationships and competition tendencies undermine sustainability, unless mitigated.**

We recommend:

- Strengthen mechanisms for forward contracting as basis of business relationships, but also recognize and quantify the inherent capacities of FOs as value-added BDS, which reduces costs of doing business, and acts as a carrot for negotiating more equitable and profitable business relationships.
- The parties to the business relationships, should deliberate and plan on how best to share the costs associated with key risks (including production, market and climate) and integrate risk mitigation measures for sustainable business relationships.
- Expand innovative models that adapt from the COVID 19 impact, such as the short chain distribution and kiosk models, to expand efforts in opening up the domestic market to farmers and facilitate business relationships around such models to learn and improve how they operate and benefit the FOs.
- Fast track B2B initiatives to develop real time, digital market information platform that is transparent and provides users with market and trading information as a basis for market-driven decision making and trust-building.

**EQ5. (a) Has Rikolto succeeded in setting up or strengthening MSIs?, and (b) Have these MSIs succeeded in promoting more sustainable food systems?**

**Rikolto has successfully established a number of MSIs under B2B linkages, sustainable food systems and water resource use, with mixed results, despite that intentional performance monitoring was not inbuilt into the programme. While factors such as commitment, appealing and adaptable models, clear leadership, evidence and support for sustainable food systems foster MSIs, competing models & interests and lack of resources hinder their development.**

We recommend:

- To continue accompanying MSI to consolidate them
- Develop a system/framework for measuring business relationships and performance of the MSIs in respect of their establishment goals and contribution to affecting policies within the food systems
- Participatory engagement and planning with those policy stakeholders that we intend to influence at the onset is critical for effective engagement and influence.

- In synergy with its Food Smart Cities work, Rikolto should **support MSI in promoting territorial food systems which would develop localised agricultural exchanges with city authorities and public institutions** such as schools or administrations, or possibly also with private supermarkets, so as to shorten value chain (direct consumer contracts, kiosks...), strengthen producer positions with respect to off-takers, and develop economic activity and food autonomy at a local level. Such work should be associated with **diversification of producer activities, both in terms of variety of crop and crop transformation**. This should seek both to add value and increase resilience at producer and FO level, as well as increase food security at territorial level. Secure contracts would also help producers and transformers to secure capital to invest in improved practices and equipment and support activity diversification. The issue of healthy food should be central to such multi-stakeholder agreements.

#### EQ6. How is the evidence generated by Rikolto's pilot interventions used to influence policy decisions?

There are different pilot interventions that have been implemented during the programme such as climate smart irrigation financing, short chain distribution, business to business partnerships (input and off taker models), sustainable agricultural production and youth inclusion mechanisms. Despite the outcomes that these models have demonstrated, neither their contribution to influencing policies, nor systems to measure the impact of the pilot interventions were mapped ab-initio nor inbuilt into the programme.

We recommend:

- Integrating systems to assess processes, outcomes/impact of pilot models/innovations, MSIs, business relationships, and their scale up, and influences on advocacy and policy change moving forward.
- Critical programme risks such as production, market, climate, policy and partnerships need to be mapped ab-initio, monitored and mitigation strategies put in place, and integrated within the MEL system to facilitate adaptive monitoring and learning.
- The MEL system is extractive, while it should be facilitative. It should integrate the capacities for FOs to monitor and measure their own B2B relationships, internal capacities and learn to improve and sustainably develop their systems and structures to suit their business contexts.
- The MEL system should facilitate documentation of learning and impact, and in future, adopt some form of outcome harvesting and most significant change (MSC) approaches within the food systems.

COVID EQs: (1) How agile is Rikolto in responding to an external shock? (2) Which impacts did COVID responses have on the target group? And (3) To which extent has Rikolto's response to COVID left a more resilient food system that can swiftly respond to a next system crisis.

*Agility:*

Evidences of agility were demonstrated through among others: adapting lessons from the programme to improve hygiene and sanitation in urban markets, introducing legumes/pulses seeds to farmers to facilitate production of nutritious foods; expansion of the short chain offtake and kiosk models, facilitating farmers access to fertilizer through registering to YARA input COVID-19 relief scheme, diversifying into other high value domestic crops; and remodelling the Simusolar drip irrigation technology to work for smallholder farmers in the Southern Highlands.

It is recommended to:

- Harness and deepen learnings from evidence of agility to strengthen learning and adaptations to contexts of future shocks.

*COVID Impacts:*



**COVID responses had differential impact on production, export logistics and continuity of BDS services; disrupted the supply chains and the resultant market closure depressed prices and incomes of rice farmers, but also opened up additional domestic market opportunities for FFVs**

It is recommended to:

- Monitor and strengthen the alternative emerging models that are focused on the domestic market, and develop new models that reach the overall population and targeted at the export market.

*COVID impact on resilient food systems:*

**These COVID-19 responses introduced short chain and kiosk models which are more adapted and resilient; 'potentially' enhanced sanitation and safety of urban markets, and catalysed knowledge and production of safe, healthy and nutritious food.**

It is recommended to:

- Continually monitor the impacts and contributions of COVID responses on sustained practices of cleaner urban food markets, safe and healthy food systems, and patterns of production and consumption of nutritious food.

*Environmental Sustainability:*

**Soil conservation, landscape management, biodiversity and climate change indices are below the Rikolto's thresh hold of 2/4, despite the climate smart practices integrated in the programme. While there are residual long-term effects of synthetic chemicals on farmlands, and negative climate change effects of floods, droughts and migratory pests putting additional pressure on environmental conservation efforts, lack of risk insurance and competing models that are in contradiction with Rikolto's sustainability agenda are persisting challenges.**

It is recommended to:

- Promote ecologically sustainable and climate smart agricultural practices to support farmer-driven and informed environmental conservation efforts.
- Facilitate models that enable smallholder farmers to access risk (production, climate and market) insurance services.
- Develop a strong business case for environmentally sustainable models to incentivize the private sector and business community to better engage. In particular, this implies understanding more clearly the added value creation along each value chain segment under agroecological conditions and under conventional ones. Understanding what determines the fact that environmental indices appear to be falling despite Rikolto's support to agroecological practices is also necessary.

## 1. Introduction

This end line evaluation aims at measuring Rikolto's impact on i) the livelihoods of farmers, ii) the business and organizational capacities of FOs, and iii) the institutional environment.

**Rikolto's mission is to enable sustainable incomes for farmers and nutritious, affordable food for everyone.** Rikolto wants to reach this goal by building bridges between smallholder farmers, FOs, companies, authorities, and other actors across rural and urban areas. Building on their experience in creating **inclusive business relationships**, Rikolto works with diverse partners to strengthen selected commodity sectors and to address the broader food system challenges of cities. Rikolto puts **strong emphasis on gender and youth** and makes concerted efforts to reduce environmental damage, address **climate change** impacts, and enhance food system **sustainability and resilience** in the face of shocks and crises.

**Rikolto runs programmes in 17 countries worldwide through seven regional offices**, supported by a global support team. Out of these 17 countries, 13 are part of the 2017-2021 DGD-funded programme: Belgium, Burkina Faso, Congo, Ecuador, Honduras, Indonesia, Mali, Nicaragua, Peru, Senegal, Tanzania, Uganda, and Vietnam. Their global **Rice, Cocoa, Coffee and Food Smart City (FSC) programmes**, seek change in three key food system domains: sustainable production, inclusive markets, and enabling environments.

Figure 1. Overview of Rikolto's programmes



### 1.1 Rikolto's ToC

**Rikolto's Theory of Change describes Rikolto's 2017-2021 objectives and pathways of change** (Figure 2). Within the food system, **Rikolto strives to bring about change in the following three areas:**

1. Sustainable food production and consumption
2. A fair share for all
3. The provision of healthy food

To bring about the above-mentioned transformational changes in the food system, **Rikolto focuses its work on changing the existing business climate, the farming sector, and the institutional environment.** The goal is to establish a **business climate** where sustainable business models have become mainstream practice. The aspired **farming sector** should build up experience and knowledge on how smallholder farmers can position themselves as credible suppliers of formal and informal markets. This can include organising themselves in strong FOs that are effective representatives of their members and trustworthy business partners. The **institutional environments** should enable smallholder farmers to be competitive and foster sustainable food chains from production to consumption.

Rikolto concentrates its efforts and resources on **three main pathways of change:**

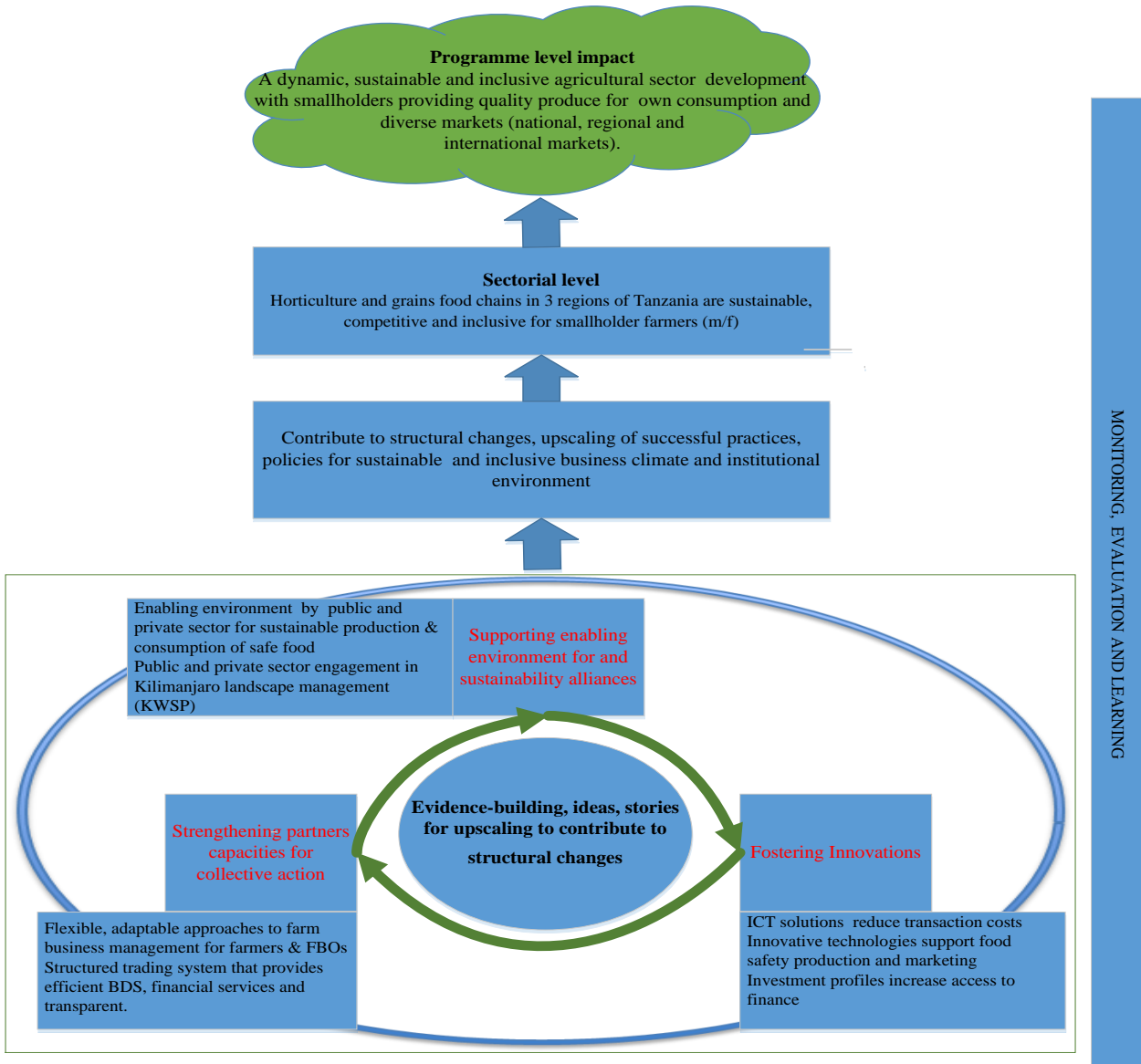
1. **Strengthening the capacities** of its partners (FOs, private companies, public actors...) to assure the inclusion of smallholders as credible suppliers of formal and informal markets
2. **Supporting the development of an enabling environment** for a sustainable food system
3. **Fostering innovation in the agri-food business** to mainstream sustainable and inclusive business models and practices in the food system.

## 1.2 Tanzania Rikolto Programme

To contribute to a sustainable and inclusive agricultural sector for small holder grains and horticulture farmers in Tanzania, Rikolto East Africa believes in building evidences to facilitate structural change agenda, by strengthening structured farm business management and trading systems for farmers and their FBOs, fostering innovations and technologies to support production, marketing and financing of safe food systems, and enabling an environment where private and public sector engage in transparent, sustainable production and consumption of safe food.

These three structural change agenda (strengthening partner capacities, fostering innovations and supporting an enabling environment) are interlinked and contribute changes in policies and practices that strengthen dynamic, sustainable, competitive (and transparent) inclusive food systems, providing small holders (men and women and youth) with quality produce for own consumption and trade in the diverse local, national, regional and international markets.

Figure 2. Rikolto's Theory of Change for Tanzania



## 2. Evaluation methodology

To optimize the resources available, the evaluation was composed of an external assessment conducted by ADE with the support of a Local Consultant (LT), and an internal assessment conducted by Rikolto Regional Team (RT), under the supervision of the LT. The external assessment focused on institutional and FO levels related to the Food Smart City (FSC) program, while the internal assessment focused on farmers and FO of the rice program.

The external assessment is part of the “End-line impact assessment of the 2017-2021 DGD-funded programme implemented by Rikolto”, which covers 13 countries and aims at measuring Rikolto’s impact on i) the livelihoods of farmers, ii) the business and organizational capacities of FOs, and iii) the institutional environment. It **focuses on one selected cluster per country, while the evaluations of the remaining clusters are conducted internally by Rikolto (internal assessment)**. Each assessment (external and internal) focuses on two out of the three evaluation levels (farmer, FO, institutional) and two retrospective evaluation questions (EQs) have been formulated at each level of analysis. Findings of the external and internal assessments are then united into the country report.

This evaluation is extensively **based on available information** provided by Rikolto (Table 1 in Annex), and on additional information collected by the external evaluator through Focus Group Discussions with Rikolto team.

In Tanzania, the evaluation, comprising of the external assessment (Food Smart City (FSC) and internal assessment (Rice) are analysed at Farmer level, Farmer Organizations (FO) and Institutional levels. However, the impact of COVID-19 is also assessed. The related retrospective (evaluation) questions (EQs) addressed in this report include EQ1, EQ2, EQ3, EQ4, EQ5, EQ6 and COVID-19 related EQs thus:

Table 1. Retrospective DGD programme Evaluation Questions (EQs)

Farmer Level	
EQ1	Have Rikolto’s interventions contributed to increased resilience and improved livelihoods of farming households?
EQ2	What are the spill over effects of Rikolto’s policy work beyond their direct beneficiaries?
Farmer Organization related EQs	
EQ 3	a. What has been Rikolto's role in strengthening Farmer Organizations (FOs) and making them strong business organizations for their members? b. What added value demonstrates the FO as a collective action mechanism for producers?
EQ 4	a. Has Rikolto succeeded in facilitating business relations between FOs and Privat Sector buyers? b. Are these business relations economically profitable, socially inclusive and environmentally sustainable?
Institutional Level related EQs	
EQ 5	a. Has Rikolto succeeded in setting up and/or strengthening multi stakeholder initiatives (MSIs)? b. Have these MSIs succeeded in promoting sustainable food systems?
EQ 6	How is the evidence generated by Rikolto's pilot interventions used to influence policy decisions at regional/national/local or sector level?
COVID-19 Impact related EQs	
Covid EQ 1	How agile is Rikolto in responding to an external shock?
Covid EQ 2	Which impact did COVID-19 responses have on the target groups?
Covid EQ 3	To what extent has Rikolto's responses to the COVID-19 outbreak left a more resilient food system in place, able to respond more swiftly to a next systemic crisis?

## 2.1 Quantitative evaluation

The quantitative approach used the Rikolto Farmer Survey (FS) data to construct resilience index of farmer household, to compile summary statistics of their household characteristics and livelihood activities, and to determine the changes in outcome variables between baseline and endline. The Farmer Survey contains information on data collected by Rikolto at baseline (2017), midterm (2019) and endline (2021). These data have been analysed by ADE. The data was collected from a sample of 1395 (see sample sizes), assessed within the following variables: Sex, Age (cut off of 35 years to capture youth), number of household members, regions, education, total farmland owned (Ha), membership of a Farmer organization (FO) and years of membership in that FO.

The sample was drawn from the following regions aligned to the clusters thus: Babati, Meru, Kivulini and Mwangi districts (Rice) and Simanjiro and Meru districts (FSC). An assessment of change in outcome variables was determined based on comparison of aggregate baseline, Mid Term Review (MTR) and end line values of various indicators, which data was meant to contribute to EQ1, although triangulation with other sources of information was helpful in responding to other EQs.

Table 2. Sample sizes for Rice & FFVs (Source-Farmer Survey, 2021)

	Rice			FFVs		
	2017 (N)	2019 (N)	2021 (N)	2017 (N)	2019 (N)	2021 (N)
Treatment	444	447	504	444	447	504
Control	273	0	140	N/A	N/A	N/A
Farmers producing main crop	141	167	178	250	155	196

The FS data had some limitations:

- ✓ Data (un)reliability issues that led to exclusion of FSC control group from the analysis, thus unable to provide insights into causality but only correlations,
- ✓ High attrition rates due to new farmer joining the programme and others dropping out, affecting the sample participation in the baseline and end line surveys,
- ✓ Some questions of the survey had been changed, added or deleted across the survey waves, and,
- ✓ Sample sizes being small and not large enough to observe change.

The rest of this methodology section provides insights on the additional qualitative data collection conducted in Tanzania.

## 2.2 Qualitative evaluation

Primary and secondary qualitative data were collected through participatory approaches, notably through a series of Focus Group Discussions (FGDs) with Rikolto Team, and review of project documents listed in Table 2. This allowed for triangulation of information gathered and ensured impartiality. The qualitative component facilitated concrete, contextual and in-depth understanding of the contribution of Rikolto's interventions to improve household resilience, livelihood outcomes and strengthen FOs, as well as spillover effects and impact of Covid-19 on the programme.

Primary data sources included two Focus Group Discussions (FGDs) with Rikolto Tanzania team initially with the FSC cluster and later with both FSC and Rice clusters to provide additional context and information on gaps that had been highlighted from document review. A blended national validation and sensemaking workshop with Rikolto Team was further conducted to come up with conclusions and recommendations from the evaluation findings.

**Secondary data sources:** This evaluation is extensively based on available information provided by Rikolto (Table 3).

Table 3: Available documentation and data

<p><b>Intervention Framework – at country-cluster level</b></p> <ul style="list-style-type: none"> <li>• The Intervention Framework describes Rikolto’s ToC and includes an overview of the interventions and related outcomes, as well as annual monitoring data for a country-cluster combination</li> <li>• Additionally, there are Annual Reports to DGD that are written based on the Intervention Framework. They include a “Performance Scoring Card” assessing Rikolto’s performance along seven criteria and a related Lessons Learnt document and can be used as additional data source where the Intervention Framework provides only scarce information<sup>1</sup></li> </ul>
<p><b>Midterm Review (MTR) – at country level</b></p> <ul style="list-style-type: none"> <li>• The MTR assesses the 2017-2021 DGD-programme up to 2019 at country level.</li> </ul>
<p><b>Farmer Survey (FS) data – at farmer level</b></p> <ul style="list-style-type: none"> <li>• The FS has been elaborated by Rikolto to collect data at farmer level at baseline (2017), mid-term (2019) and end-line (2021)</li> <li>• The data has been collected from a sample of beneficiaries and additionally from a control group (CG) for 8 country-cluster combinations (Rice-DRC, Rice-Mali, Rice-Indonesia, Coffee-DRC, Coffee-Peru, FSC-Vietnam, FSC-Tanzania, Cocoa-Honduras)</li> <li>• FS data descriptive results are provided to the LT by the CT when available<sup>2</sup></li> </ul>
<p><b>SCOPEInsight Assessments &amp; Methodology – at the FO level</b></p> <ul style="list-style-type: none"> <li>• <i>SCOPEInsight</i> assessments are being carried out every 18-24 months to measure FOs’ business and organisational capacities</li> <li>• SCOPE Basic reports are designed for nascent and/or emerging organizations and the SCOPE Pro for more advanced and matured ones</li> <li>• The <i>SCOPEInsight Methodology</i> and <i>Score Interpretation Guideline</i> are provided to the LT for additional guidance</li> </ul>
<p><b>Efficiency Analysis – at the country level</b></p> <ul style="list-style-type: none"> <li>• The Efficiency Analysis attribute a monetary value to the benefits and costs that arise due to Rikolto’s interventions to measure Rikolto’s Social Return On Investment (SROI)</li> <li>• They have been prepared by <i>I&amp;S Consulting</i> for Rikolto and are currently only available for Belgium, Burkina Faso, Congo, Indonesia, and Nicaragua</li> </ul>
<p><b>Rikolto’s general framework for BDS – at the global level</b></p> <ul style="list-style-type: none"> <li>• This document provides Rikolto’s objectives, principles, and guidelines on how to facilitate change in food systems</li> <li>• It aims to prevent Rikolto’s interventions from undermining the local Business Development Services (BDS) sector and to ensure sustainable interventions with a scalable impact</li> </ul>
<p><b>LINK Assessments &amp; Methodology – at the business relationship level</b></p> <ul style="list-style-type: none"> <li>• The LINK assessments make use of the “New Business Model Principles” to assess the level of inclusiveness of business relationships</li> <li>• An <i>Assessment Guide</i> is provided to the LT to facilitate interpretation</li> <li>• The baseline data is only available in Latin American countries, endline data will be available in all countries</li> </ul>
<p><b>COVID-19 documentation – at the country level</b></p> <ul style="list-style-type: none"> <li>• The COVID-19 documentation comprises a summary of Rikolto’s COVID-19 response activities, as well as monitoring data that captures the implementation progress and results</li> </ul>

<sup>1</sup> The Annual Reports to DGD are especially relevant for Tanzania and Uganda.

<sup>2</sup> The CT is responsible for performing the FS data analysis for each country-cluster combination of interest, as well as providing the descriptive results and detailed guidance to the LT to facilitate interpretation.

## 2.3 Programme Overview for Tanzania

### 2.4 Food Smart City (FSC)

#### The programme

The 5-year DGD-funded programme “Creating shared value for all actors in grain and horticulture value chains in Tanzania” was initiated in 2017, and envisioned a sustainable agri-food system that alleviates poverty and hunger without burdening the planet more than it can bear. Rikolto in Tanzania, working with SHF and their farmer organizations, targeted to address food system constraints in three food crops: Horticulture, rice and pulses.

Specifically, the Food Smart City (FSC) programme, delivers inclusive business models in the horticultural sector in Northern Tanzania (Arusha-Arumeru and Manyara-Msitu wa Tembo clusters) focusing on Arusha City’s food policies and food safety standards; Sustainable Rice Production (SRP) and Quality Management System (QMS) in the rice sector; And expanding pulses trade using the lead firm model.

The Tanzania programme intervenes under three result areas:

- 1) Establishing Structured Trading Systems in horticulture, rice and pulses value chains to facilitate access to efficient Business Development Services (BDS), financial services and transparent market information systems that enable smallholder farmers to benefit. The main intervention here has been supporting business modelling and planning for farmer organisations and identifying most relevant and innovative market information system tools for market intelligence gathering by Farmer Business Organisation (FBOs), which link farmers to financial institutions, integrate more women and youth in the agri-food systems and link farmers to off takers/buyers.
- 2) Building Farmers’ Organizations Management through flexible, adaptable approaches and models to stimulate the inclusion of smallholders by strengthening capacities of Farmer Organisations. Rikolto uses the SCOPEinsight tool to professionalise the FBOs, and facilitate capacity-building initiatives on internal and financial management, service provision to members, contract negotiation and arbitration, and linkages to credit and inputs.
- 3) Ensuring sustainable, quality and safe food production and consumption, by developing market systems for grains and horticulture to incentivize sustainable production and consumption of safe food. The support includes climate smart technologies/practices, green technologies, promotion of production and consumption of quality, safe and nutritious food through coordination of food safety awareness and campaign for urban consumers, and influencing Arusha City Council’s (safe) food policies.

#### The Theory of Change and assumptions

Rikolto’s global strategy targets to influence structural changes in the agri-food system, and upscale well-functioning practices and policies that unlock the farming potential of a critical mass of small holder farmers. In East Africa, Rikolto aims to contribute to the development of a dynamic, sustainable and inclusive agriculture sector with family farmers providing quality produce for own consumption and for diverse markets (local/national, regional and international markets). In Tanzania, Rikolto believes under the FSC, that small holder farmers can only obtain fair returns from the horticultural sector when:

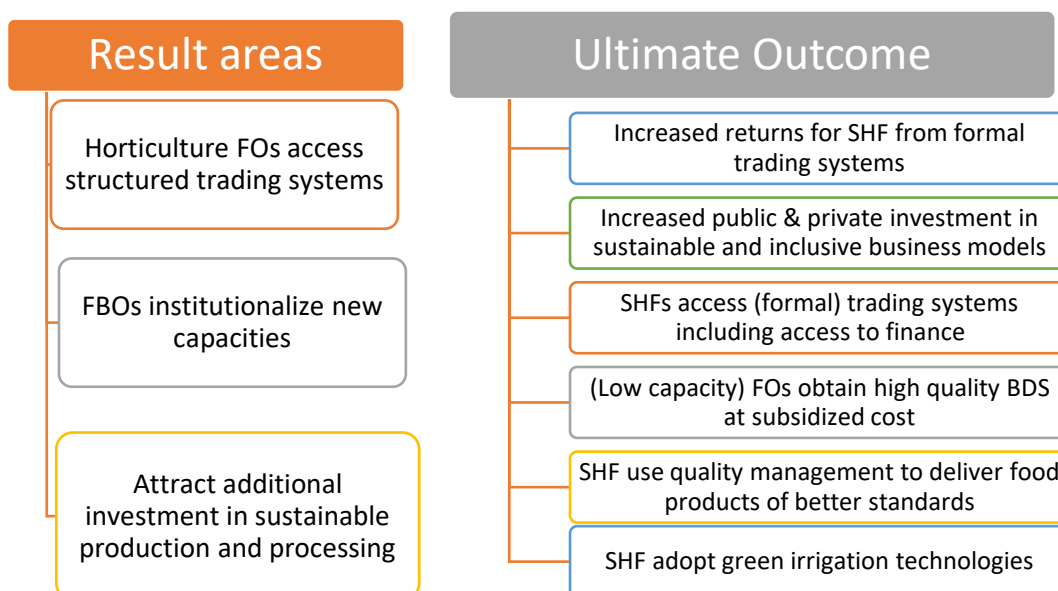
- ✓ trading systems provide services that support their growth
- ✓ market systems develop approaches which incentivize production of safe and sustainable food
- ✓ capacity for collective action that is flexible, adaptable and supported by large scale institutions targeting smallholder development



While these 3 structural change agendas are closely interlinked and offer necessary conditions for transformation of the horticultural sector, the FSC highlighted three core innovations within the pathways for intervention, under the following assumptions:

FSC Result Innovation	Key assumptions
Structural trading systems are inclusive and thus stimulate smallholder farmers and offtake/buyer collaborations, transparency and competitiveness in the market systems.	Trading models and incentives increase transparency, competitiveness and sustainable trading relationships for mutual benefit.
Flexible approaches for developing small holder business models and organizations, improves business partnerships between farmer organizations and off takers and delivers affordable services smallholder farmers.	Farmers are willing to invest on food safety and quality management systems and technologies. Arusha City Council see value to enforce food safety by-laws
Market incentives for sustainable production and consumption, that assures consistent supply, stable prices and safe and quality food.	Consumers are willing to pay for quality (and safe) food

The FSC anticipated three result clusters and six potential outcomes (see figure 1)



While the evaluation assesses the FSC programme above, under the highlighted evaluation questions, it also recognizes some changes to context which has impact on the selected innovations and achievement of the outcomes. These include (Tanzania Horticulture Intervention Framework (IF), Revised, 2020):

- ✓ COVID-19 outbreak and impact (2020+)
- ✓ Focus on domestic market (2018)
- ✓ Women and youth inclusion, and Generation Food project (2020)
- ✓ Arusha Food Safety Initiative (2020)
- ✓ Investments in collaborations with Private Sector actors (2020)

## 2.5 Rice

Rikolto identified several challenges in the rice sector including limited capital, the use of rudimentary technology, climate-related issues, high cost of electricity, and ad hoc non-tariff barriers within the East African Community (EAC). Moving downstream in agricultural value chains in Tanzania, activities are

dominated by Micro, Small and Medium Enterprises (MSMEs), from transportation, post-harvest handling, processing, bulking and trading.

The MSMEs are poorly organised and un-coordinated, leaving the market system largely unstructured and with very low levels of trust among actors. The flow of market information on product quality, quantity, grades and consistency, are mostly dysfunctional and/or distorted by brokers. These challenges exert a downward pressure on farm-gate prices and act as disincentives for farmers to invest in quality inputs and better-quality products. This leaves farmers without Quality Management Systems (QMS) since they are unaware of the market demands. Smallholder farmers are also faced with climate related challenges, especially droughts, floods, pests and diseases. Yet in the globalised and liberalised markets of today, there is a growing awareness of food safety and environmental standards which has increased the demand for consumption and production of safe foods.

Rikolto Tanzania highlighted some opportunities presented by the above challenges, including: room to improve small holder return on investment through the use of productivity enhancing technology, collective marketing, better post-harvest handling, better linkages and collaboration with the private sector, as well as various opportunities to influence public and private policy at various levels.

From the above challenges and opportunities, Rikolto developed a Theory of Change (ToC) stating its conviction that.

**Fair returns** shall accrue to smallholder farmers when

- ✓ **trading systems** provide services that support their growth and development and,
- ✓ **market systems** develop approaches which incentivize production of safe, and sustainable food.
- ✓ **FBOs** institutionalize new capacities and effectively provide services to members.

Even though capacity for collective action among farmers remain a big challenge.

The DGD funded program of 2017-2021, aimed to contribute to the development of a dynamic, sustainable and inclusive grains sub-sector in Tanzania, with family farmers providing quality produce for own consumption and diverse markets.

The specific objective of the program was to develop rice food chains in Tanzania that are sustainable and inclusive for smallholder farmers, male and female. Key intervention strategies included: i) Piloting structured trading systems in the rice trading systems in cities, that provide efficient services to the benefit of small holder farmers, ii) Developing flexible, adaptable models for farmers' business management that stimulate the inclusiveness of smallholders in the rice, horticulture and food systems in cities and, iii) building market systems for rice products, which incentivises sustainable production and consumption of safe food. The Rikolto Tanzania program was implemented in partnership with farmers, their FOs, private rice and horticulture chain actors, service providers, as well as policy makers and food system stakeholders.

### 3. Farmer level

EQ1. Have Rikolto's interventions contributed to increased resilience and improved livelihoods of farming households?

#### *Sample characteristics and data reliability*

In this section, we present a summary of the statistics of the household's descriptive statistics, highlighting contextual differences and similarities, as well as limitations that may affect reliability of data. We compare, as much as possible, the baseline situation in 2017 with the midterm and end line situations in 2019 and 2021, respectively.

Table 4. An overview of sample characteristics for rice and FFVs (Source-Farmer Survey, 2021)

	Y 2017		Y 2019		Y 2021	
	Rice	FFVs	Rice	FFVs	Rice	FFVs
Total Sample	444	444	447	447	504	504
# producing the crop	141	250	167	155	178	196
Younger than 35 years (%)	16%	25%	16%	23%	34%	40%
Female (%)	33%	34%	37%	37%	35%	37%
Household members	5.11	5.14	4.83	5.1	5.13	5.58
<b>Education</b>						
Primary Level Certificate	82%	82%	78%	74%	81%	73%
Junior Secondary Certificate	16%	14%	17%	21%	7%	15%
Farmland owned (Ha)	1.20	0.96	1.13	1.17	1.17	0.93
Membership of FO (%)	100%	100%	100%	100%	100%	100%

**Female farmers:** In all survey waves, we observe that on average, 35% of the respondents are female farmers, although there were marginal increases over the period.

**Young farmers:** Between 20% (2017) and 37% (2021) of the respondents are younger than 35 years, with an almost double increase in 2021, although the proportions younger than 35 years is higher in FFVs than Rice.

#### **Other sample characteristics:**

**Education level completed:** The sample has basic level of education. In 2017, most respondents have a primary school certificate (82%) and Junior secondary certificate (15%); in 2021 the proportion with primary certificate and junior secondary certificate were 76% and 11% respectively.

**Household members:** The average household size across the waves is 5 and or slightly above 5 members.

**Average farmland owned:** The average farmland owned around 1.08Ha (2017) and 1.05Ha (2021), and it seems more stable for rice than FFVs-Predominantly respondents are smallholder farmers, and while rice has an assured domestic market, FFVs were more severely hit by COVID-19 impact because of its significant focus on the regional and export market affecting incomes and thus acreage under crop.

All respondents sampled were members of FOs that Rikolto had identified and targeted to support capacity strengthening, trading and market linkages. We registered more years of membership in Rice than in FSC's FOs. Rice has been consistently considered as both food and cash crop in Tanzania. AMCOs and other cooperatives have been set up to facilitate trade in the local and regional markets, with well-established structures. However, FFVs are an emerging sector that is just undergoing transformation and getting better organized into FOs.

Reliability of FS data, has been mined by the following issues. These facts justify the significant focus on triangulation with qualitative data sources.

- ✓ Throughout the survey waves women participation is lower than men. Women face socio-cultural barriers that challenge their participation in agriculture, especially due to lack of access to land, critical as collateral for accessing financial credit/loans, but also have less power in control of incomes from production (Farmer Survey (Rice), 2021; FGD with Rikolto Team, 2022).
- ✓ Increase in number of young respondents (<35 years). A notable increase in the number of respondents has been observed between 2019-2021, and this coincides with initiatives put in place to improve youth participation in agriculture as a component of social sustainability including Generation Food project and engagement of youth in alternative value chains under Rice in partnership with Kilimo Trust.
- ✓ The sample is composed of farmers with primary level certificates. This level of education can be attributed to an increasing access to fee-free basic education (since 2016) and campaigns, such as Complementary Basic Education in Tanzania (COBET) and Big Results Now (BRN) to facilitate access to and completion of basic education.

The FS data show other limitations which affect data reliability such as unreliable data from control groups and small sample sizes. These facts allow for a simple correlation analysis and not causality. Further, it has been registered a high attrition rate due to new farmers joining the programme and others dropping out. Some inconsistent survey questions over the waves of assessment, and the COVID-19 also contributed to some challenges in the evaluation.

#### *Defining and building a resilience index*

The definition of resilience used in this report is the one provided by the RM-TWG (2014) following which resilience is the “*Capacity that ensures **stressors and shocks** do not have long-lasting adverse development consequences*”. This definition considers resilience as a set of capacities at different scales (households, communities, and systems), that emerges as a reaction to specific disturbances (shocks and stressors) that undermine the stability of a system, increasing its vulnerability. It considers resilience not as an end, but rather as an instrument to achieve the ultimate goal of limiting vulnerability and promoting long-term sustainability and improved well-being.

In the operationalization of the definition, the resilience indicators are re-grouped into absorptive, adaptive and transformative capacities, following Bené et al.(2015) and the main resilience literature (RM-TWG 2014). Absorptive capacity is a household’s ability to absorb the impacts of shocks in the short-run. Adaptive capacity reflects the ability to respond to long-term social, economic, and environmental impacts of shocks through specific adaptation strategies. Transformative capacity refers to structural changes in the structure and function of the system caused when the adaptive capacities of the household, community, or ecosystem are overwhelmed by the magnitude of the shocks.

To estimate resilience, ADE first estimated each resilience latent (i.e. unobserved) capacity by following a latent variable approach (Alinovi *et al.*, 2009) through factor analysis. Once the capacities have been estimated, ADE builds the resilience index as simple averages of the estimated capacities. In general, the indicators considered into the absorptive capacity are all indicators related to mitigation and preparedness strategies.

In this sense, ADE chooses indicators associated to good agricultural practices (soil and water management, and inputs use) as proxies for the degree of preparedness; and indicators such as access to safety nets and coping abilities for mitigation capacities. For the adaptive capacity, ADE considers indicators associated with ability to use technology and innovation skills to overcome the shock as long-term responses once the absorptive tools are exceeded by the shock. In this sense, we consider indicators,

such as education and training together with diversification of livelihood, access to credit and land size as proxies of farmers' ability to adapt to a multi-hazard environment. For the transformative capacity, ADE considers all indicators that enhance governance and enable conditions for resilience and transformation, as access to services, infrastructures and social inclusion. Unfortunately since only one indicator was available the transformative resilience capacities was not computed in this assessment.

### *Relevant livelihood outcomes and related indicators*

Livelihood outcomes in this report, are based on Rikolto's strategy documentation and Intervention Frameworks, where relevant farmers' livelihood outcomes have been defined to include: 1. improved production and product quality<sup>3</sup>, 2. sustainable production practices, 3. increased productivity, and 4. sustainable income for farmers. The table below highlights the outcomes and related indicators

Table 5. Farmer livelihood outcome and related indicators

<b><i>Improved production and product quality<sup>4</sup></i></b>
<b>Production quality</b>
What is the share (%) of your focus crop production that is produced with documented procedures, considered as quality food? Do you notice a difference in price when selling the focus crop produced using documented procedures, considered as quality food, compared to regularly produced food? Price for crop produced with documented procedures, considered as quality food (in USD) Average sales price (in USD) How satisfied are you with the price that you receive? Were the prices that you would receive by this buyer affected by the Covid 19 crisis? What is the share (%) of the income derived from the focus crop produced with documented procedures, considered as quality food, in comparison to your total household income?
<b><i>Sustainable production practices</i></b>
Sustainable soil conservation index Sustainable water management index Sustainable resource management index Climate change index Biodiversity index Sustainable landscape management index
<b><i>Increased productivity</i></b>
<b>Productivity</b>
Crop productivity Profit margin (or profit margin per ha, or profit margin percentage per ton) Total profit How did the Covid 19 pandemic affect your possibility to produce? What was the problem related to?
<b><i>Sustainable income for farmers</i></b>
<b>Income</b>
Total income (in USD)
<b>Income derived from focus crop</b>
What is the share (%) of the income derived from the focus crop in comparison to your total household income? Does the income suffice to fulfil the basic needs of your household? Which expenses of the household does the income manage to adequately cover? How does this compare to your situation in 2019 (pre-Covid)? How does this compare to your situation in 2016?

<sup>3</sup> Data only available in East Africa.

<sup>4</sup> Data only available in East Africa.

<p>Check the statement that best reflects the actual economic conditions of your household now compared to 2019 (pre-Covid):</p> <p>Check the statement that better reflects the actual economic conditions of your household now compared to 2016:</p>
<p><b>Assets owned</b></p>
<p>Total farmland owned (in ha)</p> <p>Do you keep livestock as an extra source of income? /in 2021: What are the household's sources of income?</p>
<p>Food Insecurity Experience Scale: During the last 12 months, was there a time when, because of lack of money or other resources:</p> <ol style="list-style-type: none"> <li>1. You were worried you would not have enough food to eat?</li> <li>2. You were unable to eat healthy and nutritious food?</li> <li>3. You ate only a few kinds of foods?</li> <li>4. You had to skip a meal?</li> <li>5. You ate less than you thought you should?</li> <li>6. Your household ran out of food?</li> <li>7. You were hungry but did not eat?</li> <li>8. You went without eating for a whole day?</li> </ol> <p>None of the above</p> <p>How does this compare to your situation in 2019 (pre-Covid)?</p> <p>How does this compare to your situation in 2016 (5 years ago)?</p>

### *Rikolto's impact on farmers' resilience and livelihood*

#### **Livelihood**

- ✓ Improved productivity (production and product quality)

According to FS (2021), farmers registered improvements in tons of focus crop produced and tons produced per Ha. While the increase in tons of crop produced was significant for rice, only improvements in tons produced per Ha was significant for FFVs. Whereas volumes commercialized through FOs, average sales price of rice, as well as, the total profit and profit margins declined between 2017 and 2021. This fact might be the result of replacement of a third of farmers between 2019-2021 and the closure of cross-border trade as a result of COVID 19. Volumes commercialized under FSC increased (though not significantly), average sales price of FFVs increased significantly, total profits increased and profit margins increased significantly. Improvements in FFVs were attributed to increased productivity due to linkages with input providers, better prices earned as a result of GAP certification and forward contracts, diversification into the high value domestic market products, and alternative models that targeted the domestic market following the collapse of the regional and export markets.

- ✓ Sustainable Incomes for farmers

FS (2021, Tables 4 & 5) indicated that average annual total income and average total income from rice per household decreased though not statistically significant between 2017 and 2021, while share of income generated through FO increased significantly. While unpredictable cross border trade bans to neighbouring countries of Kenya, Rwanda, Uganda, Burundi, DRC and Zambia, compounded only by the COVID-19 related border closures, increased supplies in the domestic market beyond demand, this also caused domestic prices to fall, lowering the incomes earned by farmers. The share of incomes generated through FOs however increased due to improved capacity strengthening through provision of Business Development Services to the FOs, increased linkages with off takers (forward contracts and trading partnerships) and input providers (improved seeds and fertilizers), and enabled access to financial loans and credit through the PASS Trust Guarantee schemes.

The trends were relatively different for FSC (See table 4&5 of FS, 2021). While the annual total income and average total incomes per household increased between 2017 and 2021 (though not significant), share of income from focus crop declined. Increase in total incomes and average incomes per household are attributed to GAP certification, which increased produce prices received by farmers from export market, eventually increasing their incomes, access to off takers and input providers linked to FOs through Rikolto, and access to PASS financial loans which enabled increased investments into farm operations. However, this was short-lived, as the effect of COVID 19, from 2020 caused a big shift. The market closures for the FFVs dependent on the tourism and export markets, could not sustain, and thus focused attention to the domestic market, thereby causing differences in incomes earned by those who previously depended on export market, compared to those who put more attention in the domestic market.

✓ Sustainable production practices

Sustainability impacts are assessed through indicators on environmental sustainability and sales and commercialization via FOs. Sustainability indices for Rice, specifically soil conservation, water management and landscape management improved significantly over the period 2017-2021, although between 2019-2021, only landscape management improved above the Rikolto threshold of 2.0 (Table 9 & 10 of FS, 2021). The improvements in the scores are attributed to GAP training based on SRP standards, and certifications, uptake of sustainable rice production, increased linkages with irrigation providers, safe use of chemicals and exchange (learning) visits, while the drop between 2019-2021 are more a result of new farmers who had not received such trainings and linkages. For FSC, all sustainability indices improved significantly over the period of 2017-2021, except for soil conservation index which improved insignificantly (Table 9 & 10 in FS, 2021). However, in 2021, only biodiversity index and sustainable landscape management were above the desired threshold of 2.0. While soil conservation was indicated as one of the worst performing indices, it should be noted that despite the adoption of solid conservation measures by farmers, the residual effects of previous use of chemicals takes a long time to reduce, and climate change and effects are continuing to have significant effect on agricultural production in the form of droughts, floods, migrating and new pests, which often require use of chemicals causing an imbalance in soils.

Rice sales through the FOs and share of production commercialized through the FOs increased between 2017 and 2021 (Tables 11 & 12 of FS, 2021). This is a result of confidence of farmers in the FO increasing their incomes. The sale through FOs is more structured and deals in graded products or those that meet certain national, regionally or international market standards, which Rikolto had provided capacity towards, but also facilitates correct adoption of Good Manufacturing Practices like measuring paddy moisture content before milling and storage, weights and measures as a condition for pricing and offtake. By adhering to these quality processing conditions FO have created a bridge of trust between buyers and farmers leading to attracting more buyers from domestic, to regional traders.

FSC sales and commercialization through FOs decreased between 2017 and 2019 (by 10%), however, the price of FFVs sold increased significantly between 2019 and 2021 (Tables 11 & 12 of FS, 2021). The decrease in sales and commercialization was a result of lack of GAP certification, a requirement for export and international market, however from 2020, armed with GAP certification, the prices received for export crops were significantly higher, and even though COVID-19 affected the export market and scale of production, it also opened up opportunities for premium and high value local market models that that gained farmers better margins, even though there are differences in those who benefited due to this shift in markets for FFVs.

✓ Food security experience scale

According to Rice FS data, respondents' food security situation has improved between 2019 and 2021. While in 2019, farmers were able to cover for most of their basic needs from the income they received

from the focus crop, except through savings, which could not sustain their needs. In FS (2021), it emerged that more farmers could cover their basic needs through incomes from the crop, and they engaged in savings groups to help them cope with shocks and stressors. Improvements in food security were attributed to different factors such as: (a) diversification through alternative sources of income, and other nutritious foods combined with high value FFVs for the domestic market such as cucurbitae, onions, water melons, green peas etc, (b) access to capital and financing which improved production and productivity, strengthening capacities of FOs to provide better services to members, linkages with input providers and off takers, and increase in savings, notably through the strengthening of Manyata Leki Tatu and Usariver (MALEU) SACCOs under the rice cluster in Arumeru which saved UWAMALE farmers .

Table 6. A summary of relevant livelihood outcomes for rice and FFV farmers

Outcome indicator	2017		2019		2021	
	Rice	FFVs	Rice	FFVs	Rice	FFVs
Annual total household income (USD)	519.25	441.99	540.12	312.34	473.31	411.3
Average annual income (USD)	1791.41	1499.43	1732.26	1097.14	1536.52	1165.31
Income by sales through FO (USD)	78.25	299.87	478.78	363.47	886.48	416.9
Farmland owned(hectares)	1.2	0.96	1.13	1.17	1.17	0.93
Production (tons)	3.4	5.04	5.22	5.1	4.7	5.22
Productivity (tons/hectares)	4.97	8.66	7.25	9.07	5.21	12.69
Average sales price of rice (USD/ton)	487.31	337.48	390.04	501.47	401.08	1136.93
Total profit (USD)	1065.37	869.73	1077.45	456.07	786.46	827.15
Profit margin (USD/Ton)	287.57	191.35	191.56	278.53	175.58	643.03

**Source:** Tanzania's Farmer Survey, ADE's data analysis report

### *Resilience*

On average, for rice farmers' **absorptive capacity** slightly increased between baseline (0.55 in 2017) and end line (0.56 in 2021), although the increase was not significant. The increase in absorptive capacity can be attributed to the activities in which farmers engaged during Rikolto's intervention. These activities include: Training in GAP (soil and water conservation, use of certified seeds, manuring, fertiliser and agro-chemical application, making trenches for erosion control, planting in lines, proper drying methods, following the cropping calendar etc); Sustainable Rice Production (SRP) techniques; use of disease and drought tolerant varieties of crops, safe spraying of crops; training in Climate Smart Agriculture (CSA); business planning, record keeping, bulking, marketing; formation and management of SACCOs; linkage to private sector service providers; and study tours to similar projects.

On average, farmers' **adaptive capacity** increased significantly with p-value<0.01, between baseline (0.12 in 2017) and end-line (0.17 in 2021), although it is still at very low level. The adaptive capacity could have increased through an improvement of farmers' capacity to diversify their income (the percentage of farmers relying on focus crop for less than 70% of their income increased passing from 32% to 40%), reduction in expenses (reported by 25%), use of own savings (reported by 23.4%) and or falling back to social safety nets (by 23.4%).

The overall **resilience index** is still at low level (scale 0-1), but it increased between baseline (0.33) and end line (0.37), although the increase was not statistically significant.



### *Heterogeneous effects*

Heterogeneous effects highlighted in the programme focused on gender and generation gaps. Women and youth scored lower in adaptive capacities, mainly livelihood diversification than adult male counterparts. Women and youth have limited access to production resources, notably land. This socio-cultural barrier limits their capacity to use land as collateral to access credit and loans for improvement of their production, trading and market opportunities. These contribute to women and youth being more vulnerable to shocks and stressors.

Analysis of incomes earned through focus crop and volumes produced and commercialized through FOs indicated that adult males earn and produce more per unit than youth and women. This is attributed to the limited control of resources especially factors of production by youth and women, as well as low benefit and control of incomes from production. While the FFV value chain is considered pro women and youth, socio cultural barriers and alternative value chains and technologies that increase their participation are critical areas of focus, such as digital and ICT technologies to improve market access as well as off-farm value chains including transportation and logistics, processing and value addition, alternative guarantee financing for loans and overcoming the socio-cultural barriers.

### *EQ2. What are the spillover effects of Rikolto's policy work beyond their direct beneficiaries?*

#### *Potential spillover effects of Rikolto's policy work beyond their direct beneficiaries*

Rikolto has been advocating for the wide-scale adoption of the use of the SRP Standard. It has been doing this by sharing experiences and evidence from its SRP pilots with other stakeholders during roundtable meeting. One organization, Kilimo Trust has since scaled up the use of the SRP Standard among rice farmers in the Southern Highlands of Tanzania, as a result of these efforts.

Furthermore, because of Rikolto's work on promoting sustainable rice cultivation based on the use of the SRP Standard, Rikolto was in 2020 invited by the Ministry of Agriculture to join the national task force that was charged with the responsibility of reviewing the National Rice Development Strategy (NRDS) II, and the development of the NRDS II (2021-2030). This presented an opportunity for the organization to push for mainstreaming sustainable rice cultivation practices/technologies into the new NRDS implementation framework.

Rikolto facilitated the Rice Council of Tanzania (RCT) to establish district-level rice cluster platforms as a vehicle to bring together all rice cluster members to discuss rice sector development strategies focused around promoting sustainable production, inclusivity, and market access. The FFV lessons from Arusha pilot also paved way for a larger horticultural project targeting 30,000 horticultural farmers in the Southern Highlands of Tanzania, funded by the EU, establishment of a local food standards certification company under TAHA-Greencert to provide certifications services previously outsourced from Kenya and South Africa, and facilitated upscale of the intern model of FBO professionalization piloted in partnership with Moshi Cooperative University (MOCU) and Tanzania Cooperative Development Commission (TCDC).

#### *Potential indirect beneficiaries*

Kilimo Trust (mentioned above) has implemented SRP in collaboration with Rikolto in the southern part of Tanzania under the Iringa Mitigation Adaptation and Production 4 Climate Smart Agriculture (IMAP4CSA) project founded by WEHUBIT. Moreover, the mere fact that SRP is now in the national rice development strategy implementation framework implies that whoever will be investing in rice in Tanzania, from public or private sector, will use the strategy as a reference point and will mostly implement the SRP standards. Regarding FO capacity strengthening, The MOAFS under TARI and Local Government Authorities (LGAs) have been working with Rikolto to develop training manuals and have piloted SRP standards with farmers in three Farmer Irrigation Schemes, therefore it is expected that the scaling up of farmers training using

the customised manual will be expanded to other FOs in Tanzania including to the southern highland, where the new 2022-2026 Rice DGD programme will be implemented in Mbeya and Iringa regions.

*Trickle down effects of policy changes to non-beneficiary farmers*

The number of indirect end beneficiaries for rice peaked to an estimate of 33,702 in the midterm evaluation end of December 2019 but declined to 24,332 in the post COVID-19 period (IF, 2021), while that for FFVs was estimated at 49,518<sup>5</sup> at Dec, 2019 and continued to increase to 54,248 by end of 2020 (FFV-IF, 2021).

The trend for rice resulted from trading policy changes for SRP produced rice by buying companies and national strategies to strengthen domestic markets. This is particularly relevant for policy change at the level of companies that buy SRP rice from farmers and FOs. Policy changes have also trickled down to non-beneficiary farmers through other NGOs like Kilimo Trust, and through public institutions like MOAFS and MOW. Furthermore, policies in companies which buy rice under long term trade agreements with FOs, pay higher prices. As a result, the bulking of produce arising from the long-term trade agreements attracted non-cooperative producers who also benefited from the collective marketing mechanism. This practice also stimulated uptake of sustainable production methods by non-cooperative members.

The increasing trend for FFVs despite the effect of COVID 10, were due to the reliable, profitable and structured markets that already existed before COVID 19, especially for peas, green beans, habanero chilli and baby corn. However, the focus on food standards certification and need for compliance with legislations regarding food safety standards, influenced indirect beneficiaries, as the only opportunity to gain both domestic, regional and export markets. The cross-border trade restrictions during COVID, affected direct and indirect beneficiaries alike, and this focused production for the local domestic market.

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<sup>5</sup>Calculated using the consumption per person per year plus number of direct beneficiaries' times average household size plus number of people in the cluster

## 4. FO Level

This section evaluates the overall impact of Rikolto's program at FO level.

### 4.1 EQ3a. What has been Rikolto's role in strengthening FOs and making them strong business organizations for their members?

In answering this evaluation question, data was collected through a review of the Intervention Framework (IF), 2020, review of programme documents, analysis of SCOPE Insight assessments (2018, 2019 & 2021) and verification through Focus Group Discussions with Rikolto Tanzania staff.

#### Food Smart Cities

According to the programmes' theory of change, use of flexible and adaptable business models in strengthening FOs capacity, within structured trading and market systems, will incentivize and strengthen capacity of FOs to provide better and quality services to its members. Strengthening FOs capacity to deliver services to members stems from the SCOPEInsight assessments of a professional business<sup>6</sup>, which results inform capacity gaps and business models to address such gaps with FOs (See text box on SCOPEInsight Assessment). SCOPEInsight data is used for (a) agribusiness performance improvement, (b) technical assistance programming, (c) sustainable sourcing and (d). agricultural investment targeting.

An analysis of the MUVIKIHO SCOPE Insight assessment (2018, 2019 & 2021)<sup>7</sup>, demonstrates that there

#### Box 1. SCOPE Insight Overview

*The SCOPEInsight Assessment measures a professional business using some of its critical components to: determine necessary capacity building, inform lenders and investors if the FO meets their expectations and help traders and processors gain insights into their supply chains. An improvement in professionalism would then lead to: more resilient and sustainable farming systems, improved productivity and farmer livelihoods and stronger value chains, where FOs are more able to access markets and finance, perform better financially, implement better agricultural, social and environmental practices and improve the livelihoods of their members.*

*While SCOPEBasic-for emerging FOs and agricultural SMEs has been used in this programme, there is also SCOPEPro-for advanced FOs and agricultural SMEs. The SCOPEBasic measures the following 8 components of a professional business, each with key sub-components scored out of 5 with the minimum thresh hold set by Rikolto at a score of 2, however, changes in internal management, financial management and sustainability are considered critical determinants in SCOPE assessment.*

*1. Internal management, 2. Financial Management, 3. Sustainability, 4. Operations, 5. Production Base, 6. Market, 7. External risks and Enabling environment, while 9. Financial performance is reserved for SCOPEPro to assess the rigour of financial performance for engagement with financial institutions.*

*Source: SCOPEInsight methodology and score interpretation guideline (Ver. 29, Jan 2020)*

had been some improvements between 2018 and 2019 in some of the scores, despite an overall decline of 0.7 points (3.3-2.6). All the scores show organizations in a maturing phase since they are above or equal

<sup>6</sup> A professional business, is an organization "that can manage its resources and processes, using its human capital efficiently and effectively and thereby achieving organizational goals (SIM & SIG, 2020)

<sup>7</sup> FSC only provided SCOPE insight data for MUVIKIHO since the other FO (Pangani Cluster) was not assessed

to the threshold of 2.5. These include scores in sustainability<sup>8</sup> (2.8-3.2=0.4), Operations (3.4-3.5=0.1), Market (2.9-3.3=0.4) and External risks (3.5-4.2=0.7). The downward trend in SCOPE Insight scores in 2019-2021 are associated with COVID 19 impacts. Focus Group Discussions with Rikolto team noted that baseline SCOPE Insight assessment (2018) had relatively higher scores, potentially because of the introduction of the new tool for the first time and that the scoring framework used then may not have been consistent with the 2019 & 2021 assessments.

The overall scores for MUVIHIKO between 2018 and 2021 has declined by 0.7 points. There are consistent declines in the following components over the period: internal management (0.9), financial management (0.5), production base (1.1) and enabling environment (2.0). While there has been some improvement in certain components score towards a professional organization, the two<sup>9</sup> key components of internal management and financial management have fared badly-a reason as to why the FO has not been able to directly provide key services to its members.

Table 7. MUVIKIHO SCOPE Insight Assessment scores (2018, 2019 & 2021)

<b>MUVIKIHO SCOPE Insight Scores (Scores are out of 5 and min thresh hold is 2)</b>	<b>Mar-18</b>	<b>Aug-19</b>	<b>Oct-21</b>
Overall Score	3.3	3	2.6
Internal Management	3.5	2.8	2.6
Financial Management	3	2.5	2.5
Sustainability	2.8	3.2	2.9
Operations	3.4	3.5	2.4
Production base	3.6	3	2.5
Market	2.9	3.3	2.9
External risks	3.5	4.2	3
Enabling environment	4.8	4	2.8

Note: Score 1: very immature organisation; Score 2: immature organisation; Score 3: maturing organisation; Score 4: professional organisation; Score 5: very professional organisation

The critical components of concern in general in SCOPE Insight assessments are internal and financial management, and sustainability (see also Box. 1).

Regarding the internal management, despite the Business Development Services (BDS)'s support and the pairing of the FO with Moshi Cooperative University (MoCU) interns helped to improve the internal organization and governance, this FO still does not have the capacity to hire employees. The internal systems are not effectively leveraged to manage membership and generate economic (and social) value to members, and few fees are collected from members, making it impossible for the FO to provide services directly to its members. However, improvements were seen in the sub-component of business planning, despite that its implementation was affected by COVID 19 impact. In regard to financial management, the scores declined, mostly as a result of low capacity for financial planning (budgeting and implementation) and less effective financial monitoring. These challenges are due to the fact that this FO has low financial capacity to pay for such services due to low member contributions and lack of alternative income sources, despite members benefiting from (in)direct services provided through linkages, which greatly subsidize the FO's costs. This challenge is also associated with prevailing grant dependency, which does not allow for a business mindset.

<sup>8</sup> In SCOPE Insight Assessment, the component of Sustainability is divided into two: Environmental sustainability with its sub components, and social sustainability to include women and youth inclusion in leadership and membership of the FOs.

<sup>9</sup> The SCOPE Insight methodology indicates that scores higher than 2.5 in internal and financial management are associated with more professionalism and implies better performance in access to markets, finance and more sustainable and climate responsive agricultural practices.

## Rice

The SCOPE assessment done for Rice cooperatives<sup>10</sup> between 2019 and 2021, showed an increase in scores under internal management, financial management and environmental sustainability. By cooperative, Kivulini registered the highest overall scores in 2021 (3.6), followed by Kijiji Biashara (2.6), UWAMALE (2.4) and Kivulini (2.2). All the scores show organizations in a maturing phase since they are above or equal to the threshold of 2.5.

Table 8. SCOPE Insight Scores for Rice Cluster FOs

SCOPE Insight Components	Scores (2019)	Scores (2021)
Overall score	3.1	2.7
Internal management	2.6	2.9
Financial management	2.4	2.7
Sustainability	2.4	2.6

Differently from the FSC's FO, the rice cooperatives have hired staff with different skills, and they are supported by 'qualified' interns from Moshi Cooperative University (MoCU) under the MoCU internship programme providing technical support on internal and financial management. Further, other BDS services provided to the cooperatives have contributed to raise their scores in internal and financial management.

The sub-component of (environmental) **sustainability** has fared well in both Rice and FSC, through special attention and focus on: (a) Trainings provided on safe use of chemicals (TAHA, Tanzania Pesticide Research Institute (TPRI)<sup>11</sup>, (b) GAP certification (and upcoming renewal) of MUVIKIHO to tackle the challenges of unregulated<sup>12</sup> use of fertilizers and pesticides, as well as poor post-harvest handling (TPRI, 2019), and promotion of sustainable rice production (SRP) practices in the rice cluster, and (c) Green and water efficient irrigation technologies<sup>13</sup> introduced.

In contrast, **social sustainability** in the FOs have not fared equally well. Identified FOs' key challenges to social sustainability have been: (a) Lack of clear succession plans for the leadership of the FOs (in all cases and across both clusters. (b) Youth and women inclusion is not stipulated in the membership and leadership charters of the FOs, and (c) the continued risk of donor dependency, which acts as a stumbling block to leverage on the FOs opportunities to attract and retain investments for sustainability.

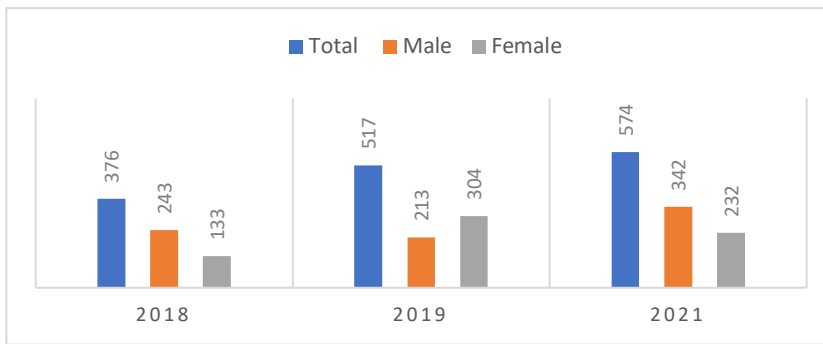
Figure 3 illustrates the marginal increases in scores on (social) sustainability between 2017 and 2021. Data shows that total membership of MUVIKIHO registered a consistent increase passing from 376 members in

<sup>10</sup> Four cooperatives were assessed during this period thus: UWAMALE, Mkombozi, Kivulini and Kijiji Biashara.

<sup>11</sup> The Food risk assessment research by Tanzania Pesticides Research Institute (TPRI, 2019) of 600 fruit and vegetable samples from different markets showed that (a) 63% of all samples had biological contaminates, (b) 47.5% of all fruits sold and consumed in Arusha contained high pesticide residuals.

<sup>12</sup> Soil conservation indices, a sub-component of sustainability, have not changed significantly in the SCOPE Insight, because of the residual effects of synthetic chemicals on the soil, which will take time to balance.

<sup>13</sup> Irrigation technologies that were prior in use, were surface/open, until innovations into drip irrigation to conserve water came up through linkages of FOs with irrigation providers (Simusolar & Kickstart International's Moneymaker), as well as water efficient technologies developed under the Water Resource 2030 initiative.



2018 to 517 in 2019 and 574 in 2021. The increase registered between 2019-2021 was lower (11%)- compared to the increase between 2018-2019 (38%). In 2019, the number of men dipped below women, however in 2021, the number of men become higher than women-342 men versus 232 women- (Figure 3).

**Figure 3. MUVIKIHO membership by gender-2018-2021)**

According to FS (2021) & IF (2021) for both rice and FFVs, on average, 36% (n=1088) of farmers are female and % of youth below age 35. increased by 17% from 20.5% in 2017 (n=888) to 37% in 2021 (n=1008). This significant increase in membership of youth (<35) is more a result of the introduction of "Generation Food project" by Rikolto Tanzania, targeted at increasing youth participation and benefit in urban food systems (Food Smart Cities), and in such dialogues, and that is why more of the increase was registered in Meru cluster, which is part of the Arusha City.

**Hindering factors:** FOs (both FSC and Rice) have a weak asset base, as most of the assets (including collection centers (FSC), irrigation infrastructure and processing facilities) are under direct control of member organizations, making it difficult for them to access loans without guarantees. This is also demonstrated by most FOs having accessed more grants, and little have been able to attract financial loans that are not dependent on PASS guarantee scheme.

The results discussed above illustrates that the FOs are not yet sufficiently organized to directly provide or effectively coordinate provision of such service to its members, and thus such services are provided through linkages facilitated by Rikolto and or subsidies.

Discussions with Rikolto’s staff contributed to highlight some concerns regarding the SCOPEInsight tool and its use, which may support in its future use and development:

- ✓ “It is too complicated for young/smaller FOs”
- ✓ “It is expensive and as a stand-alone tool, cannot be adopted by smaller FOs”
- ✓ “It should be translated into Kiswahili and FOs trained as the assessors”<sup>14</sup>
- ✓ It does not control for bias as a result of capacity of assessor and scoring

*Changes in the local BDS sector*

The number of accredited Business Development Services (BDS) providers (registered and regulated within their areas of specialisation) offering services to FOs increased from 5 in 2017 to 19 in 2021 (Rice) and from 2 (2018) to 10 (2021) for FSC (IF-revised, 2020). BDS have expanded, but significantly moving away from direct support by Rikolto to facilitating linkages with BDS providers, although the FOs show limitations in taking up the space to manage and monitor such services at their level. The volumes of produce sold through FOs have increased over the period 2017-2021, as well as the expansion of the number of certified BDS service providers<sup>15</sup>.

BDS are mostly provided to FBOs through linkages with input providers and off takers as complimentary services, and bundled in most cases. However, while Rikolto provides linkages to BDS, they also pay for

<sup>14</sup> Rikolto staff also felt the need to develop and communicate a scoring rubric which can be adapted with time

<sup>15</sup> Rice sold through FO had increased from 0.11 to 1.9Tons, while the number of certified BDS service providers from 7 (2017) to 28 (2021)

specific BDS consultants to provide customized support and or subsidize the costs directly for the FOs (MTR, 2019; IF, 2021). For example,<sup>16</sup> in GAP certification for MUVIKIHO, Kilicert provided organizational skills for GAP certification and certification services, Agritech provided internal auditing services of global GAP, Control Union provided external auditing services and Rikolto paid for certification costs, with the expectation that the FO take over GAP certificate renewal costs in 2021. Rikolto also linked off takers agronomists (in 2020), with TAHA and government agricultural extension service providers to increase farmers productivity (yield and quality) but also to coach them on GAP standards.

Overall, many BDS providers have been linked with FOs in both clusters:

Table 9. Some of the BDS service providers linked to FOs (Rice & FSC)

<b>BDS Categories</b>	<b>BDS providers linked under Rice</b>	<b>BDS providers linked under FSC</b>
Financial services	PASS Trust, NMB, CRDB, TADB	PASS Trust, NMB, CRDB,
Input Providers (Including Irrigation)	Yara, ETG, Meru Agro, Minjingu Mines	East West Seed, Advanta Seeds, SeedCo, Kibo Seeds, Simusolar Kickstart International (Moneymaker)
Extension services & Quality standards	RCT, TARI-Ifakara, KATC, EAGC, TBS, SIDO, Nafaka Halisi, Sharifu Weights & Measures	Kilicert, Afritech
FOs professionalization	MoCU interns, Local BDS, TCCIA	MoCU Interns, ATO, HACH Company, iCRA.
Trade/Offtake	TANTRADE, Local Dealers (Nafaka Halisi and Sharidu)	East Africa Fruits Company Ltd; Mara Farming EPZ, TAHA, Twiga Company, HomeVeg, Luzane Frigoken, Serengeti Fresh, Meru Green & Beth Equisolution Company Ltd (BECL)

The General Framework for BDS (2018), focuses on sustainability of BDS services with Rikolto working as a market facilitator in food systems. It purposes to (i) (assess BDS initiatives to be coherent with the above focus of the framework, and (ii) design future initiatives to achieve more sustainable and scalable impact, and outlines the key performance indicators as: Quality of services offered by the service providers, Affordability of the services offered by the service providers, Accessibility of the services offered by the service providers, Availability of the services offered by the service providers and financial sustainability (reliability) of the services offered by the service providers.

The BDS framework is supported under 8 principles:

1. Demand driven services-paid by the public or private sector,
2. Sustainable services- mechanism in line with client’s ability to pay
3. Bundled packages or integrated services-eg inputs, credit and trainings, so that, farmers have value at reasonable cost, but also allow for competition to guarantee quality and efficiency.
4. Vibrant and competitive sector- crowding in of services providers gives clients a wide range to select from.
5. Flexible, adaptable and participatory-to respond to the fast-changing market systems and environment.
6. Sector governance is key to sustainable service delivery-Policies are key part of the system of governance and sustainability and must be influenced.

<sup>16</sup> It was noted that the idea of subsidies to FOs is discouraged under the rice cluster, however, this is so because the level of organization of AMCOs is higher than the FOs under FSC, and they have assets which facilitate members to pay-for-services including water (for irrigation), processing and packaging as well as marketing services.

7. Understanding opportunities in the market system and building on it- promoting linkages, building trust and supporting service providers to make the systems work.
8. Within operational context and with clear exit strategy-stimulate the market systems for BDS and have a clear strategy to exit.

*Rikolto's opinion on alignment of changes with its BDS policy*

While the programme implementation of both FSC and Rice clusters have significantly aligned to the BDS framework, and in respect of the principles mentioned, the Rice cluster is more aligned because the value chain is not as complicated as the FFV, and the grain market is predominantly local/domestic compared to the multiple market outlets under the FFVs.

Some successes have been observed, while some challenges have forced Rikolto to bend back on the key performance indicators, especially of sustainable services. Under affordability, linkage of farmers to access input loans through PASS-CRDB/NMB initiative enabled prior unbankable farmers to access credit/loans, however, this also masks the weak asset base of the FOs to directly taking advantage of the mainstream financial markets. Under cost effective and quality, several examples have already been mentioned of Rikolto linking FOs to input providers and off takers and facilitating access to better quality inputs (although farmers are still unsatisfied with services such as seeds and fertilizers (including pesticides) at better prices, but also establishing demonstration plots and facilitating low cost green irrigation technologies to attract off takers and other financing partners to directly engage with farmers and offer new opportunities and markets (under sustainability).

Despite these, there are cases where Rikolto has to bend back on the KPIs, either because the FO is still nascent, the opportunity offers greater sustainability options or the FO is just donor dependent. In Msitu wa Tembo, Rikolto provided 50% subsidy in establishment of the demonstration plots to attract off-takers, because the cluster was new and not yet opened up to markets, in GAP certification, Rikolto paid for the certification costs, while capacity strengthening on GAP was done by TAHA on one hand, and other BDS providers and consultants paid by Rikolto. However, the biggest challenge to FOs is that they gain economic value from BDS, but are still not forthright to invest the returns to strengthen their FO as a sustainable business, nor pay-for-services.

While the evaluation identifies that contracting and negotiations, (cold) storage and collection/aggregation, and members recruitment as the tangible direct services the FO provides to members, it also highlights the following as key crosscutting challenges that have affected the growth of the FOs and capacity to provide services to its members despite the linkages and BDS services provided.:

✓ **Management and leadership capacity**

Most FOs still possess low internal management and leadership capacities that affect their ability to potentially organize and operate as business entities. They do not have the level of resources to effectively provide services to their members with low capacity to hire and retain qualified staff, build and grow its asset base, and leverage on the economic benefits it already derives.

✓ **Access to (real time) market information**

Challenges of poor knowledge of market information, lack of trusted technology providers affected the development of a pilot distribution platform to link off takers and vendors through MESULA. However, the infrastructure was not robust enough to link farmers with markets, as it had not established a “trading shop”. The “Mkulima Hub” piloted in Arumeru and Pangani (2020), was more a data collection platform to produce promotional reports to off takers, input providers, financial institutions and Rikolto donors, which did not actually satisfy the need for the platform to facilitate markets, market information and trade, and thus did not take off (IF, 2020). A platform was launched in July 2021, that also included Iles de Paix (IdP)



farmers. However, Rikolto (In FGD, October 2021) agreed on a need to develop a business case for a (digital) technology platform that facilitates markets, market information and trading between FO members, off takers and input (and other complimentary service) providers. EAGC coordinated the linkage of Rice FOs to the market information platform and supported the rice cluster with access to market information. However, the expiry of this MoU in 2020 exposed the farmers to draw back to their traditional ways of access to market information.

✓ **Risk mitigation and insurance services**

While farmers under their FOs acknowledge receipt of some services, the evaluation has highlighted the absence of risk mitigation mechanisms to externalities which farmers have little or no control over, such as climate related risks, market failure or disruptions such as demonstrated by COVID-19 impact and production risks as a result of pests and diseases and increased costs of production. The lack of risk insurance services and shared management of such risks by stakeholders in the food system increases the costs of production to farmers.

✓ **Donor dependency-The mindset**

Despite deriving economic benefit to their members through input, offtake and linkages for complementary services, the FOs have not navigated the dependency on grants, to operate as business entities. Such a condition entrenches laxity among the FO's members to contribute directly (membership) or portions of their profit margins to invest into the FO to effectively provide for services. More established FOs such as AMCOs and Cooperatives (the case for Rice) might address the issue, while it is difficult for smaller FOs which still owe allegiance to their member groups and not the apex (FO) itself. This is part of the reason why members rarely pay-for-services, even when offered by the FO.

## 4.2 EQ3b. What added value demonstrates the FO as a collective action mechanism for producers?

*FOs' improvements in services offered*

### Box 2. Pilot solar irrigation pumps-Lessons on uptake

#### **Low uptake of solar irrigation pump in Arusha! Lessons learnt**

The Simusolar solar irrigation pump developed for uptake by farmers in Arusha, flopped as only two farmers adopted it. The reasons why the adoption was very low (RT FGD 2021) include:

- 1) The set of solar irrigation was expensive (12M TZS)
- 2) The demonstration was 100% subsidized for farmers by Rikolto (discouraged by BDS principle of Sustainability)

Lessons were learned and as a result a new solar irrigation pump was designed for Mbeya region (under an EU project) which had the following features and services:

- ✓ Smaller and more affordable (at TZS 2M)
- ✓ Offers credit of 40%-60%, different from the Arusha demonstration which did not have this facility,
- ✓ Bundles services introduced to include options of inputs access and drip irrigation at a certain cost,

While the new approach of bundling solar irrigation with other services, at an affordable cost to the farmer within cost sharing or credit/loan mechanisms has been successfully adapted in Southern highlands, it highlights the following:

- ✓ Re-introduce the low-cost, solar irrigation technology with its bundled services to Arusha

#### **Value, terms of services offered and satisfaction with services**

Farmer Survey (2021) indicated that farmers (both FSC and Rice) were most satisfied with irrigation, training and extension and seeds, while they were unsatisfied with access to services such as fertilizers and farm chemicals, seeds, transportation, market information and certification.

While seeds appear in both categories, the reason is that seed providers are diverse and while others may provide quality seeds, others may not, an area where FOs should assess to prioritize where they access their seeds as this is a competitive market. Fertilizer costs increased with the newly introduced Bulk Fertilizer Procurement (regulations), which monopolized import to ETG, thus affecting the distribution logistics and prices, while transportation is a factor of the poor rural road network in the primary markets and significantly affects bulk commodities like rice, market information is a challenge that has been discussed, and certification has been addressed in FSC, but still a challenge in rice, owing to the very different rice varieties which are in most cases mixed when sold in the local markets. However, unlike horticulture produce sold at high end market places, certification was found not to be a market requirement, apart awarding market prices paid based on grading and sorting standards. Farmers also indicated that there are services that are not available to them when needed. These include market information, credit/loans and weather information. Since most of the FOs do not have assets, they depend on guarantee schemes to avail credit to their farmers, the market information platforms in FSC did not work while that between Rikolto and EAGC expired in 2020 causing this gap, and for weather information, that is a risk in which FOs could not identify a local weather insurance provider, and thus a persistent need.

Table 10. Farmers (Un)satisfaction with access to services (Farmer survey, 2021)

<b>Satisfied</b>	<b>Unsatisfied</b>	<b>Not available when needed</b>
Irrigation	Fertilizers and pesticides	Market information
Training services	Seeds and transportation	Credit/loans
Seeds	Market information and certification services	Fertilizers/pesticides and weather information

Rikolto TZ provided significant linkages to FOs (MUVIKIHO and Pangani Apex) to improve internal capacities (SCOPE Assessment, 2021). These linkages included connection with input providers (including finance/credit), off takers and an array of business development services (BDS) providers, which enabled assured access to markets, access to inputs, technologies and finance, and other services. Table 11 maps some of these services, where received and documented benefits.

Table 11. FSC BDS services, source and documented benefits

<b>Category of services received by SHO</b>	<b>Key services</b>	<b>Source/Provider of service(s)</b>	<b>Benefits documented</b>
Input services (incl. finance/credit)	Farm inputs	East West Seed, Advanta Seeds, SeedCo, Kibo Seeds	Establishment of demonstration plots with farmers (Msitu wa tembo), Access to improved quality seeds
	Irrigation technologies	Simusolar Kickstart International (Moneymaker)	Adoption of irrigation technologies though slow
	Input loans/credit	Private Agriculture Sector Support Trust (PASS through CRDB, NMB)	Farmers who were prior unbankable access input (working capital) loans through guarantee scheme
Product market (Offtake)	Produce offtake	East Africa Fruits Company Ltd; Mara Farming EPZ, TAHA, Twiga Company, HomeVeg, Luzane Frigoken, Serengeti Fresh, Meru Green & Beth Equisolution Company Ltd (BECL)	Access to local, premium and niche markets at better prices in different domestic, regional and export markets
	Collection centres & Collective Action	FO (Kibiu Farmers Group), HACH Consulting Company	Ease of offtake due to availability of rehabilitated cold storage facility; improved quality standards, pre-grading facilities and weights and measures
	Packaging	SIDO	Improved knowledge on packaging providers and use for transport and local markets
Business Development Services	GAP certification Safe use of chemicals	Kilicert, AgriTech, Control Union, TAHA (Greencert) TAHA, TPRI, ATO	Access to premium and niche markets at better price

Finance, Leadership and Management	Agro-Tanzania Organization (ATO), Moshi Cooperative University (MoCU) management interns (2020) <sup>17</sup> , HACH Consulting Company, iCRA	Registration of 5/6 member groups (Pangani Cluster), Access to input loans from PASS (CRDB & NMB Banks) by MUVIKIHO, Mkombozi and UWAMALE
(Forward) Contract farming, negotiations & brokerage	Rikolto, TAHA & FOs	Long-term business relationships, 'assured' market

### *FOs' improvements in production and commercialization*

#### **Membership:**

Farmer Survey data (2021) collected from a sample of Rice and FFV producers who are members of FOs indicate that while there have been marginal changes in female membership (approximately third of the total membership for both rice and FSC) between 2017 and 2021. The proportions of youth, farmers below 35 years of age, has almost doubled between 2019 and 2021 both in rice and FFV clusters.

Table 12. FO membership by gender and youth (Source-FS, Table 2)

	Year 2017	Year 2019	Year 2021
N value (1395)	444	447	504
Rice(n=486)	141	167	178
<i>Female (%)</i>	33%	37%	35%
<i>Youth (&lt;35, %)</i>	16%	16%	34%
FSC (n=601)	250	155	196
<i>Female (%)</i>	34%	37%	37%
<i>Youth (&lt;35, %)</i>	25%	23%	40%

Youth participation in the rice sector is relatively lower compared to FFVs, while no market differences exist for women participation in both sectors. While significant increases in youth participation in rice might be explained through interventions geared at opening up the rice value chains for the youth through trainings on soil testing as a business opportunity with FOs, increases under FSC might be attributed to the pilot Generation Food project which targeted inclusion of youth in agri-food systems under the FSC.

Youth and women engagement between 2018-2020 improved thanks to: (i) mobilizations to increase FO membership, especially women and youth participation in FOs and in collective action, and (ii) Incentive of reliable, structured and profitable markets of export products like peas, green beans, habanero chili and baby corn (FSC), before COVID-19 caused a market failure, and (iii) targeted interventions to open up alternative value chains (on and off farm) to catalyse women and youth engagement such as the soil testing training initiative under Rice, increased access to financial services, inputs and Generation Youth Project to improve youth engagement in the urban food systems under FSC.

#### **Production and productivity**

<sup>17</sup> The rationale for the MoCU interns was to sustainably build FBOs leadership and management capacities, by placing them to FBOs to improve leadership and management capacities, they will be the cooperative officers after graduation and thus have an established relationship, and the interns will also benefit from mentoring by the short-term BDS providers/consultants.

Production and productivity improved over the period 2017-2019, although improvements were negatively affected by floods and droughts, COVID-19 impact (and associated market failure), and increased costs of some inputs notably fertilizers and pesticides, between 2019 and 2021 (FS, 2021; IF, 2020 and FGDs 2021/22). Total tons of rice produced significantly increased (p-value=0.01) from 3.4 (2017) to 4.7 (2021), while productivity in Tons per Hectare (Ha) increased from 4.97 (2017) to 5.21 (2021), though not significant. For FFVs, total tons increased from 5.04 (2017) to 5.22 (2021), though not significant, while Tons/Ha increased significantly by 1% from 8.66 (2017) to 12.69 (2021). Whereas efforts towards mitigating production and productivity challenges have taken several forms e.g., drip irrigation and bundled services, linkages with input providers, off-takers, financial services and forward contracts. Lack of solutions to effectively mitigate climate change, market and production risks (insurance solutions) still abound.

According to FS (2021), the average farmland owned per farmer was relatively stable for rice approximately 1.2Ha (2017), 1.13 (2019) and 1.17 (2021), although there was high SD probably due to the replacement of farmers (one third) in 2019. Farmland owned under FSC oscillated between 0.96 Ha (2017) to 1.17 Ha (2019) on average, and it dropped to 0.93 Ha (2021). The change in the acreage of farmland owned from 2017 to 2021 was insignificant. Rikolto initiated interventions and linkages to input finance, bringing in Private Agricultural Sector Support (PASS) Trust through NMB and CRDB Banks that supported farmers' access to input finance for farm inputs, land preparations and labour engagement in harvesting and grading. Such initiatives helped rice farmers' access to production loans. Further, under FSC programme, Rikolto's input finance supported 72 MUVIKIHO farmers to receive USD 136,360 as input loans. Nevertheless, a drop in farmland cultivated (Ha) has been registered in 2021, occasioned chiefly by COVID-19 impact on markets.

The COVID-19 initiated market failure affecting FFV differently from Rice. FFVs depended mainly on the domestic tourist and export markets. The loss of its mainstream markets caused prices in the domestic market to fall below the export price, causing farmers to resort to risk-averse measures and leading some farmers to abandon production (demonstrated by a decline in acreage between 2019 and 2021), since the prices in the domestic market could not sustain their production costs. For Rice, which market is predominantly domestic and regional, the closure of regional borders affected cross border markets and left only the domestic market, which suffered from over-supply and thus affected the domestic price of rice

Table 13 shows that while production and productivity indices had improved between 2017 and 2021, COVID-19 and associated effects dampened the rate of growth, and negatively affected some indices including sale price of focus crops (for rice). Diversification into high value domestic FFVs increased sales price for FFVs even though the price received were lower than the export market prices. Total profit registered negative growth over the period, while when profit margins for rice declined, there was a significant increase in profit margins for FFVs as a result of alternative market models developed for the domestic market.

[Table 13. Change in production & productivity variables for rice and FFVs-2017-2021 \(Source-FS, 2021\)](#)

<b>Production &amp; Productivity variables</b>	<b>Rice (Change between 2017-2021) in USD</b>	<b>FSC (Change between 2017-2021) in USD</b>
Mean Farmland (Ha)	-0.83	-0.03
Production (tons) of focus crop	1.3*	0.18
Productivity (tons/Ha)	0.24	4.03*
Commercialization of focus crop (tons)	2.12	0.68
Average sales price of the focus crop (USD)	-86.23	798.55*
Total Profit (USD)	-278.91	-42.58

Profit margin (USD/Ton)

-111.99

451.68\*

\*-Represents statistically significant change at 1%

Whereas production increases were facilitated through increased access to inputs, and assured markets, which contributed to the rise in commercialization in the rice cluster, which mainly depended on the domestic market, the commercialization for FFVs was positive, but relatively lower than rice, due to the loss of the tourist and export market as the key drivers. In fact, the quality food per farmer sold through collective action in metric tonnes (MT) increased by 16% between 2018 & 2019, and then declined in 2020 to 0.944 MT (IF, 2021; MTR, 2019). Since rice is considered as a food and cash crop, and not a high-value crop like FFVs, the average sales price per ton were significantly affected by oversupply in the domestic market. COVID-19 pandemic also impacts on consumer liquidity and consumption patterns, leading to lower total profit for farmers and the profit margins. However, for FFVs, the loss of tourist and export market expanded the focus into high value and quality FFVs to supply the domestic demand, which previously untapped, as well as the urban markets and supermarkets (retail chains). Such diversification i.e., the GAP certification uptake, which saw a reduction in use of pesticides following the series of trainings on safe-use of farm chemicals and the pilot of the short-chain distribution models, improved the sales prices of those domestically targeted FFVs (MTR, 2019). The GAP uptake also improved food safety, reduced residues and contributed to better quality products, while it caused export sales prices to double from \$0.35 to \$0.75/Kg<sup>18</sup> (MTR, FS, 2019). However, the market share in the domestic market offered a price less by 30-50% after the onset of COVID-19 in 2020 leading to the overall decline in total profits since costs fertilizers and farm chemicals increased as a result of difficult supply chain logistics.

#### Farmer incomes through commercialization:

Table 14 below indicates that while incomes by sales through FOs increased over the period in both FFV and Rice value chains, the increase was significant in rice from \$78 (2017) to \$886 (2021), but not in FFVs which increased from \$300 to \$417 respectively. Despite increases registered in sales through FOs, and number of farmers selling through long term trading relationships, the production sold and share of production commercialized through FO, increased only in rice, while in FFVs, declines were registered over the period. This is because of the nature of rice market in Tanzania, which is a bulk commodity with structured domestic market system, with more organized AMCOs and cooperatives, which was not significantly affected by COVID-19 market disruptions.

However, for FFVs despite the lower incomes by sales through FOs than in rice, the change in focus to domestic market and short chain distribution models of offtake and kiosk models, enabled alternative markets not necessarily reliant on the FOs to increase annual total incomes, despite this being lower than incomes received through offtakes for export markets. According to FS (2021), sales price increased from \$337/ton (2017), to \$501/ton (2019) and to 1,136USD/ton (2021). Specifically, sales price for GAP certified products was 30-50% higher for green beans (\$0.6/Kg) and peas (\$0.9/Kg). Nevertheless, COVID induced border closures lowered local domestic prices by 10-20%, diminishing subsequent volumes produced by 20-40%, as farmers reverted to risk evasion mechanisms. There was an increase of \$117 on income generated by sales through FO between 2017-2021 due to better prices resulting from GAP certification reducing costs of production (farm chemicals), improved quality by reducing residues, and enabling venture into premium and niche markets; increased forward contracting with off takers, improved access to farm inputs (from input providers) and access to input finance (from PASS-CRDB/NMB linkages) among others. Besides, FS (2021) observed a significant change in profit margins from 191 USD/tom (2017) to 643 USD/ton in 2021 driven by the same factors, although there were variations by the fresh fruits and vegetables (FFVs) in question, especially with COVID-19 forcing a change of focus to the domestic market.

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<sup>18</sup> Exchange rate used is 1\$=TZS 2000

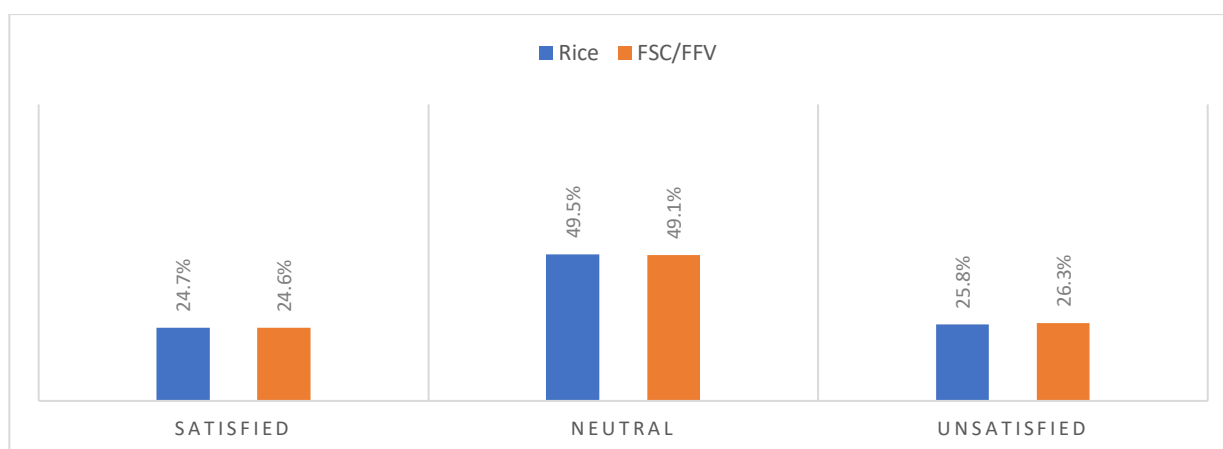
Table 14. Change in income & sale variables for Rice & FFVs between 2017 and 2021 (Source-FS, 2021)

Income variables	Rice (Change between 2017-2021) in USD	FSC (Change between 2017-2021) in USD
Average annual total income (USD)	-105.77	184.77
Average total income per household (USD)	-45.94	-30.69
Total Income from focus crop (USD)	-254.89	-334.12
Share of Income derived from focus crop (USD)	-1.81	-20.9***
Income by sales through FO (USD)	808.23***	117.03
Sales via the FO	Rice (Change between 2017-2021) in USD	FSC (Change between 2017-2021) in USD
Production sold via FO (Tons)	1.79***	-0.21
Share of production commercialized through FO	0.35	-0.04

\*\*\*=Significant at p<0.01

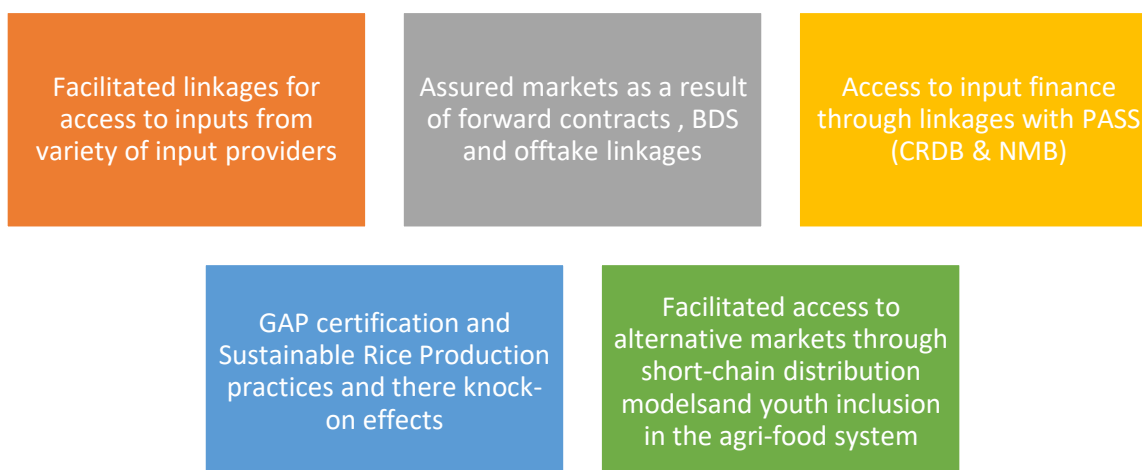
Farmers' attitudes towards the FOs' contribution to their incomes have shown a positive and improving trend between 2017 and 2021. While a higher percent of farmers were neutral, attitudes of farmers across rice and FFVs were almost similar (Farmer survey, 2021). Although the market systems were significantly disrupted by COVID 19, there were also additional pressures to the market resulting from internal government policy changes including the fertilizer (bulk) procurement regulations, bans on cross-border trade in grains, which heightened challenges with costs of production and fluctuations in produce prices in the local markets. Figure 4 below illustrates farmers' satisfaction with FOs contributions to their incomes.

Figure 4. Farmers satisfaction with FOs contribution to their incomes (FS, 2021)



Contribution of the FO to the farmer's income development in both value chains (FFVs and Rice) can be categorized under the 5 areas below. However, while the government's ban on export of unprocessed vegetables (in 2019) mostly exported to Kenya pack houses before export to Europe, restricted bans on regional export of grains/cereals (various years), the introduction of fertilizer (bulk) procurement regulations among others affected production and markets. Furthermore, COVID-19 significantly had negative impacts on acreage under production, volumes produced and sold through collective action, and market prices thus directly affecting farmers' incomes.

Figure 5. Drivers of FOs contribution to farmer incomes



**Heterogeneous effects:** An analysis of production and incomes of smallholder farmers, who are members of the FOs (Farmer Survey, 2021) indicated that (adult) men produce and earn more per unit than women and youth. In rice, adult men produce 2.8 tons more than their youth counterparts (below 35 years), thus gaining an additional USD 876 more in incomes. Men produced 1.6 Tons/Ha more than women in 2017, which gap only increased to 2.9 tons per hectare in 2021, the gap of produce commercialized through the FO has increased from 1.5 tons (2017) to 2.7 tons (2021), and women on average earn USD 1000 less than men. The same analysis was however not done for FFVs.

Discussions with Rikolto team highlighted that such inequalities are driven by socio-cultural factors and barriers that stop women and youth from equally benefitting from productive resources in the food systems. (Adult) Men were found to own land, a productive asset that enables access to finance through collateral, while women and youth mostly do not, men, are more exposed to production, marketing and market information skills, as they take advantage of the available training services, than women and youth, and while horticulture has greater potentials to attract women and youth, rice farming is capital intensive, and avenues to engage women and youth more, should be looked into.

### 4.3 EQ4a. Has Rikolto succeeded in facilitating business relations between FOs and private sector buyers?

#### *Business relations set up and/or strengthened by Rikolto*

Rikolto, acting as market facilitator, has linked FOs with a range of business relations (both private and public) including input providers, off takers, credit/loans, business development service providers and other complementary services. Table 15 describes these business relations.

Table 15. Business relations established/strengthened

Business Relations	Description
Linkages with input and extension service providers	Business relations that ensure that FOs and members have access to quality inputs to improve productivity of fresh fruits and vegetables, and rice that they are engaged in. These have encompassed business linkages with seed providers (quality FFVs including Quality Declared rice seeds), farm chemicals (fertilizers <sup>19</sup> and pesticides), and skills (training and extension services) on effective use and application of such services including safe use of farm chemicals, agronomic practices and enabling effective use of improved seeds through demonstration

<sup>19</sup> The fertilizer suppliers mentioned under rice include ETG, One Acre Fund, Meru Agro and YARA



	plots among others to safe guard health of the farmer, consumer and protection of the planet earth.
Linkages with off takers in supply chain management and market	Business relations targeted at effective management of the supply chains, including establishment of supply contracts for long term trading relationships with off takers, and facilitating trade and markets for rice and FFVs through the off takers. These include contract price negotiations through gross margin analysis, support in effective management of the post-harvest logistics such as renovation of pre-grading and cold-chain logistics within the collection centres of Kibiu farmers under USADF support, packaging technologies and services and orders payment (Luzane) and mechanisms for off take products of such contracts.
Linkages for credit financing	Business linkages that support FOs, AMCOs and or members to access credit, either input financing and or production services including land preparations, labour, post-harvest handling and logistics, as a means to improve commitment to expanding acreage or sustaining production as a business. The linkages coordinated under rice and FFVs with PASS under the financial institutions like CRDB and NMB are cases in point.
Linkages for complementary services and innovations	Innovative services that strengthen the value chain and market linkages for FOs and members have been integrated into the programme. Low-cost green drip irrigation technologies that use solar technologies (Simusolar), hip or hand (Kickstart International's money maker) to improve water use efficiencies. Use of ICT solutions and platforms that facilitated inputs, trading and market (information) access to facilitate trade have been tried, including financing of water resource innovations under Water Resources 2030.
Linkages to targeted business development services (BDS)	Business linkages with customized providers of BDS including leadership and management capacity building and strengthening (such as ATO, Moshi Cooperative University (MoCU) internship, HACH Company etc), GAP certification services and support (TAHA (GreenCert), Kilicert, AgriTech etc), to improve quality standards for domestic and international markets, and to promote the agenda for production and consumption of safe and healthy food, as well as training on East Africa Food Quality Standards by Rice Council of Tanzania (RCT).

The following examples demonstrates the business relations that have been set up and or strengthened during the programme:

✓ Relations with input service providers"

MUVIKIHO and Pangani FBOs were linked to private companies providing inputs and extension services, and using demonstration plots as technologies to facilitate uptake of quality seeds. Most of these were seed companies among others East West Seed, Advanta seeds, SeedCo (IF, 2020). Most of the services provided are bundled (a package of services provided together). In rice programme, most of the input linkages were to facilitate access to fertilizers from YARA, ETG. Meru Agro, and Minjingu mines.

✓ Relations with off takers

Several off-takers have been linked to FOs, providing among others off take services to markets, supply chain quality improvements, renovation of collection centres cold chain logistics and infrastructures and packaging capacities for sustainable supply of quality products to the end markets, both domestic and export. East Africa Fruits Company entered a MoU with Pangani FBO (in 2020) to supply 100MT of onions with some 20 smallholder farmers (SHF). Other MoUs have been entered into with HomeVeg, Luzane, BECL, Serengeti Fresh and Mara Farming EPZ among others.

✓ Relations with credit/loan financing providers

Rikolto initiated business relations for input financing of FOs members through PASS, which saw CRDB and NMB provide input financing, as well as labour and post-harvest handling costs to FSC and Rice FO members who would otherwise have been unbankable. Besides (in 2021) discussions with PASS and Simusolar to finance SHF to access solar irrigation pumps were deferred after the COVID-19 impact made farmers hesitant to acquire loans for irrigation facilities.

✓ Linkages with complementary services and innovations/technologies

The pilot of solar drip irrigation pumps (Simusolar) in Arusha, did not lead to high uptake as only 2 SHF bought the facility, which was expensive, at TZS 12M<sup>20</sup>. To introduce irrigation technologies that suit women and youth, Rikolto facilitated a MoU with Kickstart International (2020) for low-cost irrigation pump 'Moneymaker', bundled with other services including seeds, pesticides and good agricultural practices (GAP). Besides ICT solutions have been piloted to facilitate access to market information, trading and markets among the value chain actors, although with dismal results.

ICT platforms have been piloted with the purpose to link users to input and output markets (and information) and attract buyers and other traders to build confidence in the trading and market platform. Whereas the MoU between Rikolto and EAGC to facilitate market information access for farmers in the grains sector (Rice) expired in 2020, pilots of the ICT initiatives under FSC have not taken off. FGD with Rikolto highlighted challenges associated with platform design issues, focus placed on the off takers niche markets (eg. Luzane & MESULA), and reporting accountability to Rikolto donors. Lessons thus far, has shown that for such platforms to be effective, they must at a minimum: be demand driven, should have a clear business case, and should provide economic value to all platform users, while incorporating targeted and value adding tools and services.

✓ Linkages with BDS

Direct commissioning of BDS consulting firms had proved too expensive, and as a result, customized services were paid for by Rikolto for instance to Agro-Tanzania Organization (ATO), HACH to support FO's internal capacity strengthening on leadership and governance. Initiatives like management interns were introduced with MoCU to improve internal management systems and capacity. It is such realization that has focused more attention to linkages with input, offtake and complimentary service providers to facilitate such business relations with the FOs.

*The state of relations versus hoped-for state at the start of the programme*

✓ **The Theory of Change perspective**

**The Tanzania ToC outlines the following hoped for changes:** (i) Aggregation and trade models target multiple markets including high potential export and regional value chains, (ii) Innovative ICT solutions enable small holder inclusion in access to market information, business and financial services, and (iii) Flexible business models that stimulate development of services for FBOs and sustainable production and consumption practices.

Under (i), the programme significantly focused on export and regional markets and built the value chains and market systems to respond to this need. However, lessons on the potentials in the local market introduced the short distribution (offtake) and Kiosk models. The COVID-19 impact on regional and international/export market forced priorities to change to strengthening local and domestic market

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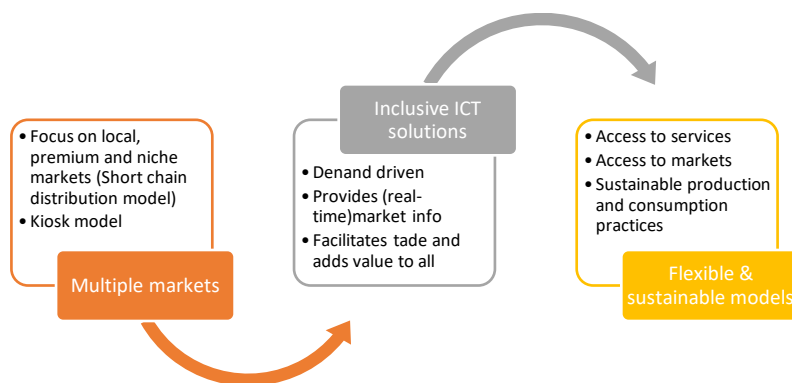
<sup>20</sup> While this technology has already been re-packaged into a smaller pump in Mbeya, for re-introduction to Arusha at TZS 2M, plus additional bundled services and credit-options of 40%-60% that are spread for the SHF, the end of project review of the Arusha solar powered pump done in collaboration between TAHA and Simusolar, had showed that: (i) it had positive influence in production of high value vegetables and more profitability than fuel powered irrigation pumps, (ii) low pump operation costs unlike fuel, (iii) fast and uniform growth of plants, which get water on time and at right quantity, (iv) lower prevalence of plant diseases such as bacterial and fungal diseases and low weeding costs

systems to navigate the challenges of the pandemic. This led to linkages with local off takers to urban and niche markets in Tanzania, introducing the “short chain distribution model” where off takers (especially EAFL and Luzane) offtakes quality contracted produce from FOs and deliver to domestic urban markets in Tanzania.

Under (ii), different ICT platform options were piloted, including the Mkulima Hub and the MESULA pilot, however these have not succeeded in enabling access to market information, nor facilitating digital trading and markets. While options are still being pursued, it has dawned on the programme that the following principles are necessary for such a platform to facilitate trade: demand driven, enable access to real-time market information, facilitate trading and create value, and attract a broad range of actors into the platform based on the tools and services that it offers.

Under (iii), different business models have been used including the linkages to input providers, off takers, complimentary services and innovations, targeted BDS among others. While these have increased capacities on good agricultural practices among farmers, access to quality inputs and linkages to markets, both local, premium and niche at different levels, and improved sustainable production and consumption practices, they also expose the vulnerability of the FO and gaps that require strengthening within the food and market systems. This is simply illustrated below:

Figure 6. Hoped-for changes and current state



### LINK Assessments and principles [Assessed business relations for HomeVeg and Luzane]

The LINK assessment of the FO (MUVIKIHO) and HomeVeg and Luzane (2021) is based on six principles of New Business Management (NBM) explained in Table 16. The assessment of these relationships underscores the following findings:

- ✓ Economic goals override the business relationships. and forward contracts and GAP certification play a critical role in entrenching roles and obligations in such relationships
- ✓ The off takers still hold considerable power in influencing the business relationships and are in most cases benevolent to the FOs
- ✓ Gross margin analysis is the basis of price determination but does not take into consideration the premium and niche markets.
- ✓ FOs have imbibed significant capacities through input, output relationships, which augment off takers' costs, however, risks associated with production, markets and climate change are non-existent and holy borne by the FOs
- ✓ Innovations, though responsive to needs of FOs, are driven by off takers and input/complementary service providers
- ✓ While end of season meetings are held, measurement of outcomes of the relationships are unstructured, lacks responsible point persons and specific outcomes to measure in the relationships are not explicit.

Table 16. LINK assessments between HomeVeg, Luzane and MUVIKIHO (2021)

PRINCIPLE	MEANING	HOMEVEG	MUVIKIHO	LUZANE	MUVIKIHO	KEY FINDINGS
#1. Chainwide collaboration	Members of the business relationship have the same goals, and who among them leads the process of collaboration is known	83%	100%	71%	87%	<ul style="list-style-type: none"> <li>✓ Economic goals override social goals and no specific lead for the collaboration.</li> <li>✓ GAP certification &amp; forward contracts are critical for quality assurance and managing business relations, however trust issues of mismatched weights, side selling and quality still arise</li> </ul>
#2. Effective market linkages	How small-scale suppliers compete with large scale ones, and if buyers interact in same way with small FOs as with large suppliers	90%	90%	60%	73%	<ul style="list-style-type: none"> <li>✓ FOs change to meet seller demands (on receiving end of the relationship).</li> <li>✓ Contract supportive only when formal and long-term, however GAP standards guide production and quality commitments.</li> </ul>

#3. Fair and transparent governance	That rules of engagement are transparent, consistent and all actors understand	100%	100%	69%	86%	<ul style="list-style-type: none"> <li>✓ Roles, quality standardss and trading terms and conditions stipulated in supply contracts.</li> <li>✓ Off taker benevolence prioritizes response to market disruptions.</li> <li>✓ Gross margin analysis base for price determination and does not take into consideration premium and niche markets.</li> <li>✓ Production risks are solely borne by FO.</li> </ul>
#4. Equitable access to services	All actors have access to production related services such as technical support and market information	78%	72%	36%	44%	<ul style="list-style-type: none"> <li>✓ FO has access to GAP services from off taker &amp; innovations pursued to address emerging gaps.</li> <li>✓ FO has inherent capacities (GAP certification and practices) which saves off taker costs of most services.</li> <li>✓ No risk insurance (production, market and climate) services and market info provided by off taker for now.</li> </ul>
#5. Inclusive innovation	The value of goods and services in the chain can be increased through innovation	67%	94%	61%	67%	<ul style="list-style-type: none"> <li>✓ Innovations not driven by FO but mutually beneficial and responds to value chain needs (cold storage, packaging, orders and payment platforms).</li> <li>✓ Some innovations such as market info platforms under pilot not inclusive and require third party hosting and coordination</li> </ul>
#6. Measurement of outcomes	Clear plan exists of which indicators to be measured for whom and by whom.	56%	100%	100%	100%	<ul style="list-style-type: none"> <li>✓ Outcome’s measurement is unstructured, relationship outcomes not explicit and power skewed to the off taker.</li> <li>✓ However, end of season meetings to evaluate relationships seems to occur (and terms sometimes reviewed) but based on the contract supply developed.</li> </ul>

### *Fostering and hindering factors in facilitating business relations*

Documents reviews and FGDs with Rikolto teams identifies the following:

**Fostering factors:** Some of the fostering factors in facilitating these business relationships include: trust, market (information) and functioning, complimentary innovations/technologies, forward contracts and MoUs, sustainable quality standards (GAP) and management, BDS and skills.

**Hindering factors:** While the fostering factors are interrelated, trust among the parties to the business relationship is critical for it to be sustainable. **Lack of trust** has been demonstrated in cases where quality of produce delivered does not meet agreed standards, farmers side-sell out of the stipulated contracts and over reporting of the volumes delivered, with the intention of gaining more. These cases arise when suppliers feel they are paid less.

When it is equitable and unfettered access to **market information**, assured markets and there is transparency in the market system, then parties are empowered to negotiate terms that are mutually beneficial, but also have alternative pathways to sell. This also ties to existence of formal forward contracts and MoUs. When such contracts exist, they provide a reference point ofr business relations and evaluation of such business relations targets to improve terms and expand optimal benefits to both parties, as well as attracting credit/loans. Sustainable quality standards like GAP supports quality and production management, which thus contributes to quality, safe and healthy food, a strong point of reference for negotiating better prices, but also sustaining production for the existing and alternative markets. When farmers already have skills provided through BDS, they are able to augment costs that could have been invested in them and such can be offloaded to support other gaps that exist within the market system.

However, lack of trust, lack of reliable<sup>21</sup> access to market information, transparency and access, poor internal FO capacity, disincentives (such as the impact of COVID-19), lack of a business mindset, and unstructured relations management limits the strength and sustainability of business relations.

The low internal capacity and organization of the FOs exposes them to manipulation by off takers, but also affects the delivery of services that sustain business relations. There are also disincentives and risks that the FOs face and affect their adherence to the terms of business relations, however these risks (production, market and climate) are not equitably shared or mitigated, in which case the costs of mitigation add to costs of production, which affects the incomes of farmers in the business relations. The mindset of dependency, acts against developing joint innovative solutions that sustain the business relationships and challenges the purpose of agribusiness, in addition, lack of specific persons with the responsibility to manage the business relations also makes it unstructured with a risk that any significant breach of terms may eventually cause the relationships to collapse.

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<sup>21</sup> It should be noted that whereas piloted platform models under FSC to facilitate access to market information have not borne fruit, rice cluster had collaborated with East Africa Grain Council (EAGC) for FOs to access the grain platform, however, since the partnership expired in 2020, farmers have not accessed an alternative platform, leaving them highly exposed.

Figure 7. Fostering & Hindering factors in facilitating business relations

<b>Fostering factors</b>	<b>Hindering/Limiting factors</b>
<div style="background-color: #e67e22; width: 100%; height: 15px; margin-bottom: 5px;"></div> <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Building & strengthening trust <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Reliable access to credit, markets (information) and transparency in the market system <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Innovations/technologies that compliment or address gaps in the value chains. <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Formal MOUs and forward contracts <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Sustainable quality standards that are respected and used <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Availability of BDS services and good agricultural practices/skills	<div style="background-color: #95a5a6; width: 100%; height: 15px; margin-bottom: 5px;"></div> <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Lack of trust in the relationship <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Lack of market (information) and transparency <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Poor internal leadership and financial management capacities <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Discincentives (Risks-production. climate, market, ICT and pandemics such as COVID-19) <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Dependency mindset which is not business oriented <input style="width: 15px; height: 15px; margin-left: 5px;" type="checkbox"/> Lack of structured relations management and engagement

#### 4.4 EQ4b. Are these business relations economically profitable, socially inclusive, and environmentally sustainable?

*Do facilitated business relations enable an increase in the profits of the FOs?*

While the assessments made of FOs have not focused on their profitability per se, but on their contribution to improving farmers' incomes, the business relations have thus far increased incomes for farmers in different ways, though depressed by the COVID 19 impact.

##### **Forward contracts and trading relationships:**

The linkages with off-takers in the domestic and export markets have been coordinated through forward contracts and trading relationships that assure the smallholder farmers of a fair price within some agreed standards. These forward contracts have, in most cases, enabled farmers to get better prices for their produce through collective marketing and thus increasing their incomes.

##### **GAP certification and Rice quality management standards**

The GAP certification and quality management standards have not only improved the quality of produce, but they have also reduced the residue levels and thus enabling the farmers to access premium and niche markets, but also supplying safe and healthy food within the local/domestic markets at better prices. While these have also reduced the cost farmers use in chemicals (especially pesticides), all of which have increased the incomes that farmers gain from the specific produce in focus.

##### **Diversification and selection of profitable value chains**

FOs have been sensitized to diversify into enterprises that are more profitable, based on the market demands. These have included the focus on rice, common beans and pigeon peas, but also diversification within the horticultural value chains to onions and tomatoes, carrots and other vegetables to supply the domestic and regional demand based on markets. These have enabled farmers to benefit from better prices in the market, earning better incomes through such relationships.

## Bulking and collective marketing

Aggregation of produce to supply the available markets through trading contracts with off-takers has reduced the logistics costs of transportation, but also allowed farmers to have an opportunity to bargain for better prices with the off-takers. The value addition, for instance, with cold storage facilities at the Kibiu collection centres, improves the value of vegetables and thus increases the price through cost savings and value addition, which accrue to the farmers.

## Short chain distribution models

Linkages with off-takers under the short chain distribution models, and the use of the kiosk models, have not only targeted the local urban markets but also premium markets of supermarkets and hotels as a measure to diversify from the export-oriented market. These premium markets have often provided a better price to farmers especially during the market failure occasioned by COVID-19. These models thus increased the profit margins that farmers get.

## Linkages with financial institutions

Business relationships facilitated through linkage with the PASS guarantee scheme (CRDB and NMB Banks) enabled some farmers to access working capital/input loans and loans to source for labour. These have improved production, harvesting and post-harvest handling contributing to honouring contracts and improving productivity per acre. The increase in production generated, in turn, an increase in farmers' incomes.

## Climate smart technologies

Climate-smart technologies that integrated green irrigation methods, increased the productivity and quality of produce and enabled farmers to produce across seasons, thus enjoying higher volumes per unit of land used for production. These technologies have thus improved farmers' incomes.

### *Whether business relations generate margins which enable FOs pay adequate prices for their members' products*

According to Farmer Survey (2021), the sales price increased between 2017 and 2021, and these were driven mostly by GAP certification. GAP enabled an increase in prices for farmers in two major ways: (i) By reducing the extent of use of farm chemicals to minimize residues, farmers reduced the use of pesticides to meet the standards and thus saved on the costs previously invested in farm chemicals, (ii) At the market level, it was demonstrated that prices of GAP produced green beans and green peas increased by 30% and 50% respectively, while the export prices as a result of GAP produce doubled.

LINK (New Business Management) assessments show that gross margin analysis is used to determine price from the local market, however this does not consider export, premium and niche markets, but also some off-takers pay (even under contract) pay at farm gate price. However, this is a challenge of lacking reliable market information which has been discussed. While COVID pandemic affected the price received by both rice and FFV farmers, farmers still agree that the business relations have contributed to them getting better prices.

The satisfaction with prices received (Table 17) indicates that 24.73% of rice farmers and 24.56% of FFV farmers still acknowledge that they received better prices despite COVID-19.

Table 17. Satisfaction on prices received (Source, FS, 2021)

Satisfaction with price received	Rice	FFVs
Unsatisfied	25.81%	26.33%
Neutral	49.46%	49.12%



Satisfied

24.73%

24.56%

*Total production of a farmer sold to the FO and proportion of the total production of the FO benefitting from the business relationships with the buyers.*

As already discussed in EQ3b (step 2), the total production sold to the FOs increased by 2.12 tons (Rice) and 0.68 tons (FFVs) between 2017 and 2021; however, these increases were not significant. While it is difficult to quantify the per cent of this production benefitting from the business relationship with buyers, the findings of the evaluation indicates that offtake mechanisms for rice and FFVs are organized through contracts between buyers and FOs. Therefore, a higher proportion of these volumes sold benefit from business relationships with buyers. Even though COVID-19 forced a focus on the domestic market, which affected cross border offtake of rice and the export market of FFVs, the effect was that local brokers of rice took advantage because of the over-supply of rice in the domestic market, which may have reduced the % of total production benefitting from established business relationships. For FFVs, the short chain distribution model targeting the domestic urban markets was done through business relationships. In contrast, only the kiosk model was based on direct vending of FFVs which did not go through the FOs.

*Environmentally sustainable and socially inclusive production incentivized by business relationships*

The evaluation demonstrated that global GAP training and certification have increased water, agrochemical and product quality compliance, while local regulations and enforcement support natural resource management standards. Farmer contracts and buyer standards also stipulate expectations concerning to Fair Trade (SCOPEInsight 2018, 2019, & 2021). Global GAP certification, training on the safe use of pesticides, and the adoption of sustainable rice production standards improved environmental sustainability scores in soil conservation, natural resource and biodiversity management. Climate-smart irrigation technologies and System of Rice Intensification (SRI) contributed to water use efficiency and water conservation. Despite these gains to environmental sustainability, farmers still deal with the residual effects of the farm chemicals in soil and water conservation and compete with business models promoting the use of the farm chemicals and the unsafe and unhealthy diets. Such things threaten gains already made under environmental sustainability.

Assessments of socially inclusive business relationships done through LINK Assessment of New Business Management (NBM) principles for HomeVeg and MUVIKIHO (2021) highlights the following findings:

1. There seems to be a need for an ICT platform to coordinate and facilitate trading relationships and improve trade communications. Currently, WhatsApp, calls and SMS are being used between buyers and sellers and do not effectively serve the purpose (leading to cases of side selling).
2. Whereas contracts and GAP certifications play a significant role in assuring market standards for effective linkages, farmers (FO) are still at the mercy of buyers (as demonstrated during COVID 19-from green beans pods to green bean seeds), and have to adapt to market opportunities provided by the buyer to stay afloat. This means the relationship is not balanced and skewed to the buyer.
3. Whereas the responses from the buyer during COVID were benevolent and meant to sustain business relationships, there are still risks in terms of how best do we learn from COVID to provide farmers (FOs) with production and market risk insurance, especially when there are weather related production challenges with contract farming and market risks like the market closure occasioned by COVID 19.
4. Power in the trading relationships is still skewed to the buyer and not balanced, but also, proactive and clear outcomes of the relationships do not seem clear or explicit for monitoring, even though evaluations are indicated as done annually.

*Fostering and hindering factors in facilitating economically profitable, socially inclusive, and environmentally sustainable business relations.*

Document review, FGDs with Rikolto staff and validation and sensemaking workshop highlighted the following fostering and hindering factors:

#### **Fostering factors:**

Diversification, Credible evidence for shared action, Forward contracts and MoUs, GAP and local/regional food safety standards, Shared risk management, Strong FOs asset base and level of business maturity.

Diversification of production targeting high value produce in the market has expanded the range of business relationships available and beneficial to both parties. Generation of credible evidences to avert trade bans, support diversification and develop alternative models have helped farmers to adjust to the dynamics of the market. Forward contracts have cushioned farmers from risks, but they have also acted as a benchmark for building and monitoring business relationships. This has been galvanized by GAP and regional food safety standards, which are stipulated in the contracts and helps with quality assurance of the production and supply chains.

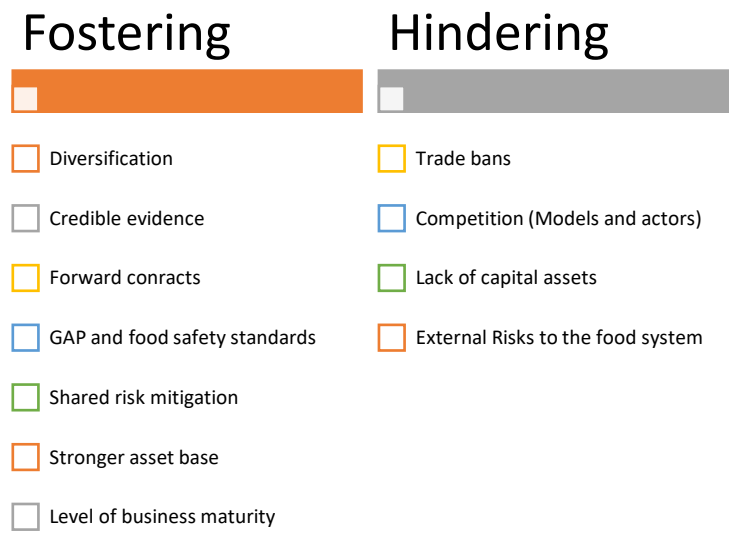
When risks to the food system are identified and joint mechanisms put in place to mitigate them through linkages such as with climate, production and market insurance services, then attention is put into productivity and quality, as well as alternative innovations and technologies that help navigate such. FOs with strong asset base, are more capable to attract finances, to spur membership participation and to negotiate for and provide better services to its members, all of which are assurances to buyers, however off takers also feel safe when they are in relationships with more mature and stable FOs.

#### **Hindering factors**

Trade bans, Competition, lack of capital assets and external food system risks

Trade bans as shown with the Indian ban on pigeon peas in 2017, regional bans on grains among others disrupt the market system and put pressure on parties to a business relationship to stay afloat, which implies trade-offs that may not be beneficial to both parties. There is competition especially on models that are environmentally sustainable and healthy, against business relationships that challenge such principles, however, competition also from the buyers themselves, based on their offtake markets may cause confusion within the production systems. The weak asset base of FOs acts against their negotiation capacities putting them on a receiving end, and this is compounded by external risks such as production, climate and market, which both parties are not willing nor able to cushion from alone.

Figure 8. Fostering and hindering factors in economically profitable, socially inclusive and environmentally sustainable business relations.



## 5. Institutional level

This section evaluates the overall impact of Rikolto’s program at institutional level.

### 5.1 EQ5a. Has Rikolto succeeded in setting up and/or strengthening MSI?

#### *MSIs set up or strengthened by Rikolto over the program*

Rikolto Tanzania, under the DGD Programme facilitated the establishment and or strengthening of MSIs both under the FSC and Rice clusters. Three broad MSIs have been established/strengthened within the programme thus: The Arusha Sustainable Food Systems Platform (ASFSP) led by Rikolto, The Water Resource 2030 Group (WR2030 and The National Rice Development Strategy (NRDS II) 2020-30 (Table 18).

The ASFSP platform is centred around influencing city food policies and sensitizing consumers on food safety, food access governance, nutrition and the sustainable linkage between food vendors and smallholder farmers. It is organized as broad MSI/consortia, within which there are 6 working groups, each leading a specific agenda under the FSC initiative and led by one of the partners. The WR2030 is a partnership with financing partners to enable the sustainability of climate smart irrigation innovations and pilots, while the engagement with NRDS II, 2020-30 as a member of the technical working group, was to mainstream sustainable rice production (SRP) practices into the newly developed national rice strategy.

Table 18. MSI initiatives for FSC and Rice clusters

MSI	Description
Arusha Sustainable Food Systems Platform (ASPF)	The platform is made up of 19 actors in the food system, such as Arusha City Council regional authorities, research institutes and academia, private sector actors, civil society organisations and NGOs. The platform facilitates multi-stakeholder dialogues that address food system change within Arusha. It consists of a steering committee that offers an advisory role to six working groups (also MSIs), including: (i) Safe production, (ii) food safety standards, (iii) Participatory Guarantee Scheme (PGS), (iv) consumer sensitization, (v) youth in agriculture, and lastly (vi) city planning and logistics. Whereas some of these working groups have not been mentioned in Rikolto documents, below are some of the sub-MSIs that have been highlighted:
Consumer Sensitization Working Group	A component of the ASPF, the MSI is composed of Iles de Paix (Sub Lead), MESULA, Trias, AgriProFocus and Arusha City Council with the mandate to expand awareness and campaigns on consumption of healthy, sustainable, and nutritious diets
Food safety standards Working Group	A component of ASPF, the MSI comprises of Tanzania Pesticides Research Institute (TPRI), Solidaridad, Tanzania Bureau of Standards (TBS), GreenCert and COLEACP, charged with improving food safety standards of fresh fruits and vegetables at the retail level, especially markets through adoption of a Kiosk model.
Participatory Food Safety (Guarantee) Scheme Working Group	Members of this group include TAHA, MESULA, IdP (Sub Lead), MUVIKIHO and GreenCert and are working towards establishing a socially accepted quality assurance for horticulture produce that will ensure food safety and traceability, initiatives to enable farmers to penetrate higher paying markets such as supermarkets and hotels in Tanzania.

	Youth in Agriculture Working Group	The MSI targets to strengthen youth entrepreneurship in Arusha’s food system, after realizing that youth are the basis of sustainable food systems and are not adequately included. A component of ASPF, its membership includes Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA)-Arusha, TAHA, Trias (Sub Lead), Anza and Arusha City Council and was introduced as a structural item in the ASPF.
	Safe Production Working Group	The MSI targets to strengthen sustainable production of quality, safe and healthy food for both domestic and international markets. It consists of the following partners: Trias, TPRI, IdP, TAHA, MUVIKIHO, MESULA, The World Vegetable Center (AVRDC), Rijk Zwaan and ECHO.
	City Planning and Logistics Working Group	The MSI reviews the Arusha 2030 city master plan to ensure that it supports the development of logistics, infrastructure and plans that support a sustainable management of Arusha food systems as envisaged also in the Food Smart City programme. It comprises of Trias (Sub Lead), TCCIA-Arusha, CHANZI and Arusha City Council.
The WR2030 Working Group	The WR2030 is an innovative mechanism established by the World Bank to finance water resource use innovations in agriculture in Tanzania. The initiative under which Rikolto is a key lead in the component of financing irrigation technologies, seeks to sustain climate smart irrigation and build farmers resilience and safeguard livelihoods in the face of climate change. The partners include: PASS, Tanzania Agricultural Development Bank (TADB), Financial Sector Deepening Trust (FSDT), TAHA, etc.	
	Green Energy irrigation Initiative	<ul style="list-style-type: none"> <li>• Building on a study on efficient irrigation technologies for Smallholder farmers (SHF) in horticulture, an MSI was established between Rikolto, TAHA and Simusolar to pilot and implement solar power irrigation demos. The knowledge that high cost of water efficient technologies makes them inaccessible to SHF drove this initiative.</li> <li>• In addition, a partnership between Rikolto, Kickstart International and MUVIKIHO was established to facilitate access to low-cost irrigation technologies (the money-maker) that enable farmers (and women friendly) to efficiently pump water from water sources (including rivers), instead of cumbersome methods of carrying water from the source to farm</li> </ul>
NRDS II 2020-30 Technical Working Group	The membership of the national taskforce on NRDS II 2020-2030 came to Rikolto through invitation by The Ministry of Agriculture and Food Security, in recognition of its efforts to popularize sustainable rice production standard in Tanzania. The taskforce was charged with reviewing the NRFS II and developing the NRDS II (2020-2030), which offered an opportunity for Rikolto to mainstream sustainable rice production technologies into the national strategy document.	
	Sustainable Rice Production (SRP) standard	The MSI targeted working with Rice Council of Tanzania and the Local Government Authorities, through the buy-in of the national government to promote sustainable rice production, consumption, inclusivity and market access.

### *Current state of functioning versus expected state of functioning*

The MSI is a nascent initiative that began with FSC and Rice programme in 2019, and is a continuous learning process. It is not explicitly monitored the expected state of functioning of the MSIs as these were not mapped in the MEL system of the programme, and neither their anticipated influences on the policy.

Box 3 provides a summary of an intervention project (Generation Food project) developed under the Youth in Agriculture component of ASPF to improve youth participation in the urban food system in Arusha.

### Box 3. The Generation Food Project

#### **Generation Food project: Youth inclusion in food systems and agri-food dialogues**

##### **Background:**

The Generation Food Project was launched in Arusha in 2020, to support youth engagement in sustainable food systems (under the Food Smart City Initiative). Youth inclusion in food systems was low, and they lacked finance, knowledge and information on how to engage in the food system as entrepreneurs. The aim was to facilitate youth to come up with innovative business ideas to solve the food system challenges and become ambassadors of healthy and safe food.

##### **The approach:**

The responses involved offering technical and financial resources for food incubation, through a revolving seed fund [established by ANZA growth Fund] for most viable youth led agri-food enterprises throughout the agri-food value chains including processing of FFVs, pulses and fortification, distribution and delivery of FFVs using electric motorbikes, packaging of white and brown rice, making of organic fertilizers and marketing.

Through hackathon of 157 participants and bootcamp that involved a two-week intensive training of 65 finalists, 21 businesses were taken into the incubation phase: The incubation phase aimed to (i) increase youth entrepreneurial skills and capacity to do market demand scoping, (ii) create a dedicated youth working group in the Arusha Sustainable Food System providing a structured offer for entrepreneurial youth. 18 businesses thrived and are still active to date.

##### **Outcomes/Impact on the food system:**

- Youth participated in the UN FSS national dialogues in Arusha as part of involvement in decision making bodies,
- The initiative inspired other organizations to set up a youth incubator program in Arusha.
- A roadmap for incubation programs developed and replicated in Mbeya (Southern Highlands of Tanzania),
- An offshoot work with youth on food waste collection also established with Chanzi (company),
- Thriving businesses (18) increased their revenues by 45-50% based on a survey done on the 21 incubations.
- Some of the youth businesses were linked with SIDO and hosted at SIDO enterprises.
- The model has been used with 400 youth in Southern Highlands (using a matching fund program where Rikolto provides 60% and the youth 40% of the investment capital.
- TAHA adopted the model and started a food business incubator
- Processing of the FFV under the youth entrepreneurship linked the value chain with urban markets.

##### **Lessons learnt from Arusha**

- Communications is necessary in order to build trust with stakeholder.
- Sustainable engagement of youth at design is a must and in setting key performance indicators.
- The steering committee established to coordinate the initiative must be fit for purpose and committed
- Timelines for incubation and support must be context sensitive and relevant to realities of the youth
- Flexible and patient funding is needed.

Being a new concept in East Africa, impact tracking has not been done, though initial outcomes suggest increased revenues for the youth entrepreneurs. The impact KPIs need to be integrated and to reflect the contributions to revenues, sustainability and effect on food systems.

### *Fostering and hindering factors in supporting the MSI*

Since the MSI is a budding initiative with only two years of implementation, little information is available on mechanisms to monitor its outcomes. Therefore, the following factors have been gleaned from documents review and focus group discussions with Rikolto staff.

#### **Fostering factors:**

- ✓ **Committed stakeholders:** Experience in working within the MSIs indicate that when the stakeholders to the partnership are committed to the agenda and it resonates with their core work, then they will support, create time and resources to push the agenda forward. This commitment, also extends to whether there is potential benefit either in terms of win-win, attracting funding/investment or gaining credibility.
- ✓ **Appealing and coalescing models:** Where the model is appealing, addresses some of the core problems within the food systems, then stakeholders will coalesce together and push the model forward. This was the case with the Kiosk model, the climate smart irrigation model as well as the input providers and off takers business models.
- ✓ **Evidence based engagement:** It has been shown the availability of evidence is critical to spur engagement into an agenda. This makes it clear on what each partner can contribute and how, and what else need to be mobilized to address the issues in the food systems. The examples include: (i) The TPRI food risk assessment study (2019) which provided evidence needed by stakeholders to address food safety from production to markets, (ii) The studies on pulses sector diagnostics provided evidence taken up by stakeholders which supported EAGC in its efforts to advocate for lifting of the Indian import ban on pigeon peas from Tanzania, and (iii) The corn and bean weevil study, after pulses export ban due to high pesticide residue level, recommended use of organic pesticides instead, as a way to overturn the ban.
- ✓ **Clear leadership:** When the leadership of the MSI is clear (acknowledged lead institution/organization and leadership mechanisms) and the roles and contributions of each of the members spelt out, then plans of action can be developed and actually implemented without hitches.
- ✓ **Model addresses emergence:** It became clear that the models have fostered stronger partnerships and attracted more interested stakeholders. As such, those were able to address critical issues of food safety, sanitation and hygiene that emerged during COVID-19. The safe and healthy food agenda was strengthened by the potential impact on reducing the spread of COVID 19.

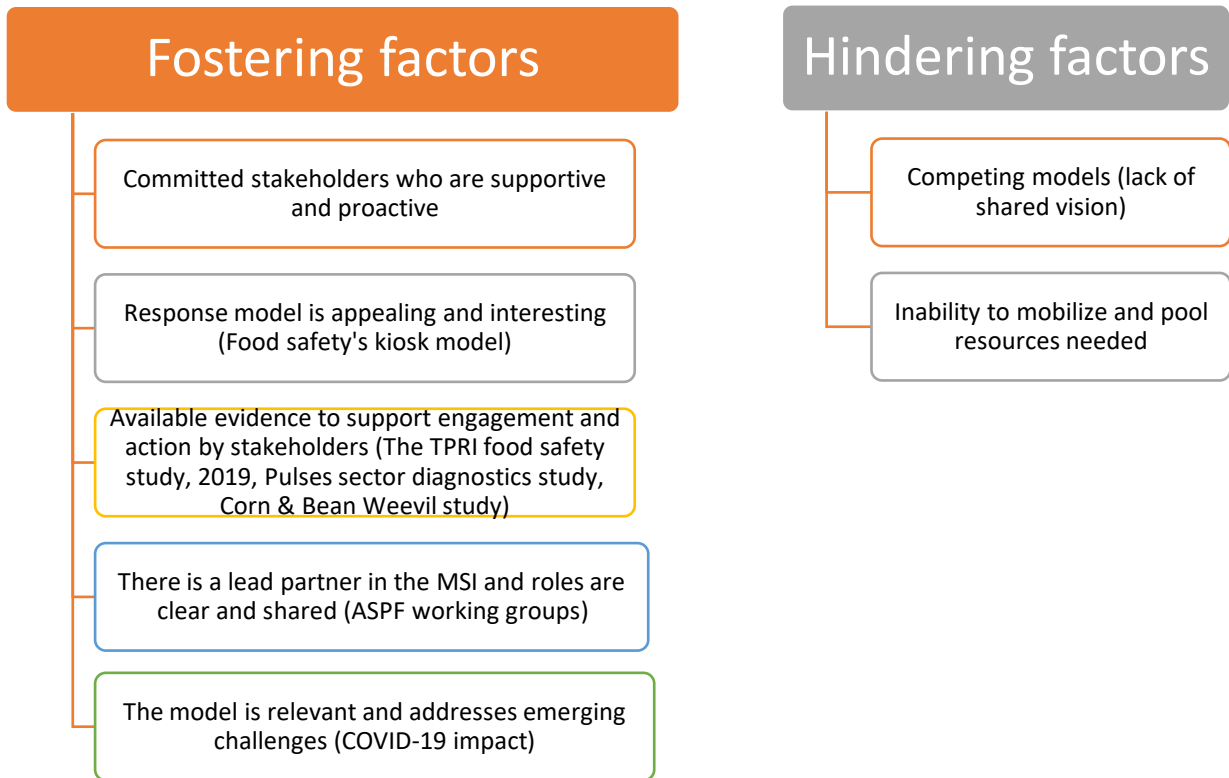
#### **Hindering factors**

While the absence of the fostering factors denotes hindrances to supporting the MSIs, the following additional factors were specifically highlighted:

- ✓ **Competing models:** Rikolto's work in building business to business (B2B) linkages has shown that where there are competing models, then MSIs fail to hold. E.g. (a) The approach of the business community pushing for/promoting sale of farm chemicals and pesticides, counteracts the model pursued by Rikolto and other partners on environmentally and socially sustainable production practices that lead to safe and healthy food systems. (b) There are programmes that push agenda that is contrary to the sustainable rice production practises that Rikolto promotes.
- ✓ **Inability to mobilize resources:** Activities and initiatives of the MSI to contribute to sustainable food systems require resources in terms of funds, technical capacity, human resources and

goodwill. When the MSI cannot mobilize these resources then its work stall, and commitment to the agenda wanes.

Figure 9. Fostering and hindering factors in supporting MSIs



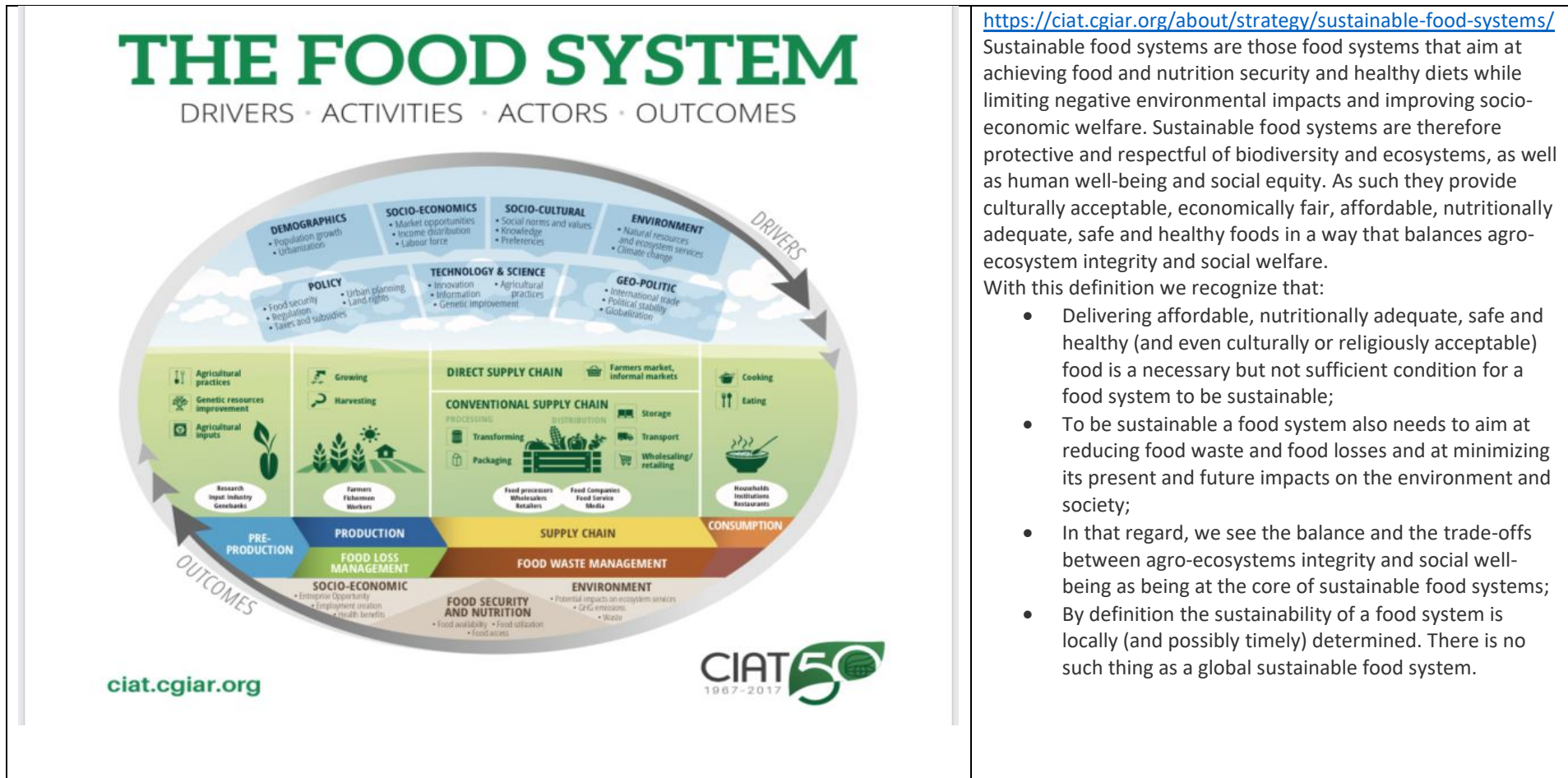


5.2 EQ5b. Have these MSI succeeded in promoting more sustainable food systems?

Rikolto follows the sustainable food system’s definition introduced by CIAT and summarized in Box 4.

*A sustainable food system*

Box 4. CIAT/CGIAR's definition of sustainable food system



<https://ciat.cgiar.org/about/strategy/sustainable-food-systems/>

Sustainable food systems are those food systems that aim at achieving food and nutrition security and healthy diets while limiting negative environmental impacts and improving socio-economic welfare. Sustainable food systems are therefore protective and respectful of biodiversity and ecosystems, as well as human well-being and social equity. As such they provide culturally acceptable, economically fair, affordable, nutritionally adequate, safe and healthy foods in a way that balances agro-ecosystem integrity and social welfare.

With this definition we recognize that:

- Delivering affordable, nutritionally adequate, safe and healthy (and even culturally or religiously acceptable) food is a necessary but not sufficient condition for a food system to be sustainable;
- To be sustainable a food system also needs to aim at reducing food waste and food losses and at minimizing its present and future impacts on the environment and society;
- In that regard, we see the balance and the trade-offs between agro-ecosystems integrity and social well-being as being at the core of sustainable food systems;
- By definition the sustainability of a food system is locally (and possibly timely) determined. There is no such thing as a global sustainable food system.

*The success of the MSI in promoting a sustainable food sector*

Table 19 summarize relevant MSI and related success in promoting sustainable food sector.

Table 19. MSIs and their successes in promoting a sustainable food sector

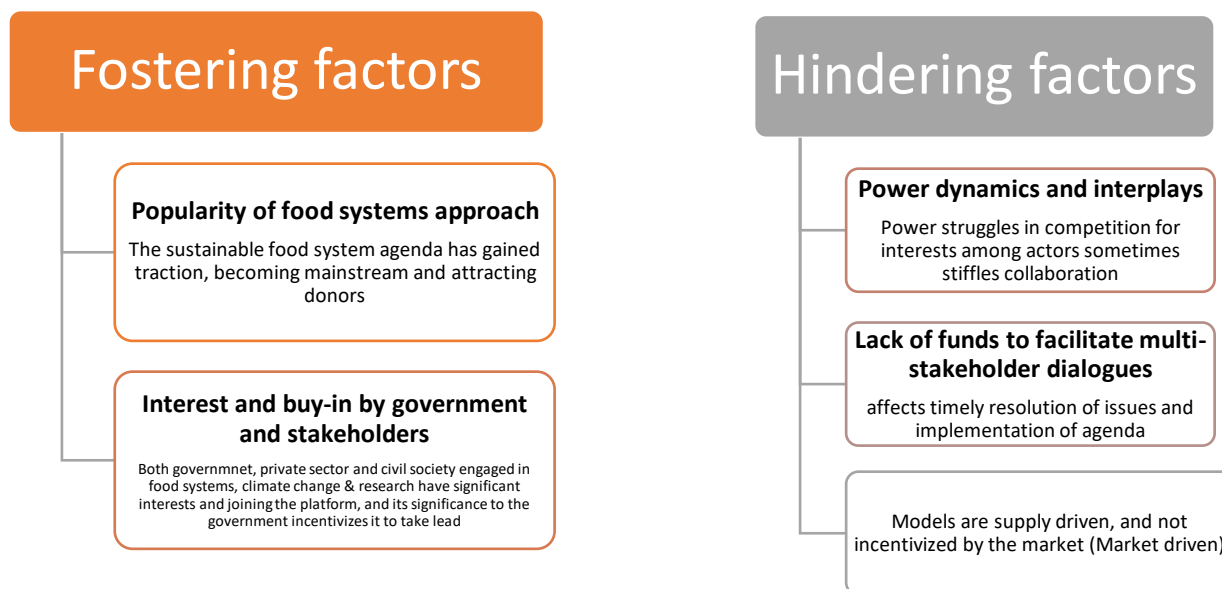
The MSI	Success (if any) in promoting a sustainable food sector
Climate Smart Irrigation Technologies	<ul style="list-style-type: none"> <li>• The solar powered (pump) technology developed for Arusha was still expensive to SHF, and an arrangement for farmers to acquire loans for the technology through PASS aborted because of COVID 19 impact. The technology was improved under the EU project which reduced the cost to 2M and introduced bundled services and credit facility to support uptake.</li> <li>• The solar powered, irrigation infrastructure in the southern Highlands as well as the money maker, contributed to optimizing water use efficiency, reducing wo(men) time used in drawing water for irrigation in the agri-food system, thus improving yields at an affordable cost to the farmer and allowing for a wide variety of crops to be produced without regard and dependence on rainy seasons, especially for those in water catchments and with reliable water sources.</li> <li>• The WR2030, and especially through the climate-smart Irrigation technologies pilot, has attracted similar related investments in financing irrigation models from the European Union (EU), a programme being implemented in the Southern Highlands, but also has gained interest from GiZ, which has invested through Rikolto to use the models to build resilience of farmers and safeguard their livelihoods in the face of climate change.</li> </ul>
Consumer Sensitization Working Group	<ul style="list-style-type: none"> <li>• The working group mobilized EUR 53,000 towards an interactive radio campaign on safe, healthy, sustainable and nutritious foods, which efforts have triggered change in consumption trends in FFVs that highlight food safety risks</li> <li>• Facilitating awareness on safe, healthy, nutritious and sustainable food and diets from production to consumption through continued adoption of the kiosk model, ensures food safety measures are integrated in the retail markets and other FFVs vending spaces.</li> </ul>
Food safety standards Working Group	<ul style="list-style-type: none"> <li>• According to IF 2021, three food stalls were improved and transformed into kiosks, however, the model has also been replicated in the southern highlands under the EU project.</li> <li>• According to MTR (2019), a horticulture irrigation project worth 180M TZS was established to support youth and women groups producing FFVs by Arusha City Council, a EURO 20,000 by AgriProFocus initiated to support rollout of food kiosks in Arusha and World Vegetable Centre coordinated workshops on “diversifying food systems through indigenous vegetables”</li> <li>• The National Food Safety guidelines and checklists for fresh fruits and vegetables (FFVs) to facilitate direct sales to supermarkets and hotels (premium markets) in the domestic market have been developed and approved by TBS (a member of the working group) and awaiting approval by the government for gazettment and eventual dissemination to stakeholders in the domestic market.</li> <li>• Kiosk model- Providing safe and healthy food alternatives for the domestic market especially supermarkets and hotels. Replicated also in the Southern Highlands under EU project</li> <li>• GAP certification- GAP certification services to adhere to global standards, reduce residues and improve production and consumption of safe, healthy food</li> <li>• Diversifying food through indigenous nutritious vegetables (WVC)- Popularizing production and consumption of indigenous vegetable that are ecologically resilient, nutritious and affordable.</li> </ul>

	<ul style="list-style-type: none"> <li>• TPRI’s “Food risk assessment study, 2019, which engaged stakeholders to demonstrate the risk posed by food produced and consumed in the city, with high than standard level of residues (especially chemicals) to catalyse action and standards on safe and healthy urban food systems.</li> </ul>
<p>Youth in Agriculture Working Group</p>	<ul style="list-style-type: none"> <li>• A similar MSI has been established in Mbeya city, being a replication from learning through the Arusha FSC project, and anecdotal evidence shows that the partners are more active and the Mbeya City Council providing significant support and catalysis.</li> <li>• Youth engagement in the agri-food system has increased, especially through initiatives that targeted improving their participation including establishment of commercial seed nurseries, engagement in the packaging and processing value chains and initiatives (with CHANZI) to convert the abundant food wastes into organic fertilizers for use in the Agri food systems.</li> <li>• Selected youth participated in the UN Food Safety Systems (FSS) national dialogues in Arusha as part of involvement in decision making bodies, which mainstream their voices into the management of the national Food systems.</li> <li>• Through implementing the IMAP-4CSA with Kilimo Trust, Rikolto developed a youth business case for plot mapping, to increase input use efficiency and reduce production costs of farmers towards a BDS service for FOs to project production data.</li> </ul>
<p>City Planning and Logistics working group</p>	<ul style="list-style-type: none"> <li>• Championing wide scale adoption of the use of sustainable rice production (SRP) standard and sharing experiences through roundtable meetings has enabled adoption and scale up of the SRP standard among rice farmers in the Southern Highlands by Kilimo Trust</li> <li>• Under the youth SME incubation, within the Generation Food Project, the partnerships with CHANZI, has enabled commercialization of organic waste collection and conversion into organic fertilizers as a way to deepen youth entrepreneurship and employment.</li> <li>• While the use of electric motorbikes has been piloted in distribution of horticultural produce to the markets in Arusha City, as a way of engaging youth and reducing greenhouse gas emissions, concrete evidence to extent to which it has transformed the food systems has not yet been pursued.</li> </ul>
<p>Sustainable Rice Production Standard</p>	<ul style="list-style-type: none"> <li>• In recognition of Rikolto’s work in promoting sustainable rice cultivation based on the SRP standard, Rikolto was invited by Ministry of Agriculture and Food Security to join the national taskforce to review the National Rice Development Strategy (NRDS II), and development of the NRDS II (2020-2030), which integrated sustainable rice cultivation practices.</li> <li>• Through this MSI, through buy-in of national and local governments, Rikolto strengthened evidence for strengthening rice seed systems through SRP which developed training manuals, but also facilitated Rice Council of Tanzania (RCT), to establish district level rice clusters (started with Babati, Kivulini and Arumeru) as a vehicle to bring together all rice clusters in Tanzania to discuss rice sector development strategies that promote sustainable production, consumption, inclusivity and market access</li> <li>• In collaboration with Tanzania Agricultural Research Institute (TARI -Ifakara), Rikolto built the evidence for Rice Quality Management System protocols which was shared with stakeholders (including TBS, LGAs, Private actors and TARI) for validation towards integration into the existing Rice Quality Management System (QMS).</li> </ul>

*Fostering & hindering factors for the MSI to promote a sustainable food sector*

As has already been mentioned in the previous section, MSIs under Rikolto’s DGD-funded programme are relatively new since it was initiated mostly in 2019. Due to the short period of time span, there is little information on how they work, what makes them work, and their impact on food systems. Since they are mostly at their early developmental stages, most of them have not reached that stage where they make joint decisions and carry out joint actions. However, their contributions to promoting a sustainable food sector have been affected by the following factors

Figure 10. Fostering and hindering factors for the MSI to promote sustainable food sector



**5.3 EQ6. How is the evidence generated by Rikolto’s pilot interventions used to influence policy decisions?**

An array of pilot interventions have been developed and implemented by Rikolto during the programme period, including: climate smart irrigation initiatives that seek to deliver water-use efficient and affordable technologies to farmers; short chain distribution models that facilitate access to safe and healthy food in the domestic urban markets; Generation Food Project, targeting engagement of youth in the food systems; the aggregation model, of aggregating produce through FO collection centres for offtake; Arusha Sustainable Food Platform-an MSI initiative to strengthen production, supply and consumption of safe and healthy food; B2B initiatives that links FOs with input providers, off-takers and BDS and SRP standard that promotes uptake of environmentally sustainable rice production practices that build farmers resilience to environmental shocks.

Tables 20 and 21 highlighted the pilot interventions and their descriptions and evidences the pilot interventions sought to generate. While Figure 11, maps the factors fostering and hindering use of pilot evidence to influence policies.

Despite implementation of these interventions, the MEL system was not set up to: (a) effectively monitor their efficacy, (b) identify the specific policies they intended to influence, and (c) the strategies anticipated towards influencing those policies at the local, sectoral and national levels.

*Rikolto’s pilot intervention(s) in the commodities of interest*

Table 20. Rikolto's pilot interventions

Pilot intervention	Description
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Pilot climate-smart irrigation initiatives	Low-cost climate smart/green irrigation pumps that optimize on water use efficiency (System of Rice Intensification (SRI) and uses green (energy) technologies in crop production (Solar drip irrigation and Money Maker).
	Financing rehabilitation of irrigation infrastructure in rice schemes, for smallholder farmers to access and pay for water used in paddy rice production.
Short chain distribution and market model	Urban market offtake model to supply high end domestic urban markets through production contracts with FOs (FSC).
	Kiosk model to establish and market quality safe and healthy FFVs through established vending kiosks within the urban markets
The Generation Food project	See the text Box 3
The aggregation model	Aggregation of produce through apex FOs (FOs, AMCOs and Cooperatives) and collective marketing through offtake contracts.
The Arusha Sustainable Food Systems Platform	Partnerships within the urban food systems to influence production, supply chains and consumption of safe and healthy food
B2B initiatives	The input/offtake linkages model to facilitate access to farm inputs and offtake markets for FOs
	The ICT market information platforms to facilitate access to market information and trade opportunities between FO members, private buyers, input and other complementary service providers
Sustainable Rice Production Standard	SRP standards is an important environmentally sustainable rice production technology that mitigates climate change and build farmers resilience to shock.

*Specific evidence that the pilot interventions sought to generate*

Table 21. Evidence pilot interventions seek to generate

<b>Pilot intervention</b>	<b>Evidence it seeks to generate</b>
Pilot Climate smart irrigation initiatives	Climate smart irrigation technologies improves water use efficiencies, are low cost and affordable to small holder farmers, improves and sustains productivity and are environmentally sustainable.
The kiosk model pilot	Integrating safe and healthy production and marketing chains for FFVs, within recognized national standards, opens up premium markets in the domestic market, gaining farmers better and competitive prices and expanding consumption of safe and healthy food
The Generation Food project	Youth are the future of sustainable food systems, and although they do not actively participate in the food systems, identifying value chains that resonate with them, incubating SMEs within the food systems and amplifying their voices will incentivize them to actively contribute to safe, healthy and sustainable food systems
B2B linkages	Facilitating sustainable market driven business linkages that facilitates access to inputs, markets (and market information), business development services and technologies that are economically profitable, socially inclusive and environmentally sustainable.
Sustainable Rice Production Standard	Ecologically sustainable rice production and consumption practices
MoCU Internship Programme	Rikolto MOCU internship programme aimed at influencing practical training curriculums that will suit the market needs for providing tangible backstopping models to Tanzania Farmers' cooperative to operate more commercially and meet need of the farmers.

Short chain distribution model	Coordinating distribution chains that collects from farmers and supplies the local domestic urban markets as done by EAFL and Luzane
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### *Sectorial policy changes that the pilot intervention(s) sought to bring about*

The pilot interventions sought to:

- ✓ Mainstream quality management standards and practices for sustainable rice production through sharing evidences, developing tools and supporting government at national and local levels to popularize for adoption, through existing structures and platforms
- ✓ Facilitating sustainable production, ethical and transparent market systems for safe and healthy food for all, through B2B linkages between smallholder farmer groups (FOs), input providers, off takers and BDS providers
- ✓ Adoption of low cost, climate smart and green irrigation technologies to improve water use efficiencies, sustain food production and mitigate the effects of climate change.
- ✓ Greater urgency in inclusion of youth (and women) as the basis for sustainable food systems, to disrupt, augment and steer the future of safe, healthy and sustainable food systems in Tanzania

### *Is there clarity on how evidence should be used?*

The evaluation finds that systems were not put in place to monitor efficacy of pilot interventions, mechanisms of their scale up nor how they could be used to influence policies. Because of this, there is an acute gap and absence of strategy on how the evidence should be used.

### *M&E system in assessing impact achieved by pilot intervention(s)*

The following highlights from the evaluation show evidence of the M&E system in assessing impact of pilot interventions through the programme:

- Rikolto's PLA is skewed more to accountability to donors; however, initiatives are in place for it to offer greater benefits to programme managers (and stakeholders) to improve its uptake, use and benefits for greater efficiency and to balance accountability, learning and impact monitoring (Agility Report, 2021: 32)
- The assessment of COVID-19 response monitoring shows that the measurement of results is at low level (more outputs-based), and thus does not allow for assessing key impacts of COVID impact such as sanitation in urban food markets; nutrition from alternative pulses/legume seeds; additional incomes through alternative domestic market-focused models.
- System to assess the process, outcomes, and impact of MSIs, business relationships and influences of pilot interventions on policy were not mainstreamed in the M&E system and thus difficult to capture.
- Risks (production, market, climate, policy, partnerships) and how they affect programme outcomes/impact were not mapped ab-initio and mitigation strategies not planned in the MEL systems to facilitate monitoring and learning
- The MEL system is extractive of FOs, while it should be facilitative. It should integrate the capacities for FOs to monitor and measure their own B2B relationships, internal capacities and learn to improve or request support in areas where they are weak so that they sustainably develop their systems and structures to suit their business contexts. Currently, Rikolto does the assessments for them [SCOPE Insight, NBM-LINK Assessments], which is not sustainable.
- Little is done about documentation of what works or not with pilot interventions, MSIs, policy work etc, because these processes are not integrated into the MEL systems and frameworks.
- Budgeting for MEL in the programme has not been intentional and thus leaves MEL poorly or underfunded and thus difficult to implement.

*Hindering or fostering factors in using evidence of pilot intervention(s) to influence policy decisions*

Figure 11. Factors fostering and hindering use of pilots' evidence to influence policy

## Fostering factors



- Existence of MSIs that include Government as platforms for advocacy and policy influence
- Coordinated learning and reflection workshops that can bring together different stakeholders together on a policy agenda
- Evidence generation mechanisms through piloting tools & frameworks, and coordinated studies to address gaps in the food systems

## Hindering factors



- Lack of real-time data to support decision making (Digitalization of data through market driven platforms (currently initiatives are supply driven))
- Risks (production, market, climate, policy, partnerships) and how they affect programme outcomes/impact were not mapped ab-initio and mitigation strategies not planned in the MEL systems to facilitatr monitoing and learning
- MEL system is extractive, and not empowering of FOs for sustainability

## 6. Covid-19 evaluation questions

### 6.1 Rikolto's agility in responding to external shocks.

In respect of COVID-19 pandemic in Tanzania, and in relation to The Agile Organization Research Report (2021)-10 outline criteria, three aspects of agility have been demonstrated by Rikolto in its response:

- i. Lessons were learnt from implementation of FSC in Arusha during COVID-19 outbreak, on the need for improving hygiene and sanitation in urban markets to reduce the spread of the pandemic, introduction of legumes/pulses seed to farmers to increase production of nutritious foods, and expanded partnerships with stakeholders in addressing awareness and information dissemination mechanisms on COVID 19. These lessons were adapted and implemented in Mbeya (Southern highlands) under the European Union project.
- ii. The market closure due to COVID 19, saw Rikolto expanding the kiosk model to directly serve the local market, after realizing that regional and export market trade was untenable. This expanded the range of horticultural crops produced for the local market, but also expanded into legume seeds and traditional African vegetables in partnership with World Vegetable Centre and seed companies to improve nutrition and immunity against COVID-19.
- iii. The lessons learnt from the dismal adoption of Simusolar drip irrigation facility in Arusha (see Box 2), provided learning and insights that informed the pilot in Mbeya where irrigation technology that is more affordable (less expensive), and integrating bundled services, was eventually developed, and successfully adopted by farmers across the Southern highlands. The expectation to re-introduce the bundled approach in Arusha, is a demonstration of agility, and would improve water conservation and mitigate against some of the effects of climate change such as drought.
- iv. At institutional level, The Agility report (2021: 32) indicated that Rikolto's PLA is skewed more to accountability to donors, however initiatives are in place for it to offer greater benefits to PMs (and stakeholders) to improve its uptake, use and benefits for greater efficiency and to balance accountability, learning and impact monitoring. This challenge affected the establishment of an ICT platform which absence affected ease of trading during COVID 19, and the broader changes anticipated demonstrates willingness to be more agile.

Focus Group Discussions with staff confirmed that Rikolto has demonstrated some interesting responses to Covid-19:

- ✓ Transition from hygiene and sanitation communications in urban markets, to focus on production and sale of safe, healthy, nutritious and sustainable food to build immunity against diseases, and sold within hygienic conditions to reduce spread of COVID-19
- ✓ The change from public address and radio communication to digital tools targeting vendors who interphase with suppliers and smallholder farmers in the supply chains.
- ✓ Approach of Kiosk model and kitchen gardening of traditional vegetables being replicated in Mbeya (Tanzania-Zambia border) and its environs under the EU project
- ✓ Promptly leveraging funding and partnerships to support COVID-19 awareness and communications in Arusha, under the FSC programme.
- ✓ Introducing the Generation Food project focussing on vegetable nurseries to support quest for COVID response, but also to address the challenge of youth engagement in agri-food systems and policy dialogues in Arusha.



## 6.2. Impact of COVID 19 responses on target groups

The Rikolto COVID 19 response targeted three core areas, but evolved with time, as demonstrated in 6.1 before. These included:

1. Promotion of quality declared (pulses) seeds (QDS) to improve production and consumption of nutritious pulses by smallholder farmers during COVID 19 outbreak. This through a partnership between Rikolto and Crop Bioscience Solutions Ltd, where in 2021, 74 smallholders planted 75 acres of land to multiply QDS of assorted legumes producing approximately 40MT of foundational assorted common legumes/bean seeds under the “seed revolving scheme”
2. Awareness campaigns to curb the spread of COVID 19 in urban food markets. Led by AfriProfocus in partnership with Rikolto, Trias, TAHA, Solidaridad, Arusha City Council and RIGS-1 from 2020 (June), it aimed to improve hygiene and sanitation in urban markets of Arusha City and reduce spread of COVID 19 in the city markets, it evolved in 2020 (Oct) through Farm Radio International to focus on healthy, safe and nutritious local foods that improve immunity against COVID-19, in which 4.5M people were reached.
3. In 2021, the package of responses had focused on consumer communication on safe, healthy, nutritious and sustainable food, home gardens through nutrition sensitive agriculture (EU project) and communications on importance of safe, healthy and nutritious food, and expansion of the Kiosk model.

While only two impact indicators: access to Quality Declared Seed (QDS), and hygiene and sanitation information and attitudes were low level. key impacts like nutrition (legumes and pulses seeds), hygiene and sanitation in urban markets-the approach to expand legumes and vegetable seeds were meant to improve resilience against pandemics in future, the food kiosks intensification were meant to expand alternative markets after the market closure occasioned by COVID-19. Whether urban food markets have become cleaner, or whether alternative markets that does not depend on tourism and export were not explored

The following are the key impacts of COVID 19 on the FSC programme and target groups:

- ✓ Impact on production, export logistics and technical services (FS, 2021):

Most farmers abandoned production due to lack of markets as travel restrictions affected local tourism, regional and international (export) markets, which are the major outlets from premium and niche trade. COVID 19 had impacts on the number of contract farmers who got into contracting, and only a few were contracted (IF 2021), and provision of BDS services by ATO were disrupted in Pangani cluster, leading to postponement of support and extension of contract for BDS services (Pangani Progress Report, 20210602), While transportation was not affected as Tanzania did not go into lockdowns, the closure of export markets affected export logistics. Technical services were affected through provision of BDS as happened in Pangani Cluster (ATO), however, Meru cluster already had received several technical services for production through BDS but also linkages with off takers and input providers.

- ✓ Disruption of supply chains:

COVID challenges were mostly in disruption of supply chains: Export of vegetables and fruits stopped because end markets closed down and the local tourist market outlets closed down. In response (in RT COVID 19 responses):

- Identified crops with potentials for local market to be produced such as butter nuts, water melon, and chilli peppers,
- Demonstration plots and linkage with input providers to deliver training on prioritized crops,
- Partnership with Home veg to supply vegetables to domestic market taking advantage of idle cold storage facility,

- WhatsApp group for traders and farmers to communicate through a platform. + According to document

Quality food per farmer sold through collective action, which had risen to 3mT (MTR, 2019), declined to 0.944mT in 2020, being an effect on the market demand occasioned by closure of local and international markets, food business through hotels and tourism (IF 2021)

- ✓ Market closure and depression in domestic prices

COVID impact lowered local domestic prices by 10-20%, and reduced production volumes by 20-40%. However. Due to closure of business activities, FOs were not able to service the loans they borrowed from the banks, leading to a re-negotiation of loan repayment schemes, proposed by the banks. It also influenced the market focus to look more internal. Fresh Vegetables was predominantly targeted for export markets, although the short chain distribution and Kiosk models had started taking root by 2019, COVID lessons expanded focus into the local market as an emerging alternative.

The shift from export only to strengthening local food systems, by acknowledging that stringent GAP for export markets may not be reachable by some farmers, but improving the safety, healthy and quality of local markets also improves sustainable food and prices/incomes.

### 6.3. Extent of Rikolto's COVID-19 responses on resilient food system, able to respond more swiftly to a next systemic crisis.

- The short chain distribution and Kiosk models

The short chain offtake model, is based on forward contracts to produce and supply quality FFVs targeted at high end domestic urban markets are a better price, The kiosk model was based on the understanding that safe and healthy products (that meet quality standards at regional and international levels) could be prioritized to take advantage of the alternative local markets based on premium and niche markets. This approach uses the opportunity to penetrate and supply local demand and shift the dependence on regional and export markets.

- Cleaner urban food markets

The responses targeted at ensuring improved sanitation of urban markets (although this aspect has not been evaluated), targeted to interphase the producers and consumers to ensure production systems are clean and the outlets and environments at urban markets clean to reduce contamination of produce.

- Safe, healthy and nutritious foods

The approach to expand legumes/pulses and vegetable seeds, and introduction of vegetable nurseries under the generation food project. While the quality declared seeds were produced, and even replicated in the Southern Highlands, the extent to which such practices have sustained during and probably after COVID-19 is still hard to tell.

## 7. Conclusion and recommendations

The evaluation makes the following conclusions and recommendations based on each Evaluation Question (EQs):

### EQ1: Have Rikolto’s interventions contributed to increased resilience and improved livelihoods of farming households?

Conclusion(s)	Recommendations
<p>Despite the challenges associated to FS data and the negative impacts of COVID 19, the data analysis and the triangulation with qualitative data sources demonstrate that Rikolto’s interventions contributed to increased resilience and improved livelihoods of farm households. Farmers absorptive capacity slightly increased as a result of exposure to Rikolto’s trainings on GAP, Sustainable Rice Production practices, climate smart agriculture, strengthening management capacities of FOs and linkages to private input providers and off takers. Adaptive capacities also increased significantly (&lt;1%) due to improvement in diversification of income sources, reduction in expenses and increase in savings culture.</p> <p>Farmers’ livelihoods improved as assessed through improved productivity, sustainable incomes, sustainable production practices and food security experience scale. Improvements in productivity were facilitated by multiple interventions like GAP certification and SRP practices, linkages with input providers, financial services and off takers and forward contracts. Although rice farmers incomes decreased, FFVs registered an increase, however, COVID-19 negatively impacted and shifted trade and markets to be more domestic-focused, causing a glut and lowering prices for rice, but opening up alternative domestic market models for FFVs.</p> <p>Environmental sustainability scores increased, though some were below the threshold of 2.0. These improvements in scores were driven by GAP trainings and certification, safe use of chemicals, implementation of SRP and adoption of climate smart agriculture and technologies. However, the residual effects of farm chemicals used before on soil drew down indices on soil conservation, while increasing climate change effects, continues to affect the climate change index.</p> <p>Food security experience scale improved between 2019 and 2021 as a result of diversification of sources of income, access to capital and financing, strengthened capacities of FOs to provide services,</p>	<ul style="list-style-type: none"> <li>• Build farmer capacities in economic calculations, particularly concerning production cost calculations and profitability of crop and cropping operations. This should also contribute to enhance their price negotiation capacities.</li> <li>• Due to persisting low scores on soil conservation, it may be helpful to prioritize soil testing services by FOs to farmers so as to determine the nutrient-need for production and guide soil management efforts as a way to potential reduce soil toxicity and improve soil conservation.</li> <li>• Integrate digital and ICT platforms to improve access to market information and facilitate trade, and explore and identify on- and off-farm value chains, SME innovations and technologies that can address the socio-cultural barriers, attract and retain youth and women engagement in the food systems.</li> <li>• Develop joint mechanisms to effectively address or counteract the negative effects of climate change on production within the food systems, by exploring risk insurance.</li> <li>• Strengthen alternative domestic market models that work to benefit farm households as more sustainable models, but also recognize the specific horticultural value chains to prioritize for regional and export markets.</li> <li>• Facilitate adoption of food standards that are nationally and regionally recognized, to catalyze trade in safe and healthy foods across the region, pegged on international GAP standards.</li> <li>• Develop gender and youth-based assessments enabling to acquire a detailed knowledge of the factors which determine differentiated access to activities, particularly differentiated access to production factors (land, capital...). On the basis of such knowledge, a formalized gender and / or youth strategy should enable to address obstacles and factors determining differentiated access to activities, as well as ensure activities best adapted to women and</li> </ul>

<p>linkages with input providers and off takers and increased savings culture.</p> <p>Despite these gains, adult men still earn better incomes and produce and commercialize more than women and youth, exposing the socio-cultural barriers and need for alternative measures to improve women and youth participation in the food systems.</p>	<p>youth are supported (e.g. vegetables with their high turnover and limited need for land).</p>
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**EQ2: What are the spillover effects of Rikolto’s policy work beyond their direct beneficiaries?**

Conclusion(s)	Recommendations
<p>The spill over effects were felt in both rice and FSC, through the following beneficiaries: Kilimo Trust, MoAFS (TARI and LGAs), Ministry of Water, Rice Council of Tanzania (RCT) and non-cooperative members (rice); TAHA-Greencert, MoCU and TCDC and a larger EU project in the southern highlands. Kilimo Trust adopted and expanded the SRP standard in the southern highlands, the engagement of Rikolto as resource persons in the NRDS II and the development of NRDS (2021-2030), as well as the establishment of the Rice clusters through Rice Council of Tanzania. Establishment of TAHA’s Greencert, legislations in food safety certification standards, upscale of intern model through MOCU and TCDC, and establishment of new project funded by EU in the southern highlands, all demonstrate how non beneficiaries benefit and adapt from the local policy changes in the domestic market.</p>	<ul style="list-style-type: none"> <li>Establish systematic mechanisms to monitor and assess the effects of pilot interventions and an intentional framework to assess the influences of pilot interventions on local and national policies within the food systems.</li> </ul>

**EQ3: (a) What has been Rikolto’s role in strengthening FOs and making them strong business organizations for their members? And (b) What added value demonstrates the FO as a collective action mechanism for producers?**

Conclusion(s)	Recommendations
<p>The stage of growth of an FO determines the efficacy of the services they need to become professional organizations. This is demonstrated in the differential scores for FOs under rice compared to those under FSC, despite the provision of similar capacity strengthening initiatives. Nascent FOs require an array of support that may not be surfaced through SCOPE Basic assessment frameworks.</p> <p>GAP certification, low-cost green irrigation technologies, sustainable rice production standards</p>	<ul style="list-style-type: none"> <li>To continue supporting less mature FO in the future programme so as to consolidate their role as service providers to members and key players in new emerging business models. An offer of cost and profit calculation support should also be integrated within the range of services offered by an FO.</li> <li>To address the challenges of weak financial and asset base, FOs (especially AMCOs and Cooperatives) should be facilitated to establish/rehabilitate infrastructure (including storage facilities, mechanization,</li> </ul>

and safe use of chemicals contributed to pushing up scores on environmental sustainability although the residual effects of sustained use of farm chemicals still depress the soil and water conservation scores. Initiatives to strengthen youth and women inclusion into the food systems are being integrated into the programme, however socio-cultural barriers<sup>22</sup>, low internal management capacities of FOs, and weak asset and financial base still acts as a challenge to FOs social sustainability.

Farmers are unsatisfied with access to seeds, fertilizers and pesticides, and market information all of which are services provided through linkages with input providers. While market information is a gap already recognized, FOs need to establish mechanisms to assess the quality of services their members receive, as a quality control measure.

While FOs receive numerous services through their linkages with input, offtake and BDS service providers, they still struggle to provide direct services to members, since they lack internal management and organization capacities, have weak financial and asset based and they are strongly dependent on grants, which challenge members willingness to pay-for-services, despite economic benefits derived.

Access to inputs and assured markets, increased production and commercialization for rice compared to FFVs. The COVID-19 impact on domestic market was less severe for rice compared to FSC, which registered significant disruptions of the export-oriented market. Short chain distribution (offtake) models and domestic focused kiosk models enabled FSC access to alternative markets, which resulted into positive total incomes earned and profit margins despite the havoc caused by COVID-19. Farmers acknowledge that FOs have increasingly contributed to their incomes despite the negative effects occasioned by local policy changes and COVID impacts on production and markets.

There is a gender and generational gap highlighted within the two clusters that favours adult men in terms of production, commercialization and income benefits. Socio-cultural barriers to access to land,

transportation, processing etc) and by linking them with financial institutions to access loans towards building assets, including supporting access to finance through guarantee schemes.

- Adapt the lessons learned through piloting of SCOPE Rapid (in Uganda), as a measurement, professionalization and graduation benchmark tool for smaller and nascent FOs (like in the FSC), while continuing the SCOPE Basic for more organized/mature FOs such as AMCOs and Cooperatives as demonstrated in Rice cluster.
- Alternative value chains (both on and off-farm) models and innovations that are socio-culturally sensitive and improve sustainable inclusion, participation and benefits to women and youth in the food systems should be pursued. Value chains performance should be continually explored from a gender and generational lens to highlight enablers and barriers to women and youth inclusion, so as to address root causes.
- FOs to be supported to develop mechanisms to assess quality of services they receive and or provide to their members, as part of quality assurance of services so as to guide who to continue working with or not.
- Strengthen and communicate alternative models that leverage on the opportunities within the domestic market such as the short-chain distribution and kiosk models and innovate and pilot other models that target the local consumer markets in Tanzania.

<sup>22</sup> These includes women and youth's lack of ownership and control over productive resources such as land and capital which challenges their access to collateral instruments for credit/loan financing, but also youth not engaging in agriculture.

<p>limit women and youth from actively engaging in the food systems due to lack of collateral and thus access to finance. This is even worse for rice, which is capital intensive</p>	
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**EQ4. (a) Has Rikolto succeeded in facilitating business relations between FOs and Private sector buyers? and (b) Are these business relationships, economically profitable, socially inclusive and environmentally sustainable?**

Conclusion(s)	Recommendations
<p>Business relations between FOs and private buyers have been facilitated through linkages with input providers, off takers, credit financing, complementary service innovations and providers, and targeted business development services. These relationships have significantly contributed to FOs provision of services to its members, in most cases indirectly, although due to the higher levels of organization in rice FOs (AMCOs and Cooperatives), they have been able to leverage on these linkages to provide direct services to their members.</p> <p>While perceptions of the business relationships are overall positive, challenges persist, especially with significant power held by off takers in the market system and emerging risks related to production, market (and information) and climate, which have been brought to the fore by the impact of COVID-19, effective management of the business relationships, and competition all of which pose serious challenges to sustainability of the business relationships unless they are adequately mitigated.</p>	<ul style="list-style-type: none"> <li>• Strengthen mechanisms for forward contracting as basis of the business relationships, but also recognize and quantify the inherent capacities of FOs as value-added BDS, which reduces costs of doing business, and acts as a carrot for negotiating more equitable and profitable business relationships.</li> <li>• The parties to the business relationships, should deliberate and plan on how best to share the costs associated with key risks as has been exposed during the COVID-19 pandemic, including production risks when prices of inputs (e.g., fertilizers and pesticides) skyrocket as a result of challenges within the supply chain logistics, market risks due to effects of border closures and export bans, and climate risks. Parties should integrate risk mitigation measures in such business relationships to build trust for sustainable trading relationship.</li> <li>• Expand innovative models that adapt from the COVID 19 impact, such as the short chain distribution and kiosk models, to increase efforts in opening up the domestic market at better prices to farmers, and facilitate business relationships around these models to learn and improve how they operate and benefit FOs and their members.</li> <li>• Fast track multi-stakeholder mechanisms to develop a real time, digital market information platform, that is transparent and provides users with market and trading information as a basis to decision making and expanding business relationships, in a way that is market driven.</li> </ul>

**EQ5. (a) Has Rikolto succeeded in setting up or strengthening MSIs?, and (b) Have these MSIs succeeded in promoting more sustainable food systems?**

Conclusion(s)	Recommendations
<p>Rikolto has successfully established a number of MSIs under B2B linkages, sustainable food systems and water resource use. While the concept of MSIs is new to Rikolto, and was recently introduced mid programme, some have generated impressive outcomes and have even been replicated elsewhere, while others have not, however, monitoring the performance of such MSIs was not intentionally built into the programme MEL systems.</p> <p>Nevertheless, factors such as commitment, appealing and adaptable models, leadership, evidence and recognition of the significance of sustainable food systems, fosters their growth, while competing models, lack of resources and competing interests hinder the development of these partnerships.</p>	<ul style="list-style-type: none"> <li>• Continue accompanying MSI to consolidate them</li> <li>• Develop a system/framework for measuring business relationships and performance of the MSIs in respect of their establishment goals and contribution to affecting policies within the food systems</li> <li>• Participatory engagement and planning with those policy stakeholders that we intend to influence at the onset is critical for effective engagement and influence.</li> <li>• In synergy with its Food Smart Cities work, Rikolto should <b>support MSI in promoting territorial food systems which would develop localised agricultural exchanges with city authorities and public institutions</b> such as schools or administrations, or possibly also with private supermarkets, so as to shorten value chain (direct consumer contracts, kiosks...), strengthen producer positions with respect to off-takers, and develop economic activity and food autonomy at a local level. Such work should be associated with <b>diversification of producer activities, both in terms of variety of crop and crop transformation</b>. This should seek both to add value and increase resilience at producer and FO level, as well as increase food security at territorial level. Secure contracts would also help producers and transformers to secure capital to invest in improved practices and equipment and support activity diversification. The issue of healthy food should be central to such multi-stakeholder agreements.</li> </ul>

**EQ6. How is the evidence generated by Rikolto’s pilot interventions used to influence policy decisions?**

Conclusion(s)	Recommendations
<p>There are different pilot interventions that have been implemented during the programme such as climate smart irrigation financing, short chain distribution, business to business partnerships (input and off taker models), sustainable agricultural production and youth inclusion mechanisms.</p>	<ul style="list-style-type: none"> <li>• Integrate systems to assess processes, outcomes/impact of pilot models/innovations, MSIs, business relationships; their scale up, and influences on advocacy and policy change moving forward.</li> <li>• Critical programme risks such as production, market, climate, policy and partnerships</li> </ul>

<p>Despite the outcomes that these models have demonstrated (including replication/scale up, access to services, improved productivity and farmer incomes), neither their contribution to influencing policies, nor systems to measure the impact of the pilot interventions were mapped ab-initio nor inbuilt into the programme.</p>	<p>need to be mapped ab-initio, monitored and mitigation strategies put in place. All these should also be integrated within the MEL system to facilitate monitoring and learning for adaptations.</p> <ul style="list-style-type: none"> <li>• The MEL system is extractive, while it should be facilitative. It should integrate the capacities for FOs to monitor and measure their own B2B relationships, internal capacities and learn to improve or request support in areas where they are weak so that they sustainably develop their systems and structures to suit the business contexts.</li> <li>• The MEL system should facilitate documentation of learning and impact, and in future, adopt some form of outcome harvesting and most significant change within the food systems.</li> </ul>
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**COVID EQs: (1) How agile is Rikolto in responding to an external shock? (2) Which impacts did COVID responses have on the target group? And (3) To which extent has Rikolto’s response to COVID left a more resilient food system that can swiftly respond to a next system crisis.**

Conclusion(s)	Recommendations
<p>Evidences of agility were demonstrated through among others: adapting lessons from the programme to improve hygiene and sanitation in urban markets, introducing legumes/pulses seeds to farmers to facilitate production of nutritious foods; expansion of the short chain offtake and kiosk models and diversifying into other high value domestic crops; remodelling the Simusolar drip irrigation technology to work for smallholder farmers in Mbeya.</p> <p>COVID responses had differential impact on production, export logistics and continuity of BDS services; disrupted the supply chains and the resulting market closure depressed prices and incomes of rice farmers, but also opened up additional domestic market opportunities for FFVs</p> <p>These responses introduced short chain and kiosk models which are more adapted and resilient; ‘potentially’ enhanced sanitation and safety of urban markets, and catalysed knowledge and production of safe, healthy and nutritious food.</p>	<ul style="list-style-type: none"> <li>• Harness and deepen learnings from evidences of agility to strengthen learning and adaptations to contexts of future shocks.</li> <li>• Monitor and strengthen the alternative emerging models that are focused on the domestic market, and develop new models that reach the overall population and not only the middle class.</li> <li>• Continually monitor the impacts and contributions of COVID responses on sustained practices of cleaner urban food markets, safe and healthy food systems, and production and consumption of nutritious food.</li> </ul>

**Environmental Sustainability:**

Conclusion(s)	Recommendations
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<p>Soil conservation, landscape management, biodiversity and climate change indices are below the Rikolto threshold of 2/4, despite the climate smart practices integrated in the programme.</p> <p>While there are residual long-term effects of synthetic chemicals on farmlands, and negative climate change effects of floods, droughts and migratory pests putting additional pressure on environmental conservation efforts, lack of risk insurance and competing models that are in contradiction with Rikolto's sustainability agenda are persisting challenges.</p>	<ul style="list-style-type: none"><li>• Promote ecologically sustainable and climate smart agricultural practices, but also link FOs to soil testing services to support farmer-driven and informed environmental conservation efforts</li><li>• Facilitate models that enable smallholder farmers to access risk (production, climate and market) insurance services.</li><li>• Develop a strong business case for environmentally sustainable models to incentivize the private sector and business community to better engage. In particular, this implies understanding more clearly the added value creation along each value chain segment under agroecological conditions and under conventional ones. Understanding what determines the fact that environmental indices appear to be falling despite Rikolto's support to agroecological practices is also necessary.</li></ul>
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## Annex

Table 22: Available documentation and data

<p><b>Intervention Framework – at country-cluster level</b></p> <ul style="list-style-type: none"> <li>• The Intervention Framework describes Rikolto’s ToC and includes an overview of the interventions and related outcomes, as well as annual monitoring data for a country-cluster combination</li> <li>• Additionally, there are Annual Reports to DGD that are written based on the Intervention Framework. They include a “Performance Scoring Card” assessing Rikolto’s performance along seven criteria and a related Lessons Learnt document and can be used as additional data source where the Intervention Framework provides only scarce information<sup>23</sup></li> </ul>
<p><b>Midterm Review (MTR) – at country level</b></p> <ul style="list-style-type: none"> <li>• The MTR assesses the 2017-2021 DGD-programme up to 2019 at country level based on available monitoring and FS data</li> </ul>
<p><b>Farmer Survey (FS) data – at farmer level</b></p> <ul style="list-style-type: none"> <li>• The FS has been elaborated by Rikolto to collect data at farmer level at baseline (2017), mid-term (2019) and end-line (2021)</li> <li>• The data has been collected from a sample of beneficiaries and additionally from a control group (CG) for 8 country-cluster combinations (Rice-DRC, Rice-Mali, Rice-Indonesia, Coffee-DRC, Coffee-Peru, FSC-Vietnam, FSC-Tanzania, Cocoa-Honduras)</li> <li>• FS data descriptive results are provided to the LT by the CT when available<sup>24</sup></li> </ul>
<p><b>SCOPEInsight Assessments &amp; Methodology – at the FO level</b></p> <ul style="list-style-type: none"> <li>• <i>SCOPEInsight</i> assessments are being carried out every 18-24 months to measure FOs’ business and organisational capacities</li> <li>• SCOPE Basic reports are designed for nascent and/or emerging organizations and the SCOPE Pro for more advanced and matured ones</li> <li>• The <i>SCOPEInsight Methodology</i> and <i>Score Interpretation Guideline</i> are provided to the LT for additional guidance</li> </ul>
<p><b>Efficiency Analysis – at the country level</b></p> <ul style="list-style-type: none"> <li>• The Efficiency Analysis attribute a monetary value to the benefits and costs that arise due to Rikolto’s interventions to measure Rikolto’s Social Return On Investment (SROI)</li> <li>• They have been prepared by <i>I&amp;S Consulting</i> for Rikolto and are currently only available for Belgium, Burkina Faso, Congo, Indonesia, and Nicaragua</li> </ul>
<p><b>Rikolto’s general framework for BDS – at the global level</b></p> <ul style="list-style-type: none"> <li>• This document provides Rikolto’s objectives, principles, and guidelines on how to facilitate change in food systems</li> <li>• It aims to prevent Rikolto’s interventions from undermining the local Business Development Services (BDS) sector and to ensure sustainable interventions with a scalable impact</li> </ul>
<p><b>LINK Assessments &amp; Methodology – at the business relationship level</b></p> <ul style="list-style-type: none"> <li>• The LINK assessments make use of the “New Business Model Principles” to assess the level of inclusiveness of business relationships</li> <li>• An <i>Assessment Guide</i> is provided to the LT to facilitate interpretation</li> <li>• The baseline data is only available in Latin American countries, endline data will be available in all countries</li> </ul>
<p><b>COVID-19 documentation – at the country level</b></p> <ul style="list-style-type: none"> <li>• The COVID-19 documentation comprises a summary of Rikolto’s COVID-19 response activities, as well as monitoring data that captures the implementation progress and results</li> </ul>

<sup>23</sup> The Annual Reports to DGD are especially relevant for Tanzania and Uganda.

<sup>24</sup> The CT is responsible for performing the FS data analysis for each country-cluster combination of interest, as well as providing the descriptive results and detailed guidance to the LT to facilitate interpretation.