



# *Mid-term impact assessment report for Grain and Horticulture Food Systems*

EAST AFRICA, TANZANIA



*Picture by Philippe Leysens*

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## 1. EXECUTIVE SUMMARY

### 1.1 Overview of DGD programme

Rikolto Tanzania contributes to Rikolto International's mission statement, which addresses the central question: What will we eat tomorrow? The food on our plates is not to be taken for granted. To keep up with the ever-growing world population in a changing climate, the food sector needs more stable supply chains to provide affordable food for all, today and tomorrow. The projection shows that by 2050, the global population is projected to exceed 9.6 billion. Global food production will need to increase by 50% to meet this challenge, which will be particularly acute in rapidly expanding urban areas. This will aggravate the depletion of soil quality and water resources which will worsen the impact of climate change. Also, we want to address the trend of young people migrating to urban centres forced by low prices of agriculture produces and poverty in the rural areas. In East Africa more specifically, by 2050, it is estimated the population will have doubled and almost half of the population will become urban residents. As a result, farmers will be delivering to rapidly growing local and regional markets. Rikolto believes family farms are a big part of the solution. Together they produce 70% of our food worldwide, but individually they're often cut out of the trade, ignored or even sanctioned by governments, ending up in poverty and leaving their huge potential untapped. Change on a global scale demands that food markets become more inclusive and offer value to all actors in the food chain. Smallholder farmers must be offered a fair deal.

In 2017, Rikolto Tanzania started a 5-year DGD-funded programme, called "Creating shared value for all actors in grain and horticulture value chains in Tanzania". We envision production and consumption systems that allow poverty and hunger to be eradicated and that does not burden our planet more than it can bear. Therefore, Rikolto enables and supports smallholder farmers to take up their role in rural poverty alleviation and to contribute to feeding a growing world population in a sustainable way.

In Tanzania, the focus has been put on tackling food system constraints in three food crops: Horticulture, rice and pulses. Farmers in these three crops experience productivity challenges that lead to very low returns and incomes, impacting the livelihoods of entire families. This includes threats from worsening weather conditions, pests and diseases. They also struggle in accessing quality inputs for delivering high-yield harvests. If those inputs are available on local markets, they come at high prices, often prohibitive for smallholder farmers.

Our programme in Tanzania has been focusing on Northern Tanzania, covering the regions of Arusha, Kilimanjaro and Manyara. The flagship pilots include the inclusive business model in the horticulture sector in Arumeru and Msitu wa Tembo clusters; Food Smart City (FSC) in Arusha 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 has been delivering an array of activities in the three result areas:

1. Establishing Structured Trading Systems in horticulture, rice and pulses value chains to facilitate access to efficient services (Business Development Services (BDS), financial services, transparent 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 young farmers in our interventions and link farmers to buyers.
2. Developing Farmers' Business Management through flexible, adaptable approaches and models to stimulate the inclusion of smallholders by building the capacities of Farmer Business Organisations. Rikolto has been using the SCOPEinsight tool intensively to professionalise the FBOs. The support includes capacity-building on financial management, empowering FBOs to lead service provision to members (use of inputs, post-harvest handling, seed supply, access to finance, extension service etc.), training of farmer organisations and partners on contract negotiation and arbitration, supporting governance structures in FBOs, and supporting farmer organisations on access to credit through strengthening savings and credit schemes.
3. Ensuring sustainable, quality and safe food production and consumption. We have been developing market systems for grains and horticulture to incentivize sustainable production (GAP and EA Grain Standards processes) and consumption of safe food. The support included capacity building of farmers in adopting climate smart technologies and practices; promotion of production and consumption of quality, safe and nutritious food through the collection of food safety evidence; and coordination of a food safety campaign for urban consumers. In these areas, the intervention has included stakeholders in Arusha city to define priority actions and interventions, where Rikolto facilitated a change in the entire food system. For example, we need to ensure that land is managed well and soil erosion is

reduced and that water is managed through solar powered efficient irrigation systems (Pangani River Basin is one of the most water stressed parts of Tanzania). We need to ensure that farmers have the skills and incentives to produce safe and healthy food and that services to farmers and traders are driven by demand and not just by charitable donations. Our flagship programme in this area has been the Food Smart City Programme focusing on food safety in Arusha city.

## 1.2. Theory of Change

Rikolto's global 2017-2021 strategy is directed towards structural changes in the agri-food system and upscaling of well-functioning practices and policies that unlock the farming potential of a critical mass of smallholder farmers. In East Africa, Rikolto aims to contribute to the development of a dynamic, sustainable and inclusive agricultural sector with family farmers providing quality produce for own consumption and for diverse markets.

Rikolto in East Africa believes that smallholders can only obtain fair returns from the grains and horticulture sectors when trading systems provide services that support their growth, such as transparent market pricing systems and trading mechanisms which are efficient and affordable for smallholders to engage.

The Theory of Change recognizes that collective action mechanisms, whether Cooperative, Private Business or other, remain challenging for smallholder farmers and that capacity building efforts have often only built temporary islands of success. There is therefore a need for flexible, adaptable approaches to be found and adopted by large scale institutions that support smallholder development, such as Agricultural Financing Facilities, Business Support agencies and large-scale donor initiatives.

Finally, the Theory of Change also recognizes that market systems, especially the buyers and traders in the market, must develop approaches which incentivize production of safe and sustainable food. The contamination risk, especially of aflatoxins in grains and of faecal matter and chemical residues in horticulture, is acute in East Africa and needs to be addressed to restore trader and consumer confidence.

The three results areas or Structural Change Agenda (SCA) are closely inter-linked and are all necessary conditions for grains and horticulture sector transformation. The SCA is also strongly

aligned with the Tanzania National Agriculture Development Strategy (ASDP II) which aims to transform agriculture in Tanzania and work towards the Sustainable Development Goals.

### 1.3 DGD impact and outcome/result indicators

		Baseline Feb '18	Progress Dec '18	Mid Term Aug '19 Target	Progress Dec '19	MTR	End Evaluation Aug '21 Targets
<b>Progress grains</b>							
1	Number of direct end beneficiaries % that are female (F) % that are youth (Y)	0	2105 producers 39% F 10% Y	3000 producers 50% F 15% Y	3028 producers 50% F 30% Y		6400 producers 50% 15%
2	Share of income derived from quality food sales to the total household income	0%	Need Survey	40%	67%		83%
3	Increase in sustainable production index <sup>1</sup> :		Need Survey				
	soil conservation	0.9		1.4	1.7		2.0
	water management	0.4		1.0	1.7		2.0
	resource management	0.9		1.4	1.5		2.0
	climate change	0.6		1.0	1.5		2.0
	biodiversity	1.1		1.5	1.4		2.0
	landscape management	0.7		1.0	1.9		2.0
4	Number of indirect end beneficiaries	0		15,000	33,702		64,000
<b>Progress horticulture</b>							
1	Number of direct end beneficiaries % that are female (F) % that are youth (Y)	0	570 producers 45% F 20% Y	1000 producers 10000 consumers 50% F 15% Y	1054 producers 8,000 consumers 71% F 25% Y		1600 producers 20000 consumers 50% 15%
2	Share of income derived from quality food sales to the total household income	0	Need survey	45%	67%		90%
3	Increase in sustainable production index:		Survey				
	soil conservation	0.8		1.2	1.2		2.0
	water management	0.8		1.2	1.1		2.0
	resource management	0.8		1.2	1.5		2.0
	climate change	0.5		1.0	0.9		2.0
	biodiversity	1.5		1.6	2.2		2.0
	landscape management	1.0		1.3	1.9		2.0
4	Number of indirect end beneficiaries	0		50,000	49,518 <sup>2</sup>		60,000

<sup>1</sup> Average shown across all agribusiness clusters. We have detailed baselines per clusters on which the Environment Management Plans are being developed

<sup>2</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



## 1.4 Summary of the main findings

Through routine monitoring and through the farmers survey done during the midterm review, we have observed positive progress on the impact indicators. The programme reached the envisaged number of farmers and contributed positively to the objectives set at the level of overall household income. Moreover, the programme had a significant contribution to sustainable production in relation to the six parameters of the sustainability index. We have also assessed the effectiveness of the three results in achieving the outcome/impact.

### 1.4.1 The level of impact achieved

#### **Grain sector**

- The monitoring shows that the number of target beneficiaries engaged in the production of rice and pulses reached by the programme is 3028<sup>3</sup> (50% women and 30% youth). This number surpasses the Midterm Review Target and is on track to reach 6,400 farmers by the end of the programme in 2021. However, the end line evaluation target of reaching 6,400 beneficiaries may be ambitious as we have only 2020 to work with new beneficiaries in the three clusters. We therefore do not intend to increase the clusters during 2020/2021 implementation period but rather have a special strategy to increase membership in the current FBOs in the existing clusters.
- The farmers' survey shows that the share of households' income derived from quality food sales is 67%. This target was achieved by significant investments in quality management systems (QMS) protocol and continuous support on the adoption of Sustainable Rice Production (SRP) practices which increased the productivity per acre. From the focus group discussions and survey interviews, farmers provided testimonials that there had been significant improvements, such as more efficient application of farm inputs (seeds, fertilizer and pesticides) and considerable reductions of postharvest losses. Khadija Munyanyembe testifies: *“As a member of the Uwamale Cooperative, I have learnt so much through Rikolto’s trainings on Good Agricultural Practices (GAPs). I have transferred that knowledge to how I farm and seen profound improvements in quality and production. But more than anything, I am grateful to always have food readily available in my home, for my family.”*
- The farmers survey shows a positive trend on the Sustainable Production Index (SPI) compared to the January 2018 baseline. In the 6 parameters<sup>4</sup> to measure the production

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<sup>3</sup> This number excludes 10,000 farmers which was reached through food trade programme

<sup>4</sup> The measurement include: Soil conservations measures, water management, resource management, climate change, biodiversity and land scape management.



sustainability index improved from average of 0.8 in January 2018 to 1.6 in December 2019. The adoption of Quality Management Protocol and Sustainable Rice Production (SRP) practices in rice production contributed significantly to this success.

- Indirect beneficiaries reached are 33,702 in four clusters. This number is calculated by knowing the average household size of the target beneficiaries. The calculations exclude the adoption by non-project beneficiaries who were not reached directly by the programme interventions. For example, in Iringa region 1,850 direct beneficiaries were supported in a new joint SRP scale up project between Rikolto and Kilimo Trust, financed by Enabel through the WEHUBIT programme.

### ***Horticulture Sector***

- Progress has been made in terms of direct beneficiaries. By December 2018, we reached 570 farmers organised in 12 groups forming an umbrella organization known as Muvikiho in the Arumeru cluster. Significant changes happened in 2019, when we reached 1054 farmers (25% youth, 71% women) due to our new horticulture intervention in Msitu wa Tembo cluster.
- The farmers' survey completed in the last quarter of 2019 shows the share of total household income derived from quality food sales rose to 67%, surpassing the midterm review target. The achievement is based on the quantities sold in Arumeru adhering to the global GAP standard and the quantities sold in Msitu wa Tembo cluster by farmers trained on food safety, including safe application of farm inputs, especially fertilizer and pesticides. An example are the farmers from Arumeru district, who, after a long time working individually, decided to merge efforts in order to strengthen their bargaining power, mobilise agronomic support and improve their agricultural practices. Operating from its base in Usa River, 25 kilometres from Arusha city, the Muvikiho group is now assured of markets for their fresh produce abroad, specifically in Europe, which remains the leading buyer of horticultural products from Tanzania. *"We have penetrated the local and international markets due to improved quality and increased volumes"*, said Peter Chuwa, Chairperson of Muvikiho. *"Currently the demand is high in Europe for our green beans, snow peas and baby corn"*, Noel Mbise, Muvikiho's assistant secretary, told a group of visitors from Rikolto.
- The environmental sustainability measures that positively impacted the horticulture sector occurred through supporting global GAP certification in vegetable production in Arumeru cluster. Vegetables are produced there with minimal applications of inputs especially fertilizer and pesticides, which we expect to have positive effects on soil, water and resource management indices.

- The indirect beneficiaries are calculated by multiplying the direct beneficiaries with the average household size plus farmers outside farmers group and consumers calculated by individual consumption per year.

#### 1.4.2 Effectiveness of the strategies to achieve the impact

The programme is designed towards to achieve three results which contribute to the higher-level impact indicators. This paragraph aims provide in the nutshell how the interventions in the three result areas has been effective in achieving impact as it was envisaged in the pathways of change.

During the first half of the implementation of the 5-year strategy, we continued to work on influencing the change and larger impact at national level. The work focused on collecting evidence regarding what worked in the pilots in Northern Tanzania in rice, horticulture and pulses subsectors. For the rice sector we engaged the national body, Rice Council of Tanzania (RCT), which opened a door for further engagement at ministerial level, specifically to influence the inclusion of SRP innovation in the implementation of the National Rice Development Strategy II (NRDS II). Furthermore, our initial SRP pilot in Northern Tanzania and Eastern Uganda opened new opportunities to scale up the SRP intervention to the Southern Highlands of Tanzania in collaboration with Kilimo Trust in the programme called Iringa Mitigation, Adaptations and Productivity for Climate Smart Agriculture (IMAP4CSA). IMAP4CSA is financed by Enabel WEHUBIT. Our collaboration with East Africa Grain Council (EAGC) and Tanzania Pulses Network (TPN) contributed to the national dialogue on business environment in the pulses and grain sector and fruitful dialogue with the Tanzania government and India government to lift the export ban of pulses to India. In addition, our lead firm model attracted additional funding from the Agricultural Markets Development Trust (AMDT), a multi-donor trust fund which is implementing the market system programme targeting different food crops, including pulses.

During the first half of the strategy's implementation, we have also been successful in scaling up our innovations in the horticulture programme and the Food Smart City Project in Arusha, with the inclusive business model innovation in Arusha and Kilimanjaro. The success story in facilitating farmer's capacity to engage in export market, linking rural horticulture producers and Arusha city and engaging in multi-stakeholders processes in Arusha City, presented a strong case to European Union (EU), which led to securing a four year horticulture programme targeting 5 regions in the Southern Highlands. The EU funded programme also opened a door to

start a second Food Smart City Programme in the region of Mbeya. One plausible outcome of the Food Smart City Pilot is that work of Food Safety Platform in collaboration with the Tanzanian Bureau of Standards (TBS) led to the creation of a national food safety standard that will soon be gazetted. Furthermore, at local government level the city of Arusha signed the Milan Food Pact and leveraged Rikolto's support through a food safety committee to fulfil its commitment to the Milan Food Pact.

Another changes in dynamics resulting from our programmes in Northern Tanzania is our successful partnership with the Tanzania Horticulture Association (TAHA) in supporting farmers to comply with the global GAP standard certification. Through this partnership, TAHA secured additional funding from United National Development Programme (UNDP) to support the global GAP certifications scheme. Furthermore, TAHA has institutionalised the support to farmers on standards and certifications of horticulture produce, which ensures the sustainability of the Rikolto interventions in this area.

## 2. EFFECTIVENESS ANALYSIS

The DGD programme in Tanzania targeted three outcomes: i) A structured trading system pilot provides efficient services (Business Development Services (BDS), financial services, transparent information systems) that enable smallholder farmers to benefit; ii) Flexible, adaptable approaches and models for farmers’ business management stimulate the inclusion of smallholders; and iii) Market systems for horticulture incentivize sustainable production and consumption of safe food. In the programme logic, these outcomes were supposed to be influenced through three pathways: i) Strengthening partner capacities for collective action; ii) Supporting an enabling environment; and iii) Fostering innovation. The programme targeted the horticulture and grain value chains. In the following sections, we will highlight the main changes that have taken place in the respective pathways per outcome area. We use performance-related evidence based on indicators as described in the programme logic. The effectiveness analysis emphasizes the degree to which our programme has contributed to the observed changes, assessing the opportunities and remaining gaps for ensuring sustainability of the observed changes, as well as providing a hint on the exit strategy for the respective pathways. We structure our analysis separately for horticulture and grain components due to differences in pathways of change.

### 2.1 Grains.

#### 2.1.1 A Structured Trading System Providing Efficient Services that Enable Smallholder Farmers to Benefit

##### Result/Outcome Indicators

Indicators		Baseline Jan/Feb 2018	Progress Dec 2018	Midterm Review Aug 2019	Progress Dec 2019	End Review Aug 2021
1	Average volume of quality food per farmer sold through collective action mechanisms (MT)	0	2MT	3MT	1.18MT	4MT
2	Average income (USD) of farmers per acre from quality food sales	0	USD 1,787	USD 2000	USD 1855	USD 3,000
3	Number of farmers receiving services through trading relationships	0	700	2,700	1,659	5,700
4	Number of farmers selling through long term trading agreements <sup>5</sup>	0	700	2,700	3028	5,700

<sup>5</sup> Long term is defined as an agreement for purchases at least one month in the future. This agreement may be for volumes only with price depending on market rates.

Results on these indicators were obtained from three clusters: Leki Tatu UWAMALE FBO in Arumeru district in Arusha region, Kivulini FBO in Mwanga district in Kilimanjaro region, and in Magugu, Babati district in Manyara Region.

In Magugu, farmers were able to sell their produce through the warehouses, equipped by milling facilities. This provides an idea of how collective action through Farmer Business Organisation (FBOs) owned facilities contribute to the sales of quality produce and better prices to the farmers. The average income per farmer per acre resulting from sales of the of quality food increased to USD 1855 from zero during the baseline, while the volume sold through collective mechanism increase from 0 during the baseline in 2017 to 1.18MT during the midterm review conducted in December 2019. Although we missed the midterm target regarding volumes sold through collective actions, good progress has been recorded especially due to the momentum which was created in 2019, when a local consultant and interns provided management backstopping to the FBOs. This gives us comfort that the target at the end of the project will be achieved. The total of 1,659 farmers receiving services through trading relationships is based on UWAMALE Farmer Business Organisation great achievement of providing services to its members, such as facilitating access to inputs credit and working capital from buyers and input providers. Furthermore, UWAMALE FBO is linked to Tanzania Agricultural Development Bank (TADB) where, through PASS Tanzania, they developed a business plan and secured a credit guarantee to access a loan to invest in upgrading their milling machines. In Kivulini and Magugu 3 FBO are receiving services like milling. In the pulses sector, the linkage between Export Trading Group (ETG) and FBO members was very successful. FBO accessed working capital particularly from the Tanzania Agricultural Development Bank to purchase produce from its members, tarpaulins and a weighing machine. Furthermore, farmers receive extension services (training on post-harvest management of crops and GAP) and FBO members get genuine input, such as fertilizers and pesticides at an affordable price from ETG. The members have held meetings to discuss and agree on the buying mechanism and entering a buying contract with ETG.

## Pathways of Change

Intervention		Output	Immediate outcome	Intermediate outcome	Ultimate outcome
1. <b>Enable Farmer Organisations to access structured trading systems</b>	CA	Support 8 FBOs to develop and implement business plans which enable access to better markets and services. Partner with EAGC on high potential FBOs (e.g. Uwamale) in order to prepare FBO for certification.	Support EAGC to research different institutional models for rice and pulses value chains which will enable greater access for farmers to structure trading systems.	Increased investment made in high potential FBOs.	Increased returns for smallholders from formal trading systems.
	EE	Support EAGC and Tanzania Pulses Network to assess different options for regulating pulses trade in Tanzania.	Research is produced and debated. Further research is likely to be required together with learning visits to other countries.	Political commitment is obtained for a regulatory system.	Regulatory system in place which enables traders to focus competition based on services rather than on price.
	EE	Support EAGC, SUA, AMDT, TIC and other stakeholders to conduct Investment Analysis to guide future investments in improving competitiveness and inclusiveness of rice and pulses value chains, e.g. mechanisation, processing.	Roundtable debates on investment options especially on processing. This would include IITA, IFDC, CIAT and Rice Millers Associations.	New investments are based on better information.	Public and private sector investment in sustainable and inclusive business models increases and has greater impact.
	IN	Support research to look at different business models in the grains and pulses sector.	Evidence developed and adaptation made to model. Further piloting.	Inclusive business models, such as farmer shareholding model, ready for expansion.	National and international recognition for innovative approach which influences other private sector traders to try new approaches for inclusive business.
	IN	Support private sector to develop models for inclusion of smallholder farmers. Support Lead Firm (Kilimo Markets) to develop shareholding model for Farmer Organisations. Pilot with up to 15 Farmer Marketing Associations.	Evidence developed and adaptation made to model. Further piloting.	Impact investment funds acquired for expansion of model and acquisition of processing capacity.	
	IN +E E	Partner with EAGC and CTA to host an ICT4Ag competition. Develop evidence from existing work on FARMIS and G-SOKO.	Pilot next generation ICT system which also support QMS implementation and linkages to emerging trading platforms e.g. commodity exchanges.	Scale up next generation of ICT products with strong partnerships - Private Sector, ICT providers, Banks, Mobile Phone Companies, etc.	Private sector led, sustainable System in place which enables significant numbers of smallholder farmers to access formal trading systems, including access to finance.
	IN	Work within SRP pilots (see section 3) to also pilot the Inclusive Business Principle of the SRP tool once it is developed.	Contribute to evidence base in Global SRP dialogues.	Improved SRP tool and increased commitment from East African Private Sector to use the tool.	Private sector has compelling business case to work with smallholders to integrate them into the trading systems.

## Main Findings

### ***Pathway 1: Strengthening Capacities for Collective Action***

Support 46 Farmer Business Organisations to develop and implement business plans which enable access to better markets and services. Through partnering with East Africa Grain Council (EAGC), we supported the FBOs to be able to adhere to the rice and pulses standards certifications which in turn would offer the opportunity for farmers to receive a differentiated price depending on quality. Tanzania Agriculture Research Institute (TARI) facilitated adoptions to the Quality Management Systems (QMS) in rice. This quality management protocol helps farmers to use inputs more efficiently (reduced production cost) and increases the quality of milled rice (higher profitability). Through the farmers' survey most farmers acknowledged that their paddy grain fill is far better and heavy and fetches a better price<sup>7</sup> compared the rice produced without following the quality management protocol. Also, our collaboration with Rice Council of Tanzania give us leverage to strengthen the collective action beyond FBOs and cluster level by forming rice platforms at district level. The preliminary consultations of forming these platforms in the three districts of Babati, Arumeru and Mwanza will be instrumental in terms of ensuring the sustainability including playing role in influencing policy dialogue to influence better business environment in the respective districts.

### ***Pathway 2: Supporting an Enabling Environment***

EAGC lobbied with policy makers to build a regulatory system for traders that does not only focus on price, but also on the services off-takers deliver to farmer groups.

In pulses sector the main concern has been to manage the effects of the export ban to India. EAGC engaged with relevant ministries in Tanzania and India, which finally led to lifting the export ban of pigeon peas by the Indian government. Furthermore, the introduction of pigeon peas purchases through online auctions TMX<sup>8</sup> was not favourable to buyers like ETG and it was not easy to enforce the produce quality from farmers. EAGC continued to engage with the government on how to make this system beneficial to both trading companies and farmers. The formation and legal registration of the Tanzania Pulses Network (TPN) is one important

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<sup>6</sup> Kivulini, UWAMALE, Mkombozi and Muugano

<sup>7</sup> Farmers sold a good quality rice up to TZS 1800 per kilogram and the one without good quality fetched TZS 1300 per kilogram

<sup>8</sup> TMX is the first commodity exchange in Tanzania established and committed to provide a world-class commodity exchange platform for market participants to trade in a wide spectrum of spot and future commodity contracts driven by best global practices, technology, professionalism and transparency. Tanzania Mercantile Exchange (TMX) is the first commodity exchange in Tanzania. The exchange is established to help farmers, traders, exporters and other various market actors access domestic and global market and obtain a fair price in selling or buying of commodities.



milestone, which was achieved in the grain sector as a way to have an institution that represents farmers and enterprises in the pulses sector. This was a result of the recommendations from the pulse sector diagnostic study, which was commissioned to Aidenvironment, that aimed to look for opportunities to enhance the governance of the sector. The formation of TPN aimed to enhance the capabilities of the Tanzanian pulses sector to align and coordinate its stakeholders, to collect revenues and re-invest them in the sector and to provide an enabling regulatory environment. This diagnostic was conducted in support of the Tanzanian Pulses Network (TPN), a loosely organized multi-stakeholder platform, hosted by the Eastern African Grain Council (EAGC). The focus of the diagnostic was on pigeon peas and chickpeas, and particularly the export to India. Many of the findings and recommendations are also applicable to other pulses. The study was also used to engage with the Tanzanian and Indian government, as already mentioned above.

Another business environment study which will cover broader aspects and other grains, is planned by EAGC in 2020 will come up with more concrete evidence to influence policy change during the remaining half of the implementation of the grain strategy.

### ***Pathway 3: Fostering Innovation***

The programme supported the Sustainable Rice Production (SRP) pilot in the Magugu cluster as a good business case for the farmers to adopt. This innovation's success can be in the interest of other development partners to scale up this practice to other rice producing areas. A new initiative was for example started in Iringa for with Kilimo Trust (KT) to implement SRP through a project called Iringa Mitigation Adaptation and Productivity for Climate Smart Agriculture (IMAP4CSA). Rikolto also entered a partnership with Rice Council of Tanzania (RCT) which paved the way to scale up SRP to the national level. This partnership led to our closer engagement with the Ministry of Agriculture and more influence on the development of the National Rice Development Strategy II (NRDS II) and its implementation framework. This engagement will continue during the remaining half of the implementation of the 5-year grain strategy to ensure that SRP is featuring in the implementation framework of the national rice strategy. The other part which we need to work on in the remaining half of the strategy's implementation, is to ensure that the SRP tool is adopted by the private sector due to the business case it present to work with smallholders to integrate them into the trading systems.

## 2.1.2 Flexible, Adaptable Approaches and Models for Farmers' Business Management Stimulating Smallholder Inclusion

### Outcome/Result Indicators

Indicators		Baseline Jan/Feb 2018	Dec 2018	Midterm Review Aug 2019	Dec 2020	End Review Aug 2021
1	Number of accredited BDS providers providing services to farmer groups	0	5	5	6	10
2	Number of farmer groups paying for BDS services	0	1	3	2	6
3	Number of FBOs that have improved their economic viability as measured on SCOPEinsight scale	2 at B2 1 at B3	Need assessment	4 at B3	3 at B2 2 at B1	6 at B5

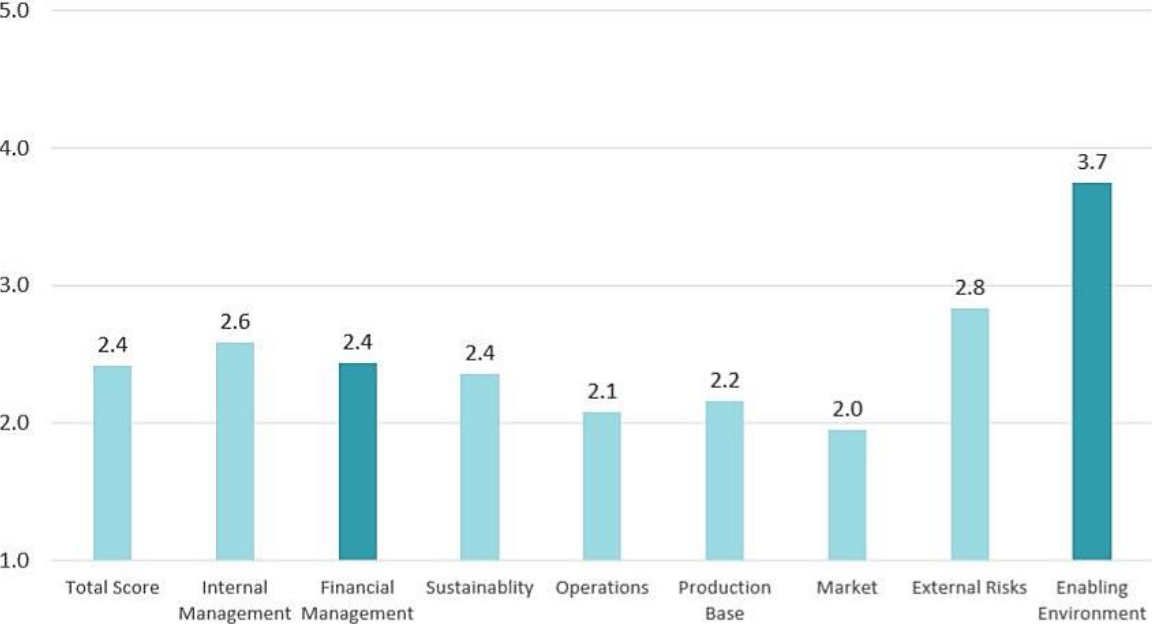
The MTR and routine data monitoring shows there are five BDS providers helping three farmer groups in the four clusters (UWAMALE, Magugu, Kivulini, Mgagao). Moshi Cooperative University (MoCU) attached three interns to three FBOs. Two local consultants are providing capacity building and coaching support. Tanzania Agricultural Research Institute (TARI) and Kilimanjaro Agricultural Training Centre (KATC) are providing agronomy services, which include supporting seed multiplication in Magugu and Kivulini cluster. For now, the SRP innovation is supported directly by Rikolto. We are engaging local government authorities, private buyers and institution like TARI and the ministry of agriculture to expand SRP standards to other areas. Due to business development services provided through the six BDS providers, the FBOs were able to be linked to various other services. In UWAMALE for example, farmers were linked to production input providers, access services to credit, Small Industries Development Organization (SIDO) for technical support in operating and maintenance of milling machines and Tanzania Bureau of Standards for the branding and standard certifications of rice. Another important business relation linkage through UWAMALE FBO which ensures financial sustainability, is the support from Private Sector Support Tanzania (PASS), which is assisting the FBO in the preparation of bankable business plan linkage to financial institution and credit guarantees. We will strengthen the partnership with PASS during the remaining implementation period of the 5-year strategy to ensure that the programme leverages PASS services to target more FBOs, including young men and women farmers and other service providers such as inputs.

Four SCOPEinsight assessments have been done. We have reduced the target of eight FBOs to work with only four BFOs to strengthen them in order to reach a higher level of professionalism at the end of the programme period. Currently SCOPEinsight scores for the FBOs are at B2 and B1 and we envisage a B4 score at the end of this programme. The 2019 SCOPEinsight basic

assessment showed FBOs scored highest in Enabling Environment (with a score of 3.7), while they scored lowest in Market indicators (with a score of 2). See the diagram below from the SCOPEinsight Report in September 2019.

## Average Scores of Assessed Organizations

*What are the average scores by dimension?*



On average, the 2019 Scope Basic assesseees in this project scored highest in Enabling Environment with a score of 3.7, while they scored lowest in Market with the score of 2

During the first half of the implementation of the 5-year strategic plan, the focus has been on the organisations’ skills development. However, we noted that FBOs strength cannot be addressed by one-off consultancy work, but rather through regular backstopping and coaching. Rikolto ensured through different ways that there is continuous coaching with FBOs. In this regard, we piloted a collaboration with Moshi Cooperative University (MoCU), which attaches interns to FBOs working along with local consultants and with backstopping from supervisors from the University. Also, we want to learn from ICRA’s 2-scale coaching model. In order to ensure scale up of the SCOPEinsight innovation at national level, we are initiating a collaboration with the Tanzania Cooperative Development Commission (TCDC).

## Pathways of Change

Intervention		Output	Immediate outcome	Intermediate outcome	Ultimate outcome
2. Support institution-alisation of new approaches for Farmer Business Organisation capacity development	IN + CA	Support EAGC and WRRB to conduct joint assessment visits to Northern Tanzania in order to support development of silos, aggregation centres and collection centres.	Pilot SCOPEinsight, EAGC collection centre training and other BDS tools Consider integration of SCOPEinsight into EAGC / WRRB warehouse certification / licensing process.	Pilot approach with Government buy-in and credible research partner. Produce evidence for policy dialogue.	Government Programme which enables FOs to obtain Private Sector BDS which includes incentive payments based on impact of capacity building. Expect lower capacity FOs to obtain BDS at subsidized cost
	IN + EE	Work with PASS Trust and others to develop pool of independent BDS providers with a focus on providing opportunities for rural youth.	Work with key BDS programs and donors to design sustainable and effective approach for strengthening BDS for FO capacity building.		
	IN + EE	Support EAGC, traders and Apex FBOs to develop BDS package for higher capacity FOs (PRO level).	Pilot and develop BDS package including outreach/marketing strategy.	Affordable BDS in place for EAGC and other Grain network members.	FBOs at PRO level can access high quality, accredited services.

## Main Findings

### **Pathway 1: Strengthening the Capacities of the Collective Action**

Although the SCOPEinsight average results do not provide a promising progress of FBO development on the short term, testimonies from the members of FBO themselves shows there is structural progress in terms of the FBOs' organizational development. We are hopeful this will lead to long-term system changes in the way these FBOs are managed. UWAMALE FBO for example hired a manager and for the first time in more than 10 years adhered to the national cooperative law. The organization was also audited by COASCO for the first time. The selected FBOs were all successful in linking members to services and markets. For example, Mgasao provides aggregation services to its members, Kivulini provides packaging service and marketing of rice, UWAMALE started working with PASS in linking farmers to inputs and credits, Gendi in linking its members to Tanzania Agricultural Development Bank (TADB) etc. It would be important to note that the average results of the SCOPEinsight assessment report include one

FBO which did not received organization capacity development support, which means the results from this FBO was a baseline for its capacity development plan implemented in 2020.

***Pathway 2: Supporting and Enabling Environment***

Furthermore, to address the issue of affordability of the business development services and to achieve larger scale impact, one of the measures was to explore various ways of accessing affordable BDS which will enable FBOs to get continuous support. We have initiated the partnership with the Moshi Cooperative University (MoCU) to implement the student internship attachment programme which will be beneficial to farmers business groups and MoCU to develop a more practical training curricula and to strengthen its outreach programme. The interns were attached in FBO providing management backstopping to the respective FBOs.

Furthermore, our active engagement with MoCU opened other opportunities to engage at national level where we have received the request from Tanzania Cooperative Development Commission (TCDC), the registrar office of the cooperatives within the Ministry of Agriculture, looking for opportunities to collaborate with Rikolto in developing tools to assess cooperative development in Tanzania. This collaboration with TCDC is expected to formalize during the 2020 implementation period. This is expected to be the main avenue to ensure adoption of the SCOPEinsight innovation at scale. The collaboration will also influence TCDC, as the institution mandated to nurture and regulate the cooperative, to have a more objective way to measure the progress of the cooperatives which provide a good basis to design an capacity development plans.

## 2.1.3 Market Systems for Grains Incentivizing Sustainable Production and Consumption of Safe Food

### Result/Outcome Indicators

Indicators		Baseline Jan/Feb 2018	Dec 2018	Midterm Review Aug 2019	Dec 2019	End Review Aug 2021
1	Number of market systems actors (FBO, traders) that have adopted safe food practices, standards or protocols	3	1	5	7	20
2	Number of people in Arusha City exposed to information and education campaigns regarding food safety	0	0	0	No information for now	0
3	Number of new initiatives undertaken by the safe food platforms to improve food safety in Arusha	0	0	0	3	0
4	Number of farmers adopting more effective soil and water management technologies and approaches	0	315	3,000	2,840	6,400

Five FBOs have been supported to develop Quality Management Systems (QMS) protocols. The support was in collaboration with the Tanzania Agriculture Research Institute (TARI - Ifakara) and the Kilimanjaro Agricultural Training Centre (KATC). The FBOs were supported to access market through seven different buyers who demand high quality produces. One of the five FBOs in Magugu with 1850 members was supported to pilot the Sustainable Rice Production (SRP) and SRP standard parameters were measured to provide the baseline and basis of support to improve the sustainability scores. Evidence from members participating in the SRP pilots showed that SRP standards practices present a good business case for farmers to adopt as it contributes to productivity including efficiency utilization of inputs and water in water stressed areas.

The Arusha Safe Food platform has done a number of sensitization meetings on food safety to important stakeholders. Based on the detailed food safety risk assessment for horticulture products, the campaigns will include all type of food safety issues. For the grains case, the main critical control point is the required level of moisture to reduce the risk of contamination like aflatoxin.

During the first half of the implementation of the five-year strategy, the focus has been on incentivizing buyers to pay premium for improved quality of farmers produce. The total of five FBO business organisations in Kivulini, UWAMALE and Magugu invested in grading rice which fetched different prices according to their grades by off-takers and final consumers. For instance, UWAMALE cooperative upgraded its milling machine which enables members to sell rice according to grades.

## Pathways of Change

Intervention	Output	Immediate outcome	Intermediate outcome	Ultimate outcome	
3. <i>Support additional investment in Sustainable Production and processing approaches</i>	IN + EE	Action Research with KATRIN on Quality Management Systems (QMS) in 2 FBOs (UWAMALE in 2017 and a Ugandan site in 2018). SRP piloting will be integrated.	Support KATRIN to produce evidence base of impact of QMS and engage in Public-Private Sector dialogue.  Provide evidence base of effectiveness of SRP tool to inform Global SRP and VECCO cluster.	Government and Private Sector stakeholders agree scale up process for QMS and SRI. This is likely to be through:  Requiring QMS to be used for all rice production through regulations issued by National Bureau of Standards.  Local Government regulations to define water stressed areas and require SRI in those areas. This will lead to changes in water permits as well.  Resourcing the Government extension system to support farmers to implement QMS and SRI where applicable.	System in place which enables significant numbers of smallholder farmers to deliver in line with EA grain standards  SRI implemented in all water stressed areas and rice production is sustainable.
	EE	Work with KATRIN as part of QMS work to demonstrate effectiveness of SRI in water stressed areas.	Multi-stakeholder dialogues to agree way of expanding SRI uptake in water stressed areas i.e. Pangani Basin.		
	IN + EE	Pilot VECCO sustainability tools. Include partnering with EAGC to pilot aflatoxin risk management approaches e.g. mobile testing.	Use learning to consider strategies for improving institutional approaches for measuring and improving sustainability.		
<p><i>*Strengthening partner capacities for collective action (CA), Supporting an enabling environment (EE), Fostering innovation (IN). Note that interventions focused on CA and EE can also have elements of IN (CA+IN or EE+IN), but never each other (not: CA+EE)</i></p> <p><i>*2017 focus is maize, beans and rice but this is likely to change to pulses and rice after March 2018</i></p>					

NOTE that KATRIN changed its name to TARI

## Main findings

### Pathway 1: Fostering Innovations

Through our partner TARI Ifakara we have piloted the QMS protocol in one of the clusters. The QMS manual was developed, translated into Kiswahili and shared with farmers members of UWAMALE Management and farmers' representatives which included leaders of irrigation scheme. Most farmers adopted the QMS model. However, we also learnt access to capital is crucial for farmers to effectively adopt the QMS protocol. Capital is needed for farmers to access to necessary inputs. Therefore, farmer groups were linked to BDS that can help access to finance.



Apart from this, in Kivulini TARI piloted and disseminated evidence of success in testing and validation of salt-tolerant rice varieties. Rikolto launched a first innovation with the Sustainable Rice Production (SRP) Support in Magugu. Magugu seed purification programmes helped to pilot innovations to support farmers to unlock the potential of niche-rice markets for local consumption. All these pilots presented a good business case for adoption where different stakeholders from private and public sector were able to see their roles in supporting the scaling up of the innovations tested in the three clusters.

Farmers appreciated the QMS technology in terms of enhanced productivity and quality of produce. Amongst the technology impressers were: Small quantity of seeds (3.5kgs/acre), age of seedling (8-14 days), spacing (25 cmx25 cm), and timely and correct fertilizer rates (120kgN/ha). Farmers have been using large quantities of seeds (30-45kg/acre), old seedlings (25-40days), spacing of (10cmx10 cm or less) and high amount of fertilizer (160-200kgN/ha). All these practices increased unnecessary cost to the farmer and lower the quality of grain harvested. Farmers estimated yield from Ms Mayasa's field at 10t/ha (40-45 bags/acre, each bag weighing 100kg).

### ***Pathway 2: Supporting and Enabling Environment***

These innovations will be scaled up at national level through engagement with Rice Council of Tanzania and the Ministry of Agriculture in the development and implementation of the National Rice Development Strategy (NRDS II). Our partner TARI reported that thirteen demonstration plots were established and managed by farmers and 73% of the farmers have adopted SRP and QMS techniques successfully and achieve quality rice production. The challenge of adoption by the remaining farmers was due to factors such as inadequate capital to buy inputs like seeds and fertilizers on time and poor irrigation infrastructure.

#### **2.1.4 Exit and Sustainability Strategy - Grains**

This section explains how we intend to prepare our grains exit strategy, in order to make sure our interventions have a sustainable impact after the end of the current 2017-2021 programme cycle. This action plan for withdrawal will be executed without compromising quality and continuity of the set goal and or objectives. The aim is not to lose what has been achieved already during the implementation of the 5-year grain strategy, while ensuring that the unfinished components are achieved within the envisaged time frame by the end of 2021.

##### **1. With regards to Rikolto's interventions to strengthen FBO internal capacity**

The programme will continue to **invest in developing the management capabilities of the Farmer Business Organizations (FBOs)**. These farmer groups need to become strong and **independent in negotiating business deals with off-takers**. The ongoing capacity building through local consultants and the intern attachment with technical backstopping from Moshi Cooperative University (MoCU) will ensure the required level of management capabilities of these FBOs is reached by the end of 2021.

Through the midterm evaluation we realized that, unfortunately, the commercial Tanzanian market is not mature enough to sell these services to farmer groups once Rikolto steps out. It seems unrealistic to think that all farmer groups will be able to pay for management training and coaching services after Rikolto's interventions. Our partnership with MoCU and the in-kind internship detachment model gives us comfort that these services will continue beyond 2021 since MoCU also has interest to use FBO not only as training ground of its graduates but also to fulfil their mission of providing education to the cooperatives in Tanzania through its outreach programme. **Rikolto in Tanzania will continue to strengthen the collaboration with MoCU during the remaining period of the implementation of the five-year strategy to influence the in-kind internship detachment model in the university training curriculum.**

Parallel to this strategy, Rikolto will intensify its partnership relations with local consultants to provide management support to the FBOs. **By bringing these consultants in the picture (instead of Rikolto staff) we ensure that FBOs already get in contact with those market actors that can help them in case they would be able to pay for their services.** These consultants providing technical support to FBOs will also be linked with the district Cooperative Officer. This government actor is legally mandated to provide the management oversight of the operation of these FBOs/Cooperatives in the respective districts.

One of the tools used to develop the capacity of the FBOs is **SCOPEinsight**. This assessment tool forms the basis of all capacity developments plan with the five FBOs that are currently supported under the DGD programme. It helps FBOs to professionalize agribusinesses at scale through a unique, data-driven, five-step approach. Rikolto has been subsidizing the cost of the training of assessors and the cost of the assessments itself. **As our partners have seen the added value of this assessment tool, we assume local consultants, MoCU and local government cooperative departments will appreciate the tool and institutionalize it.** This will ensure the adoption of the use of the tool.

To ensure adoption of SCOPEinsight and the sustainability of our capacity-building efforts, **Rikolto initiated a partnership with the Government through the Tanzania Cooperative Development Commission (TCDC) in Dodoma.** This is the national government body responsible for regulating the management of cooperatives in Tanzania. In 2019 the partnership between TCDC and Rikolto was formalized, and in the coming years we will continue efforts to integrate SCOPEinsight tool as part of TCDCs toolkit.

## **2. With regards to the promotion of rice quality standards**

Rikolto promotes the global Sustainable Rice Production (SRP) standard and implements a Quality Management System (QMS). We have invested many efforts in our collaboration with Tanzania Agriculture Research Institute (TARI) Ifakara centre, Kilimanjaro Agriculture Training Centre (KATC), Rice Council of Tanzania (RCT) and Local Government DAICO offices. **This gives us comfort that the innovations around SRP and QMS will be adopted by these institutions:** After 2021, TARI Ifakara (a Centre for rice excellence in Eastern and Central Africa) will ensure the innovation around SRP and QMS reaches scale through mobilization of resources from other development partners. KATC will continue to implement SRP and QMS in Northern Tanzania by ensuring access to quality seeds for farmers in the three rice production clusters supported. This is possible in collaboration with LGA's DAICO office in the respective districts, which are mandated to provide public extension services.

**Furthermore, our collaboration with the RCT and the Ministry of Agriculture ensures the adoption of the SRP and QMS innovation by national stakeholders including the adoption in the National Rice Development Strategy II (NRDS II).** It is worth mentioning that through these collaborations Rikolto has secured a seat in the national Task Force for the NRDS II implementation. The partnership with these public and private institutions will continue to be fostered during the remaining implementation period of the five-year development strategy. It is important to note that our work on rice has not been targeting the main rice producing areas which makes the scalability of the innovation a challenge, we will therefore use the remaining implementation time of the 5 year strategy to **explore the opportunity of scaling the innovation in the main rice producing areas in the Southern Highlands.** In 2019, we started an SRP pilot in Iringa in collaboration with Kilimo Trust to implement a project called Iringa Mitigation, Adaptation and Productivity for Climate Smart Agriculture (IMAP4CSA).

## **3. With regards to support of pulses trade in Tanzania**

Through our main partner East-Africa Grain Council, we have adopted the lead firm model in Manyara region. EAGC coordinated partnerships with private sector companies/off-takers and farmer group MVIWATA Manyara and engaged with Tanzania Chamber of Commerce Industries and Agriculture (TCCIA). The pilot phase of this pulses trade programme ended in September 2019 and has generated lessons from the lead firm model for the design of the main phase.

An important lesson is linked to the partnership engagement with EAGC and its spin-off partner Tanzania Pulses Network. We asked these apex organisations to execute a lead firm programme with some of their members and we learnt this is not their core competence. Therefore, we have decided to scale down all project management interventions in the coming programme period. Companies join EAGC and TPN as they want them to tackle business environment problems that limit them in their business development. In the coming period, we will **ensure that our engagement with EAGC and TPN focuses more on the strengthening the organizations' capacity to tackle these business environment problems.** This is the area where sustainable results can be booked, also after Rikolto's exit, not on project execution.

We will engage directly with SMEs/off-takers to strengthen their capacity in the programme execution. Therefore, Export Trading Group (ETG) and Nafaka Halisi Tanzania have become two new partners in 2020. Rikolto hopes to strengthen their capacity to engage with farmers groups in provision of the extension service and post-harvest handling services. This includes helping farmers to access quality seeds required by the market. The programme also works with Crop Bioscience Limited to develop a sustainable seed system for common beans by working with women and youth brock farms. These women and youth are facilitated to produce Quality Declared Seeds (QDS) which will ensure access of quality seeds by farmers at affordable rate. Crop Bioscience is working closely with agriculture research centres namely Serian in Arusha and Maruku in Kagera. This arrangement of **working with key public and private actors in pulses business ecosystem give us comfort that our investment and innovation will be taken adopted and institutionalized by these actors.**

Rikolto's work on market faciliation in pulses in Manyara, funded through DGD, attracted a lot of interested from a multi-donor fund called Agricultural Markets Development Trust (AMDT). Due to institutional challenges within AMDT the funding of a new programme that will scale up learnings gathered through DGD's intervention has been delayed for the moment. We are confident these challenges will be resolved by the end of the 2017-2021 programme cycle.

## 2.2 Horticulture

### 2.2.1 A Structured Trading System Providing Efficient Services That Enable Smallholder Farmers to Benefit

#### Result/Outcome Indicators

Indicators	Baseline Jan/Feb 2018	Dec 2018	Midterm Review Aug 2019	Dec 2019	End Review Aug 2021
1 Average volume of quality food per farmer sold through collective action mechanisms (MT)	0	1MT	3MT	1.16MT	6MT
2 Average income (USD) of farmers per ha from quality food sales	0	1,863	3,000	2003	4,000
3 Number of farmers receiving services through trading relationships	0	675	800	528	1,500
4 Number of farmers selling through long term trading agreements <sup>9</sup>	0	675	800	1054	1,500

During the Midterm review the average sales of quality produce per farmer sold through collective marketing increased to 1.16MT from 0 during the baseline in January 2018. Members sales records from Mivikiho FBO shows that members sold 120MT in 2018 and 350 MT in 2019 to exporters through the global GAP certifications respectively at average price of TSH 1,500/kg. In 2018, the sales were 600MT at the domestic market at a price of TSH 500/kg, while in the 2019, the sales at the domestic market were 450MT at price of TSH 700/kg. This confirms that the export market with stringent condition offers a higher price compared to the domestic market. However, the volume sold is low due to stringent conditions vis-à-vis the capacity of farmers to comply.

From the farmers survey data, the average income (USD) of farmers per ha from quality food sales is USD 2003 slightly higher than the baseline, but a bit below the midterm review target. In 2018, Muvikiho farmers in Arumeru were linked to buyers like Frigoken, Serengeti Fresh and Homeveg. In 2019, two new buyers joined, which include Meru Green and BECL Company Limited which created a price competition offered by buyers.

The business environment was a bit shaken in 2018 and 2019 when farmers engaged in the global GAP certifications were forced to explore the alternative in the local market including local kiosk and supermarkets. Specifically, the government banned the export of unprocessed vegetables which was initially exported to Kenya packhouses for export to Europe. The

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<sup>9</sup> Long term is defined as an agreement for purchases at least one month in the future. This agreement may be for volumes only with price depending on market rates.

government had good intention of promoting the investment of packhouses in the country. However, the in-country value addition processing capacity was not ready and as a result farmers lost the market for their produce meant for export. Through TAHA, farmers successfully engaged in the dialogue with the government to lift the ban until the domestic processing capacity is fully developed.

## Pathways of Change

Intervention		Output	Immediate outcome	Intermediate outcome	Ultimate outcome
1. Enable Farmer Business Organisations (FBOs) to access structured trading systems	EE + IN	Support TAHA to develop Investment profiles with a specific focus on women and youth to guide future investments in FBOs and value chains.	Investments profiles are shared with financial institutions and investors  Roundtable debates on investment options and opportunities for engaging youth and women in lucrative VCs.	Improved access to investments by FBOs and private sector.  Partners design and implement initiatives to increase youth participation in vegetable production. Partners designs and implements actions to promote gender equity.	Increase in volume and quality of sustainable food produced and traded.  Increase in the number of youth and women engaging in quality food markets.
	IN + CA	Support FBOS and TAHA to pilot inclusive business models which enable access to formal and informal /wholesale markets. Target is to work with at least 4 FBOs.	FBOS organize their resources and systems to focus on structuring trade of horticulture produce  Research, documentation of the inclusive practices influence change in practices and encourage further investments.	Adoption of inclusive models enable more farmers to receive services through value chain relationships  Increased investment made in high potential FBOs for structured trading in modern, wholesale and retail markets.	Increased sales and profits for FBOs and farmers from sales of quality food.  Affordable BDS in place for FBOs and other value chain actors.
	IN + EE	Support TAHA to work with ICT providers and innovators to enhance and expand the ICT systems for market information sharing, trading and accessing services.	Pilot and/or scale up next generation of ICT products with strong partnerships - Private Sector, ICT providers, Banks, Mobile Phone Companies, etc.	Private sector led, sustainable System in place which enables significant numbers of smallholder farmers to access formal trading systems, including access to finance.	

### ***Pathway 1: Strengthening Partner Capacities for Collective Action***

The main result during the first half of the implementation of the 5-year strategy is an inclusive business model pilot in which horticulture farmers were supported through their FBO to benefit from more structured and mutually fair trading relationship with off-takers. Support to Muvikiho

for instance strengthened their business relationship with off-takers demanding global GAP certified horticulture products for niche markets. Rikolto also supported the linkage between Arusha urban consumers and farmers producing safe vegetables around Arusha city. In this regard, Rikolto, together with partners, introduced a consumer campaign for safe vegetables using the Kiosk Model as a communication tool for food safety issues. In order to strengthen domestic sales, Rikolto also entered an MoU with a company called East Africa Fruits Limited to sell safe vegetables and fruits in Dar es Salaam city markets.

During the first half of the 5-year strategy’s implementation, TAHA and Rikolto have supported Muvikiho to enter into business agreements with five companies: BECL Company for the supply of green beans, Serengeti Fresh, Frigoken, Homeveg and East Africa Fruits. Some of the companies like BECL company already have distributed green beans seeds to targeted growers in Arumeru. TAHA supported farmers on contract management, negotiation skills and brokerage capacities, which strengthened the farmer’s position in contract formulation with off-takers.

With regards to youth and women targets, Rikolto worked with TAHA to mobilize a group of graduates from Sokoine University of Agriculture to support them in establishment and operationalization of a commercial nursery. This model is tested in one of the programme clusters (Arumeru) and expected to be scaled during the second half of the implementation of the five-year strategy. In addition, Rikolto has been looking for various opportunities to better target youth and women, which will result in the launch of a food incubator in 2020.

### 2.2.2 Flexible, Adaptable Approaches and Models for Farmers’ Business Management Stimulating Smallholder Inclusion

#### Result/Outcome Indicators

Indicators		Baseline Jan/Feb 2018	Dec 2018	Midterm Review Aug 2019	Dec 2019	End Review Aug 2021
1	Number of accredited BDS providers providing services to farmer groups	2	3	5	4	10
2	Number of farmer groups paying for BDS services	0	1	2	1	4
3	Number of FBOs that have improved their economic viability as measured on SCOPEinsight scale	1 at B1 1 at B3	Need survey	2 at B3	1 at B3	2 at B5 2 at PRO 1

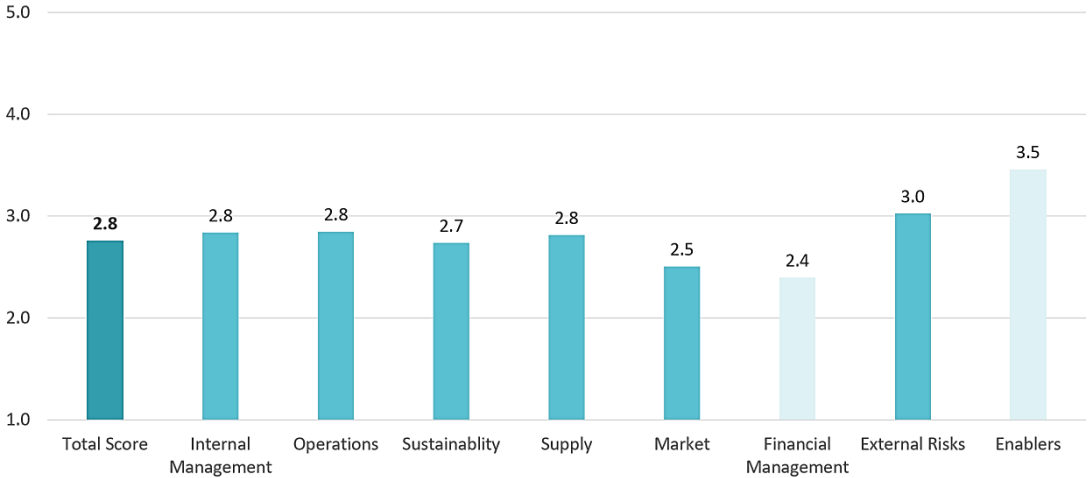
There are four BDS providers providing services to the 1,054 horticulture farmers. The four BDS providers include KiliCert for organizational skills and certifications, Agritech providing internal



auditing services of Global GAP, and National Micro financing Bank and Equity Bank providing financial services and Control Union providing an external audit service.

The services offered by the local consultancy firms and auditing companies are of high quality but are still subsidized by the programme funds. Muvikiho’s support services to farmers, including agronomist support, are generally self-financed, apart from the Global GAP certification costs which are planned to be self-financing by end of 2019. In addition, TAHA is establishing a department which will offer auditing and quality certifications to farmers.

The capacity development of FBOs was measured using of the SCOPEinsight assessment scores in early 2018 forming a baseline and towards the end of 2019 measuring the extent to which capacity development interventions contributed towards strengthening the farmer business organizations. Generally, there is positive improvement in the management capacity of the FBO resulting from the programme interventions: The graph below showing the SCOPEinsight scores for Muvikiho.



On average, the assesseees in this project scored highest in Enablers with a score of 3.5, while they scored lowest in Financial Management with the score of 2.4

From the SCOPEinsight report, there is considerable improvement on the eight parameters of measurement: Overall score improved from 2.8 to 3.1. Muvikiho scoring highest in external risk management, and policy engagement to address enabling environment and relationship with stakeholders. Also, there is positive improvement in terms of facilitating market access to its members and good financial management.

## Pathways of Change

Intervention		Output	Immediate outcome	Intermediate outcome	Ultimate outcome
2. Support institutionalization of new approaches for FBO capacity development	EE & IN	Work with key BDS initiatives (e.g. PASS Trust, Contract farming) to design sustainable and effective approach for strengthening BDS for FBOs.	Learning is documented and used to further refine the tools including adaption to suit local condition both local and export markets.	Tools are widely available to BDS providers and integrated into key BDS programmes.	Increase in volume and quality of sustainable food produced and traded.  Increase in the number of youth and women engaging in quality food markets.
	EE & IN	Support development and facilitate access to a pool of independent BDS providers with a focus on providing opportunities for rural youth.	Roundtable debates on various management models of small holder farmers' business organization e.g. management contract among others.	Local BDS provider and FBOs have engagements and contracts to strengthen the FBOs capacities.	Increased sales and profits for FBOs and farmers from sales of quality food.
	CA & IN	Support development of commercially viable and sustainable management models for farmers' business organizations including piloting of innovative models.	Piloted models and learning.	Roll out of models with BDS providers.	Affordable BDS in place for FBOs and other value chain actors.

## Main findings

### ***Pathway 1: Strengthening Partner Capacities for Collective Action***

The main question which we have been addressing during the first half of the implementation of the 5-year strategy, is how provide farmer business organizations and its members with access to business development services in a sustainable and affordable way. This was done along with the strengthening the Farmer Business Organizations (FBOs) as the main vehicle for farmers to access business development services in a sustainable way. FBOs have been instrumental for farmers to access various services such as global GAP certification, pre-grading facilities and marketing services. For the case of Muvikiho, farmers were able to get global GAP certification, while initially internal auditing services were highly subsidized by Rikolto project funds. As part of the strategy to address issue of sustainability, TAHA has established an auditing

unit and there was also one more Tanzanian company created as a result from Rikolto’s global GAP certification pilot. Due to Rikolto investments to improve food quality and standards working in partnership with TAHA, TAHA has now recognized the importance of quality and standards by setting up a TAHA quality and standard department. This will increase the accessibility of these services to farmers.

### **Pathway 2: Fostering Innovations**

Rikolto fostered innovation through the new iCRA coaching approach. Although it is too early to judge the effectiveness of the iCRA approach, the initial engagement showed a more structured relationship between agribusiness service providers like East West Seeds and East Africa Fruits, and other actors in the ecosystem like nursery service providers. The local coach has been very instrumental in linking farmers to market in line with the iCRA approach.

The SCOPEinsight assessment, which was done during MTR, showed significant score improvements related to strengthening of internal management and finances; marketing support and networking with other organizations (including enablers).

## **2.2.3 Market Systems for Horticulture Incentivizing Sustainable Production and Consumption of Safe Food**

### **Result/Outcome Indicators**

Indicators		Baseline Jan/Feb 2018	Dec 2018	Midterm Review Aug 2019	Dec 2019	End Review Aug 2021
1	Number of market systems actors (FBO, traders) that have adopted safe food practices, standards or protocols	3	3 <sup>10</sup>	5	6 <sup>11</sup>	10
2	Number of people in Arusha City exposed to information and education campaigns regarding food safety	0	0	10,000	Waiting for data	20,000
3	Number of new initiatives undertaken by the safe food platforms to improve food safety in Arusha	0	1	3	3	5
4	Number of farmers adopting more effective soil and water management technologies and approaches	0	570	1,000	880	1,600

The adoption of Quality Management Standards (QMS) through the Global GAP protocol provides assurance of farmers to access the export market as well as high end domestic markets. Although it is challenging for a large segment of the local market to pay a premium price for

<sup>10</sup> Frigoken, Serengent Fresh and Muvikiho

<sup>11</sup> Frigoken, Serengeti Fresh, Muvikiho, BECL, Kibo Seed and TAHA

safe food, horticulture farmers with global GAP certifications still have a larger chance to penetrate higher paying supermarkets and hotel markets. Also, food risks and safety campaigns in the urban in Arusha city will contribute to the demand of high quality horticulture products.

The Arusha Safe Food Initiative was launched in 2018 and later that year a Food Smart City Initiative followed. Food safety has been at the centre of this initiative and the focus has been on collecting evidence on the level of food safety to develop our consumer sensitization campaigns through the Kiosk model. As part of collecting evidences, the Tropical Pesticide Research Institute (TPRI) did a food risk assessment where 600 fruit and vegetable samples were collected from different markets. The results were shocking: 63% of all samples had biological contaminates, 47.5% of all fruits sold and consumed in Arusha contained high pesticide residuals.

According to the survey which was conducted in September 2019 which investigated consumers preferences when purchasing Fresh Fruits Vegetables (FFV), most people had special attention to the environment where they would buy them. Almost equally important in the consumers' purchasing decision is the condition of the FFV. Further determinants of purchasing behaviour are preference and the price. Nutrient value, branding and perishability seemed less important.

Towards the end of 2019, Arusha food safety initiative had gained support and visibility from many food stakeholders. For example, Arusha City Council has established a horticulture irrigation project worth 180,000,000TZS to support youth and women groups producing fresh fruits and vegetables. Also, AgriProFocus Tanzania has invested 20,000 Euro to support the roll out of Food Kiosks in Arusha for the supply of quality, healthy and safe food. World Vegetable Centre in Arusha is also organizing food system workshop called Diversifying Food system through Indigenous Vegetables. All these initiatives are complementing the established Food Safety Initiative in Arusha.

We have recorded three initiatives for which it is too early to assess their impact. We did however observe that the Tanzania Food and Drugs Authority (TFDA)<sup>12</sup> recently ran a campaign to fine businesses with expired food. Our work will continue, including the piloting of a safe food kiosk model to address the issue of consumer perception and knowledge. It is also noted

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<sup>12</sup> The food depart from this organization is recently moved to Tanzania Bureau of Standard (TBS) forming a new organization Tanzania Medical and Drugs Authority (TMDA)

that farmers from neighbouring regions Kilimanjaro, Tanga and Manyara showed interest to adopt farming and marketing practices on food safety.

In 2019, Rikolto scaled up its interventions in the horticulture subsector, emphasising the adoption of efficient and environmentally friendly farming practices. Demonstrations plots were established to build evidence on the efficiency of the use solar powered irrigation systems, contributing to green energy. Rikolto continues to support the adoption of this technology by more farmers during the 2020 implementation period.

### ***Pathway 1: Supporting Enabling Environment***

TAHA continued to build the capacity of FBOs on Compliance and Food Safety practices in Arumeru and Pangani cluster. This included capacity building of farmers on safe use of pesticides and agro-chemicals. This intervention by TAHA facilitates compliance on global GAP certifications and significantly improved the environmental sustainability scores. As a result, TAHA has developed an Integrated Pest Management (IPM) protocol and Pesticides Policy to guide extension officers during farmer trainings on how to comply with pesticides regulation in the country.

TAHA took the driver's seat in facilitating the Food Smart City and Safe Food dialogues. A Partnership Framework Agreement was created between Rikolto, TAHA, and Tropical Pesticide Research Institute (TPRI) on wider collaborations, especially on research and capacity building initiatives. As noted above, TPRI did a food risk assessment where 600 samples were collected where 63% of all samples had biological contaminants, 47.5% of all fruits sold and consumed in Arusha contained high pesticide residuals, which will be used to sensitize consumers, producers and other stakeholders in food systems through the pilot Kiosk initiative. The food safety steering committee led by TAHA has successfully rolled out the Kiosk Model pilot and devised a communication strategy that will be actioned in the 2020 workplan.

## Pathways of Change

Intervention		Output	Immediate outcome	Intermediate outcome	Ultimate outcome
3.Support additional investment in Sustainable Production and Processing approaches	EE	Support TAHA and the City of Arusha convene stakeholder forums on standards and Food Safety.	Economic, financial health and business sectors engaged in the safe FFV agenda and convened into Arusha safe horticulture food platform.	A plan of action provide coherence in safe horticulture strategy in Arusha City.	Enhanced public and private sector investment in production, trading and education on safe FFV production.
	EE & IN				
	CA	TAHA and key stakeholder carry out assessment of gaps in the existing National horticulture standards and regulations.	Support TAHA to lead and participate to development and legislation of a National Horticulture Industry Guide.	Institutionalization and legislation of the Guide for Horticulture sector.	
	EE				
		Support FOs to piloting of GAPs or PGA systems with farmer organizations.			
	EE	TAHA and City of Arusha lead in scientific based assessment of the food safety risks along the horticulture supply chains to Arusha.	Risk analysis applied consistently to obtain open, transparent, documented evidence using the scientific data.	Outcome the risk analysis clarifies the main risks and issues and their effects on economic and health impacts on citizen of Arusha and its environs.	Knowledge about the risk and its effect influence food safety culture change and practices.
	EE		Communication strategy is designed to communicate the risk to different stakeholders interested and affected by food safety risks identified.	Stakeholders, producers, traders, policy makers consumers are informed on the risks and control measures necessary to control or manage the risks.	Investments in production, trading and consumption of safe FFV.
	IN & CA		Control measures identified and communicated to all concerned.	Different stakeholders undertake risk control or management measures.	Control measures promote production good environmental, production food handling and consumption practices.
	CA	Assessment of the environmental sustainability gaps horticulture clusters.	Facilitate for FBOs, stakeholders to be able to adopt, support and invest in practice, protocols, and systems that address the gaps and enhance environment sustainability.	farmers adopt sustainable environmental practices and technologies.	Increased production of safe and sustainable food.
	EE		TAHA and Rikolto support development of financial services models to support access to irrigation technologies.	appropriate models identified and promoted to increase investments.	Access to technologies that support sustainable irrigation.

## ***Pathway 2: Fostering the Innovations***

TAHA, Rikolto and social enterprise Simusolar piloted a financial services model to support access to solar powered efficient irrigation technologies through demonstration. Six demonstration plots were installed in the Arumeru, Msitu wa Tembo and Mwanga clusters to showcase the effectiveness of the use solar powered pumps and efficient drip irrigation system to increase productivity and mitigate climate change. This initiative will continue to be assessed and scaled up during the remaining half of the implementation of the five-year strategy. The lessons from the pilots will be fed into two groups to which Rikolto belongs: the World Bank led initiative 2030 Water Resource Group (2030 WRG) and Kilimanjaro Water Stewardship Programme (KWSP).

The Kiosk model is a major innovation invented by the food safety steering committee, where a Technical Working Group (TWG) for the Kiosk Model Pilot has been constituted, consisting of AgriProFocus as a lead partner, TAHA, Rikolto, TRIAS and Solidaridad. This TWG will oversee the food safety campaign through Kiosks. It is worth noting that other strategic partners who are part of the steering committee committed financial resources to implement the food safety initiative. Solidaridad for example committed resources to produce the local horticulture standards which is awaiting to be gazetted by the respective authority and also AgriProFocus has contributed to the financing of the Kiosks.

### **2.2.4 Exit and Sustainability Strategy - Horticulture**

This section explains how Rikolto Tanzania prepares for a sustainable exit that assures the impact of our interventions after the programme activities have ended.

#### **1. Shift focus from export-only to local food strategies**

The horticulture programme facilitates a structured trading system between off-takers and farmers in Arumeru and Pangani production clusters. First, efforts were primarily geared towards supporting the farmers to produce high quality horticulture produce focusing on the European export market. During the first half of our programme, there are a lot of successes in building the capacity of FBOs in this market segment. However, **lessons from the implementation revealed that export-oriented interventions only target very few producers who are capable to adopt a very stringent global GAP quality requirements for the export market.** For most farmers, the gap between their current unsustainable and unhealthy production practices for domestic sales and quality requirements for export is too big. **We identified an opportunity to support producers to improve quality and consistency in**

**production by serving domestic markets.** We consider these interventions crucial to gradually help the majority of farmers in Northern Tanzania improve agricultural practices. Secondly, **this focus allows us to tackle the huge food safety challenges that limit urban consumers in Arusha to access quality fruit and vegetables.** Therefore, we have reoriented our ambitions by initiating a partnership that aims to address local urban food systems with the Arusha Council, leveraging DGD and other partner resources into a Food Smart City programme.

During the second half of the implementation of the five-year horticulture strategy, we will continue our efforts to structure trading relationship between export and farmers. However, we will add an extra layer by focusing on how to increase the local demand of healthy nutritional and sustainable food by urban consumers.

## **2. Stimulate the Development of Commercial Business Development Services**

Our partnership with TAHA continues to support farmers to access services, such as contract arbitration services and quality certification services. More and more, we want to stimulate TAHA and other service providers to build internal capacity to develop these series in a commercial model. Previously certification, auditing and contract arbitration services were only offered by Kenyan companies which made them expensive and unaffordable to farmers, making grant subsidy inevitable. However, it is good noting that **TAHA took steps to institutionalize this service by creating an internal quality and standard department which will provide certification and inspection services to farmers at affordable costs.**

Furthermore, the focus during the second half of the implementation of the five-year strategy will be to build the capacity of TAHA and other national companies or farmer cooperatives to mobilize financial resources for certification services. This will go hand in hand with **presenting a business case to exporting companies to be able to cover part of the certification services.**

In order to target more producers and consumers in the second half of the implementation of the five-year strategy, Rikolto also will strengthen the partnership with companies which are targeting local markets like East Africa Fruits. The partnership will seek to influence their sourcing practices, including assisting these companies in developing an ICT based farmers database which will profile farmers and link the farmers to services such as finance and extension service. We will continue the efforts to **link up with local ICT companies with good innovations** in this aspect, especially in reaching out farmers who are less organized compared to those who are engaged in export market. In addition, following the lessons that the companies also they have their own constraints such as access to affordable working capital,



Rikolto will also set aside resources to assist these companies to access social impact investment.

In terms of facilitating access to affordable and sustainable business development services, Rikolto in Tanzania entered **partnership with iCRA to pilot the local coaching model**. We tested the local coach model by deploying six coaches in Misitu wa Tembo horticulture production cluster to work with farmers business groups to link farmers to BDS services and off-takers in the ecosystem. A lot of lessons from this partnership will be applied in the second half of the implementation of the five-year horticulture strategy. Most importantly, we learnt **the importance to link off-takers/buyers more structurally to companies providing business development services like quality seeds**. Rikolto will strengthen private partnerships with input providers like RijkZwaan, East West Seeds will nurture commercial nursery agribusinesses through collaboration with PASS who will provide business technical support in business start-ups. This will include linking them to financing and credit guarantee schemes.

We will continue with the strategy to support farmers to access efficient irrigation technologies. The irrigation financing pilot aims to build the production capacity of famers by ensuring **access to efficient and environmentally friendly irrigation systems such as solar powered pumps supplied by Simusolar and manual pumps supplied by Kickstart**. The programme will continue to support the demonstration of the two types of pumps to present the business case to farmers and financiers to invest in the system. Lessons from these demonstrations will feed into a world bank initiative Water Resource Group 2030 (WRG 2030) and Kilimanjaro Water Stewardship Platform (KWSP). On the financing aspect, Rikolto will continue to work with PASS to facilitate access to finance from financial Institutions including the Tanzania Agriculture Development Bank (TADB).

### **3. Sustainable Business Plan for our Flagship Programme: Food Smart City Arusha**

In the second half of the implementation, Rikolto will also strengthen the aspect of sustainable local production and consumption by rolling out its flagship programme Food Smart City (FSC) in Arusha. The focus of this programme was very much centered 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.

In the second half of the programme, **Rikolto will focus more on development of sustainable business models that help farmers and consumers to access nutritious and quality**

**horticulture produce at a decent price.** We plan to pilot the Participatory Guarantee System (PGS).

To enhance the sustainability Rikolto will continue to work with other partners in the FSC platform to implement components of the food safety programme. We hope AgriProFocus will support our exit strategy by taking up leadership on communication consumer campaigns through its Kiosk Model; Solidaridad by focusing on food safety standards work; TRIAS to lead in infrastructure investments; TAHA to continue offering a secretariat for the steering committee after our first interventions; Tropical Pesticide Research Institute (TPRI) and Nelson Mandela African Institution of Science and Technology (NMAIST) focusing food safety risk analysis; And Arusha City Council being the key stakeholder on designing and implementation of various food policies. **Each partner will not only provide technical resources in the food safety consortia but will also avail financial resources to implement various activities. The FSC Arusha will continue to be a flagship programme even beyond 2021.**

The arrangement of the partnership and the approach mention above gives us comfort that by the end of 2021, the programme will achieve its intended results and the objectives in a sustainable manner. We have already gotten positive signals by seeing the crowding effects in different innovations we are piloting, as we see actors from public and private sector are joining the initiative in the target areas or scaling up to the new areas. It is worth mentioning that the horticulture programme covering 5 regions in the Southern Highlands of Tanzania and the Food Smart City Project in Mbeya city, both financed by European Union, are results of the success story in supporting the horticulture programme in Northern Tanzania. This means the horticulture programme and Food Smart City Project will continue to be a flagships programme during the remaining period of the implementation of the 5-year horticulture programme and the new strategy starting in 2021.

### 3. RELEVANCE ANALYSIS

This section highlights the linkage between the main interventions implemented by this programme in the last three years and the changes we observed at the level of beneficiaries engaged in grains and horticulture crops through the farmer survey and other sources. In so doing, the section attempts to validate the extent to which the programme interventions have been relevant to the improvement of beneficiaries' lives. Using relevant indicators for each of the three pathways of the theory of change, the section **assesses how the observed changes in the beneficiary situation**, as assessed by the farmer survey and other sources, **are in line with the programme's targeted values for the respective indicators**. Once again, for consistency in our analysis, we follow each programme outcome individually.

In addition, the review team acknowledges that, besides the DGD programme, a number of other factors could have been instrumental in influencing the results observed in the farmer survey or other sources of data. Therefore, this section also **explores and recognizes other influencing factors that have worked to bring about the results observed**. This helps to further clarify the contribution by our programme. Finally, the section draws conclusions on the **overall relevance of the programme** with regard to, for example, how the three pathways of change together led to the outcomes observed, or if the approach chosen was the best choice in light of field circumstances and results achieved.

#### 3.1 A Structured Trading System Piloted Providing Efficient Services That Enable Smallholder Farmers to Benefit

From the data collected during the midterm review we can see the direct correlation between the efforts in this result area with commercialization data. In rice subsector for instance, the programme directly targeted 3028 producers in three irrigation schemes, for whom 71% of the total household income derived from quality rice sales. This is due to the interventions related to the improvement of the services around good agricultural practices, which addresses issues of productivity while ensuring that issue of produce quality is addressed.

Working with Tanzania Agricultural Research Institute (TARI) improved efficiency through optimal utilization of inputs and labour by employing the Quality Management System Protocol and Sustainable Rice Production techniques. Furthermore, the partnership with the Rice Council of Tanzania (RCT) opened the door for greater outreach to different services, including training for rice millers to adhere to quality management standards. RCT interventions were not limited

to clusters and farmers level but also aimed at reaching more stakeholders through creating rice platforms at district level. In addition, engagement with RCT as a national body has been very instrumental upscale up the SRP and QMS innovations at sector level, during which, for the first time, Rikolto has had direct engagement with the Ministry of Agriculture and is part of the main stakeholders in the National Rice Development Strategy II implementation.

In the horticulture subsector, the programme reached 1054 farmers in the two clusters in Arumeru and Msitu wa Tembo Londoto. The share of income derived from sales of quality horticulture products is 67% of the total household income. This was possible due to the linkage of farmers to service providers which are offering quality inputs such as East West Seeds, Rijkzwaan, and the linkage to buyers who are offering assured markets for the quality certified farmers targeting niche export markets. Also, the achievement is a result of a partnership with TAHA in which TAHA provided the role of brokering, contract arbitration and negotiations including working on the business environment. The data from farmers organizations show that as result of interventions supporting farmers to be engaged on certified vegetables, the price doubled while at the same time the production cost was reduced due to efficient and minimal application of pesticides to comply with food safety requirements. We also see that the intervention in the horticulture sector has been even more relevant as it indirectly reached 49,518 beneficiaries, including those who adopted the practices without direct intervention by Rikolto and its partners. The major assumptions we are making here is that those who adopted the different practices introduced by the programme to the target beneficiaries have experience a positive effect on their income.

### **3.2 Flexible, Adaptable Approaches and Models for Farmers' Business Management Stimulating Smallholder Inclusion**

The professionalization support to Farmer Business Organization (FBO) has been very effective in terms of organizing the farmers to aggregate the demand for various services as well the produce for the market. For instance, Muvikiho has been able to sign contracts with various buyers of green beans and snow peas where **premium price was offered in the niche market**. Muvikiho has been receiving the certifications service from various private companies such as Control Union, AfriCert, KiliCert and others. Also, due to the good organization within Muvikiho resulting from the capacity building through Rikolto interventions, it has been possible to sign contracts with buying companies like BECL, Serengenti Fresh and Homeveg. Muvikiho's capacity improvement is resulting from Rikolto's investment in the SCOPEinsight assessment tool which was used to do initial assessment and come up with a capacity development plan. The capacity

development plan forms the basis for further capacity support using local business support service providers and interns in collaboration with Moshi Cooperative University (MoCU). Furthermore, good organization within farmer organization made it possible to pilot the inclusiveness aspect of the Food Smart City pilot in Arusha which links the urban food vendors, such as Kiosk owners, who are willing to adopt the food safety and standards with the rural, urban and peri-urban producers.

In rice subsector, the professionalization of the FBOs in the three irrigations schemes made the linkage to services possible: Farmers in UWAMALE, Magugu and Kivulini were able to work with Tanzania Agricultural Research Institute (TARI) Kilombero to adopt the Quality Management System (QMS) protocol and the Sustainable Rice Production. These organizations have been a good entry point for the Rice Council of Tanzania (RCT) to start the process of forming the district rice platform and linking these organizations to the service providers to address the issue of quality rice at milling level. Engagement with TARI and RCT has been very instrumental to showcase our innovations in the three irrigations schemes to the national level, where the stakeholders have agreed SRP to be one of the tools to implement the National Rice Development Strategy II (NRDS II). As it was already explained in the earlier sections, **adoption of QMS and SRP by farmers is due to the value proposition it presents to farmers in terms of production costs, due to efficient use of inputs and its contribution to the productivity.** All this has had a **tremendous contribution to the income the farmer receives** in the unit area.

### **3.3 Market Systems for Horticulture Incentivize Sustainable Production and Consumption of Safe Food**

Improvement of environmental sustainability scores has been the result of the investment in sustainable production practices in both grain and horticulture. In horticulture, addressing food safety issues at farm level by assisting farmers to comply with quality certifications schemes like global GAP, improved the score on the sustainable production index considerably. In horticulture, the major improvement has been soil conservations, resource management, biodiversity and landscape management. The results achieved have been above the MTR target.

Also, in rice sector, the investment in the QMS and SRP had significant positive effect in terms of the improvement of the sustainable production index. There was significant improvement in environmental substantiality scores in all 6 parameters, surpassing the MTR targets. **The significant improvement of the environmental sustainability scores results from good value**

**propositions presented to farmers in terms of efficient production and price premium for the quality produce** from off-takers. Adopting good practices which take into conservation the environmental aspects in most cases reduces production costs, for example because of the minimal use of inputs like seeds and fertilizers, the efficient water usage by adopting practices like levelling, and less labour cost for weeding. Also, in the rice sector, adopting QMS protocols reduce post-harvest losses and attract a good price due to high quality of rice.

In the horticulture sector, adopting minimal application of pesticide reduces production costs, but also attracts premium prices by complying to quality certifications, almost double the price in the normal markets without quality certifications. However, since most of the producers go through informal markets, Rikolto is going to adopt the quality certifications such as a Participatory Guarantee System (PGS) to address the volumes going to informal markets. This will ensure that most consumers buying from informal channels and most producers selling through informal channels are targeted.

## 4. LESSONS LEARNT

### 4.1 Change dynamics and intervention strategies

#### 4.1.1 Shaping inclusive business models

We also continued to invest in farmer organisation (FO) systems with the aim of establishing contract farming arrangements in line with government policies. During the implementation, we learnt that off-takers entering into contract with farmers need the assurance of the end market and the capacity of farmers to adhere to the contract terms. This can be learnt from the case of global GAP certified farmers in Arumeru, who have been signing contracts with exporting companies which has assured market in Europe for number years now. Last year, we observed new companies entering the market, which somewhat increased the competition of sourcing from farmers. An example is East Africa Fruits, which entered into an MoU with Rikolto to work together in ensuring sustainable sourcing from farmers starting with farmers from Msitu wa Tembo cluster.

Also, through engagement with off-takers of rice and pulses we learnt that, after the programme assured buyers like Nafaka Halisi that it will facilitate the access to farmers of high quality declared seeds preferred in the market, they were willing to enter a long term contractual relationship with farmers. In addition, the programme needs mechanisms to address the access to finance issues and to present a business case to off-takers to engage fairly with farmers. Attempts to link private companies like East Africa Fruits and Nafaka Halisi to Social impact investment like Kampani, increased the enthusiasm of these companies to engage fairly with farmers. Incentives for buyers to agree to pay a premium on quality and engage in contractual arrangements with farmers, are a result of the market analysis on the willingness of buyers and consumers to pay a premium price, in order to persuade the traders of the opportunity.

In the first half of implementation of the strategy, we also explored alternative ways of reaching farmers to working through FBOs as the only approach to link farmers to services and markets. We piloted the iCRA coaching approach that engages with multiple partners in the ecosystem. Although it is too early to judge on the effectiveness of the iCRA approach, the initial engagement showed that there are more structured relationships worth exploring than the ones through FBOs alone. We successfully tested the importance of building relationships between agribusiness service providers like East West Seeds and East Africa Fruits, and other actors in the ecosystem such as nursery service providers. The local coach has been very

instrumental in linking farmers to markets in line with the iCRA approach. Rikolto also continued to invest in different Business Development Services strategies depending on the context. This includes piloting an intern approach with Moshi Cooperative University which showed positive lessons in terms of FO's affordability of paid office managers and lessons to MoCU on curriculum development on cooperative education.

#### 4.1.2 Fostering sustainability partnerships

In the first half of the implementation of the 5-year strategy, we continued to work in the grain sector with a number of partners like TAHA and Tanzania Agriculture Research Institute (TARI). In order to have greater impact and scale at national policy level. To align our interventions with the adjusted pathways of change, Rikolto introduced a new partnership with Rice Council of Tanzania (RCT), also leveraging other resources from strategic partners to scale up SRP. We started a joint project with Kilimo Trust on climate smart agriculture in Iringa, which gives us the opportunity to upscale our work in the Southern Highlands of Tanzania. Working with RCT also helped to put the SRP agenda at national level through engagement with the Ministry of Agriculture to influence the design and implementation of National Rice Development Strategy (NRDS II). In the horticulture sector, Rikolto also signed an MoU with the Tropical Pesticide Research Institutes (TPRI) to collect evidence on the level of food safety risks of food consumed in Arusha City which will inform our activities in food safety initiative in Arusha.

In 2019, we strengthened our partnership with the private sector by initiating new partnerships with private companies providing service to farmers. East Africa Fruits company facilitated structured trading relationships with Pangani horticulture farmers. East West Seeds Company supported the access to quality seeds and agronomic technical support to Pangani farmers. This new initiation of partnerships is a result of our analysis that most of the efforts in the past years were focusing on either supporting the farmer groups to achieve the global GAP certification for export market or producing for high end domestic markets like supermarkets, hotels or specialised market outlets for middle income consumers in urban centres. Although these markets were offering higher prices to the farmers, the opportunity was taken by few farmers organised in FBOs due to stringent quality requirements on the supply side. On the demand side, only few consumers in export markets and very few middle-income consumers in the domestic market were reached. This made our inclusive business model interventions not only benefit fewer farmers but also left out lower income consumers making our mission to address food safety issues benefiting the few well-off consumers.



From this lesson, Rikolto initiated the partnership with iCRA to pilot the local coaching model, which aimed to reach more farmers and actors in the ecosystem with local coaches being prime catalysers in linking farmers to markets and various services. To address the issue of affordable capacity building services to FBOs, Rikolto entered an MoU with the Moshi Cooperative University (MoCU) to test the intern attachment programme. We also learnt that we need to change the strategy on the way we are partnering with the Apex organisations like TAHA and EAGC, so that they are better placed in facilitating platforms for policy dialogue instead of engaging them in delivery of the main components of the programme.

#### 4.1.3 Nurturing food future-proof societies

We have learnt that food safety of fruit and vegetables is critical but also underestimated by many actors and, if not addressed, will lead to significant hurdles in export and local trade. The past support to farmers organisations on food safety was more geared toward fulfilling Global GAP standard for export market. However, we have learned that working on food safety for local markets needs a lot of awareness creation to consumers, value chain actors and regulatory bodies. This includes lack of willingness of consumers to pay premium prices for safe and quality food which is not stimulating farmers to invest on the production of quality and safe food. Rikolto is working with TAHA, local governments, universities and research institutes to generate evidence on food safety risks and impact on consumers' health, which will inform the food safety consumers campaign such as Kiosk Model.

In its 2020 workplan, Rikolto is planning to facilitate a participatory guarantee system starting with horticulture subsector. We have also learnt that a food safety risk analysis approach works best compared to traditional inspection approaches as it enables stakeholders to target the critical control areas and issues. Rikolto expects to contribute by continuing to support FOs to develop relevant Quality Management Systems (QMS), linked to their business model, while linking to markets willing to pay for quality food. Local authorities also have an interest in developing safer and more sustainable food systems. Rikolto and TAHA have therefore continued to engage with the City of Arusha who is signatory of Milan Urban Food Policy Pact to continue to address food policy issues identified during baseline studies, but also continue to address the gaps identified in food access, local economy and TPRI study on food risks assessment.

#### 4.1.4 Partnerships

As we reported in 2019, the strategic partnership with sector level organizations TAHA and EAGC have enabled us to carefully scope and select the right farmer organizations and pilot areas. We have learnt that we cannot expect all strategic partners to have the same capacity and we cannot, and perhaps should not, expect them to be operational at Farmer Organisation level. We will therefore develop different strategies for delivering sustainable Business Development Services through internal Farmer Organisation development and support to low-cost, high quality local service providers (e.g. Chambers of Commerce and Industry, input suppliers, irrigation suppliers and the many independent service providers e.g. agronomists, sprayers, etc). We therefore learnt that to make the best use of the apex farmers organisations, we need to engage them in their core business work, especially on public and private policy influencing through dialogue meeting and platforms instead of engaging them in the project service delivery. To influence change at national level and adoption of SRP and QMS innovations, we introduced a partnership with Rice Council of Tanzania and the Ministry of Agriculture.

#### 4.1.5 Gender

During the first half of the implementation of the five-year strategy, we continued to address the challenges of including women empowerment within rice and horticulture value chains. We have designed a way to have women specific interventions which will facilitate access to land and mechanisms including access to credit. During the 2020 implementation period, we are going to foster our collaboration with PASS Tanzania to facilitate the development of bankable business plans, and linkage to finance and credit guarantee for women working in food systems.

#### 4.1.6 Environment

Our work on Sustainable Rice Production through a global approach and irrigation financing pilots for horticulture has generated some lessons worth scaling up. The SRP tested in Magugu significantly improved the environmental sustainability scores benchmarked during baseline in 2017/2018. These successes will continue to be scaled up during the coming years.

Through six efficient irrigation demos, we have proved that efficient irrigation systems have an enormous potential for increasing agricultural productivity and income due to improved access to water (additional cropping season, diversification of cropping pattern, higher value crops). We also learnt that Simusolar has easily accessible internal credit scheme for smallholder farmers. In 2020, we will invest more on assisting farmers to develop business plans to support the adoption of the technology and this will be coupled with production of promotion materials and awareness campaign.

#### 4.1.7 Youth

Rikolto will continue to explore opportunities to work with partners like TAHA to build on their experience and success in youth led initiatives. We started to work with TAHA in facilitating youth to set up agribusinesses like establishing commercial nurseries. In addition, youth specific initiatives have been designed during 2019 for financing to complement the DGD programme. We also expect a partnership to strengthen the linkage with Arusha City Council and other local government authority's youth programmes.

#### 4.1.8 Digitalisation

Rikolto has invested significantly in ICT pilots and learnt that ICT market information and trading systems can provide significant benefits to smallholders and FOs. However, they often do not deliver as envisaged due to weaknesses in design, technology, lack of sustainable business model and poor integration of value chain actors. This has led to look for options of designing at lower cost which will directly benefit farmers and other users like financial institutions and off-takers. While the service providers, like input services, look for the aggregated demand to reduce transaction costs of the input distribution system, off-takes look for information on the planned seasonal aggregation of the produce. Also, the financial institutions look for the information on the capacity of the FBO to borrow following the aggregated capacity of its members to produce and assurance of the market in order to make the informed decisions whether the FBO is bankable. Rikolto therefore piloted a low-cost database starting with FBOs which will be used to link farmers to market and service providers. During 2020, Rikolto will continue to learn on the efficacy and sustainability of the created database.

### 4.2 Main Innovations Adopted by the Programme

#### 4.2.1 Arusha Food Smart City

There are two innovations on cluster-level that contributed to the effectiveness of our work. The first one is the Food Smart City project in Arusha. Rikolto East Africa supported the creation of the Arusha Food Safety Stakeholder platform. The main innovation of this platform is its inclusive and multi-actor partnership model, i.e. the way it brings different stakeholders around the table to discuss about food safety. For example, in cooperation with the Tanzanian Pest Research institute (TPRI), a food risk assessment was conducted that revealed sensitive information on the biological and chemical contamination of food sold in the local markets.

Through the stakeholder platform, such information finds ground to be discussed with and become co-owned by all relevant actors.

#### 4.2.2 Sustainable Rice Production

In Tanzania in the Magugu cluster, the SRP standard helps rice farmers to adopt more sustainable farming practices. The innovation in our work lies in the measurement system via phone. This system helps farmers to measure their scores at the end of the season and motivates them to adopt more sustainable cultivation practices as they want to see their scores/ sustainability credential go-up at the end of season. The incentive to adopt the SRP scores is the value proposition it presents to farmers in terms of increase in productivity and the returns per unit area. The successful pilot in Magugu cluster and also lessons from Uganda created interest by our strategic partner Kilimo Trust to scale up this innovation to the Southern Highlands in the programme called Iringa Mitigation, Adaptation and Productivity Programme for Climate Smart Agriculture (IMAP4CSA). This gives us opportunity to look for the possibilities of scaling up this innovation to the Southern Highlands of Tanzania which is a breadbasket for the country which will present a larger chance to contribute to scale.

#### 4.2.3 Agri-finance

In Tanzania, we also supported the proven innovations in agri-finance. For sustainability reasons we believe finance stakeholders need to be integrated structurally in all actions planned beyond 2021. In Tanzania, our partnership with finance partners on irrigation (Water Resource Group 2020, PASS, Kilimanjaro Water Stewardship Platform (KWSP), Tanzania agricultural Development Bank (TADB) etc) helps to give a sustainable dimension to the climate smart irrigation programs piloted in Pangani, Kivulini and Arumeru (TZ). Other partners, like INADES, expressed their interest to adopt the model, which makes diffusion of the financial product for irrigation schemes highly possible.

### 4.3 Programme Interventions Influencing the Institutional Environment

We have defined our contribution to sector transformation in terms of the impact our work has on government decisions. It is relevant to discover how important policy work is as a contributor to sector transformation for Rikolto East Africa and in Tanzania in particular. Three recent promising engagements with governments have a high potential to contribute to sector transformation:

First, in Arusha, the Food Safety Platform's collaboration with the Tanzanian Bureau of Standards (TBS) led to the creation of a national food safety standard that will soon be gazetted.

Furthermore, at local government level the city of Arusha signed the Milan Food Pact and leveraging on the Rikolto's support through a food safety committee fulfils its Milan Food Pact commitments.

Secondly, in partnership with AMEA, Rikolto Tanzania successfully pitched the SCOPEinsight assessment tool to Tanzania Development Cooperative Commission (TCDC) who agreed to adopt the tool in the assessment and the capacity of the cooperative in Tanzania. Rikolto uses SCOPEinsight as an entry point to structure capacity building work with FBOs. By pitching SCOPEinsight to the Ministry a potential is unlocked to use SCOPEinsight as a mechanism of assessing the development all cooperatives in Tanzania.

Thirdly, Sustainable Rice Production policy work in collaboration with the Rice Council of Tanzania (RCT), National Agriculture Research Institute and the Tanzania Ministry of Agriculture, has led to promising sector transformation potential in Tanzania. In Tanzania, Rikolto has been invited by the Ministry of Agriculture to support the Ministry of Agriculture with the development of implementation framework of new National Rice Development Strategy (NRDSII) 2019 - 2030 which was launched in November 2019. Rikolto will continue to engage during the remaining implementation period of the 5-year strategy by securing the seat in the national rice task force to ensure that SRP is adopted as an implementation instrument of the NRDS II. This will be a good avenue to promote SRP as the global standard for sustainable rice, we will influence the whole rice sector. Tanzania government is actively searching for a way to increase the rice production from the current level of 2.2 million metric tons to 5 million metric tons without adverse effect to environmental destruction of wetlands.

Due to TAHA involvement in the implementation of the programme in the horticulture sector in the areas of improvement of food quality and standards, TAHA has now recognized the importance of having quality and standard department, where now is at final stage of setting the department. In addition, TAHA has been international accredited to provide farm assurance (Farm Assurer) and to start providing the service this year 2020. TAHA being the only national body in horticulture and the institutionalization of some of the practices and innovations emerging from the project, gives us comfort and assurance that our pilots in the horticulture sector are leading to systemic change.

It should however be pointed out that policy work is not the only enabler to sector transformation. Sector transformation can also be obtained on producer-side for example. A potential for producer-oriented sector transformation is seen in the Participatory Guaranteed

Standards, which are operational in Vietnam. Lessons from our colleagues could be drawn to establish similar certification schemes in East Africa to unlock this potential.

#### 4.4 Sector Interventions that Increased the Efficiency/Effectiveness/Impact of Programme Interventions

**Generate employment and improve income opportunities for the poor:** the most sustainable interventions are linked to value-addition and adoption to standards that are required by the niche markets. Our partnership with horticulture producers in Arumeru district helped them to access pre-grading and storage facilities including GAP services to comply with the Global GAP certifications. This helped the farmers to fetch higher price offered by the niche market which is twice as much as the normal horticulture market. From the initial Global GAP pilot in Arumeru, horticulture farmers from the neighbouring district decided to join the certification scheme which ensures that our pilot now is reaching a bigger scale. Furthermore, our horticulture programme in Arumeru and Food Smart Cities programme present strong cases for scaling up as they facilitated the securing of more funding from EU to support farmers in the Southern Highlands of Tanzania. Furthermore, in Tanzania, we are most proud of the branding of the Magugu rice. By investing in purification programs for Magugu rice seeds, farmers can claim the quality and uniquely flavoured Magugu rice brand again.

**Ecological sustainability:** In Tanzania, food losses after harvesting amount to 40-50% of all harvested food. Improvement of warehouse management systems therefore is a key impact-achiever to reduce post-harvest losses, and thereby its negative by-effects on the environment. Concerning food waste, no project had been set up as food losses are far more relevant interventions to focus on. However, Rikolto East Africa has the ambition to include the topic of food waste management in the local markets under the FSC programme. Climate change has a devastating impact on regional weather conditions and is concern number one when talking to farmers. Climate smart irrigation programmes and pilots in investing in accurate weather-information services for the poor, are some of the innovations helping Tanzanian farmers with climate adaptation. Further, the promotion of the Sustainable rice Production (SRP) contributes to ecological sustainability. SRP proved to be a scalable practice as the Government of Tanzania, through the Ministry of Agriculture and the National Body Rice Council of Tanzania, has shown strong interest to embrace SRP as one of the tools of the NRDS II implementation.

**Nutrition:** Rikolto East-Africa's decision to focus interventions on pulses is the most systemic thing we can do to contribute to food and nutrition security in Tanzania, as eating pulses adds

to a more diversified diet and is seen as an important contributor in the fight against stunting. Pulses constitute for 12% of crop production in Tanzania and have an enormous export-potential to meet rising global market demands. Pulses are rich on proteins and therefore recognized as an alternative for animal-based products. Promoting production and consumption therefore contributes to plant-based, healthier and more ecologic lifestyles.