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AGRI-CONNECT

RBTC-JE

SDM Case Report

AGRICON BORESHA CHAI

CEFA The seed of solidarity

TEA RESEARCH INSTITUTE OF TANZANIA

idh the sustainable trade initiative

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AGRI-CONNECT

Improving Income and nutrition of Smallholder Tea Farmers in Southern Tanzania

PROGRAM INFORMATION

AGRICON BORESHA CHAI

Consortium partners

Partner name	About the Partner
IDH the Sustainable Trade Initiative (IDH)	Dutch public-private partnership facility. Lead applicant. Expertise: farmer GAP training, financial decision-making, private sector engagement.
Tanzania Smallholders Tea Development Agency (TSHTDA)	Tanzanian government body. Co-applicant. Expertise and knowledge on Tanzania tea sector and smallholder farmers. Extension officers provide in-kind support to Action.
Comitato Europeo per la Formazione e l'Agricoltura Onlus (CEFA)	Italian NGO, working in Tanzania since 30 years. Co-applicant. Expertise: cooperative development and governance, nutrition, working with the EU in several proposals.
Tea Research Institute of Tanzania (TRIT)	Tanzanian public-private partnership. Co-applicant. Bringing research expertise on innovations in tea sector and implementation of innovations in the sector.

Program Objectives

Overall project objective
Improving income and nutrition of smallholder tea farmers in Southern Tanzania

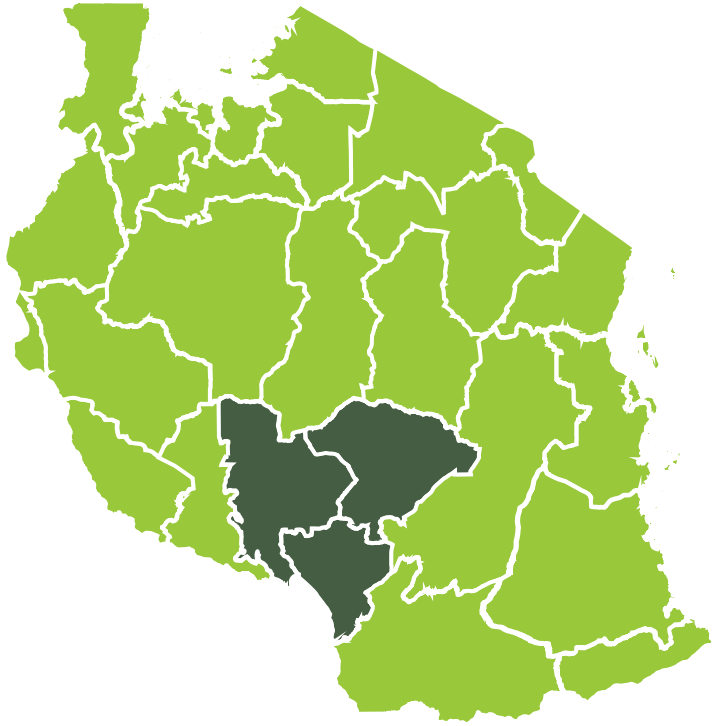
Specific objectives: To promote the inclusiveness, productivity, competitiveness and resilience of smallholder tea farming while fostering sustainable livelihood, nutrition, gender equality, among tea farming families in Southern Tanzania.

> **Specific objective 1**: To sustainably improve the performance and climate resilience of smallholder tea farmers.
>
> **Specific objective 2**: To diversify income generation and reduce malnutrition and stunting in tea farming communities.

Program duration: 4 years

Program beneficiaries & Location

- **Action's primary target group** are 22,000 smallholder tea farmers - 1,600 in Mufindi District Council, 5,000 in Njombe District Council and 15,400 in Rungwe and Busokelo District Councils, thus covering >70% of Tanzania's tea smallholders.
- **The Action's secondary target group are tea farmer cooperatives -** 34 cooperatives and/or farmer groups
- **The Action's tertiary target group are the private sector tea companies** - constrained by the low and inconsistent volume and quality of green leaf supplied by smallholder farmers inefficiencies of service delivery to smallholders.
- **Final beneficiaries** - Approximately 103,000 members of tea farming households (average 4.7 persons per household)



- **Project Period**: 4 years
- **Amount**: 5,560,000 MLN EUR
  - 5MLN EUR funded by EU
  - 560.000 EUR co-funding Consortium members

Work Packages (Key Activities)

1) **Strengthening tea farmer cooperatives:**
   - Provide training to tea farmer cooperatives
   - Stimulate female leadership and youth participation in tea cooperatives
   - Grant financial support to cooperatives to improve service delivery to their members

2) **Sustainable service delivery, training and quality-based payment for tea smallholders:**
   - Introduce sustainable Service Delivery Models (SDM) for tea cooperatives and farmers
   - Build capacity of tea smallholders through Farmer Field Schools
   - Implement a bonus system to promote and reward higher green leaf quality

3) **Implement Sustainable innovations:**
   - Demonstrate and promote
     - optimized nutrient application in smallholder tea farms
     - mechanized tea harvesting services
     - irrigation of smallholder tea farms

Implement Sustainable innovations (continued)
   - Establish improved clone nurseries for increased climate resilience and productivity
   - Promote digital financial and information services for smallholder tea farmers

4) **Income diversification:**
   - Convenes partners for secondary value chain services and offtake
   - Implement SDM for secondary value chain and establish market linkage

5) **Nutrition and household decision-making:**
   - Promote good household nutrition through sensitization, training and demonstrations
   - Build financial literacy and promote balanced decision-making in tea farming households

Expected Results

WORK PACKAGE	OUTPUTS/ RESULTS
1. Strengthening of tea farmer cooperatives	▪ 34 cooperatives improve performances ▪ 150 villages reached through a sensitization campaign on coops ▪ At least 10 cooperative receive grant funding to deliver improved/new services
2. Sustainable service delivery, training and quality-based payment for tea smallholders	▪ 3 service delivery model systems in place ▪ 560 Farmer Field Schools in the target districts are established ▪ Increased green leaf volume of acceptable quality from 50 to 65%
3. Sustainable innovations	▪ TRIT soil lab accredited under international standards ▪ 6 innovations used (Nutrient application, mechanized harvesting, irrigation, improved clones, digital finance and info services) ▪ 1,500,000 tea seedlings distributed to farmers through the established tea nurseries ▪ 80% farmers access digital finance and info services
4. Income diversification	▪ 4 Non-tea value chains strengthened ▪ 50% smallholder tea farming families diversify their income
5. Nutrition and household decision-making	▪ 150 villages reached through a sensitization campaign on nutrition ▪ 1,050 vulnerable households receive start-up kits for vegetable garden and small animal husbandry ▪ 50% smallholder tea farming families diversify their diet ▪ 40% reduction in stunting

IDH introduction

Importance of Service Delivery

Agriculture plays a key role in the wellbeing of people and planet. 70% of the rural poor rely on the sector for income and employment. Agriculture also contributes to climate change, which threatens the long-term viability of global food supply. To earn adequate livelihoods without contributing to environmental degradation, farmers need access to affordable high-quality goods, services and technologies.

Service Delivery Models (SDMs) are supply chain structures which provide farmers with services such as training, access to inputs, finance and information. SDMs can sustainably increase the performance of farms while providing a business opportunity for the service provider.

A solid understanding of the relation between impact on the farmer and impact on the service provider's business brings new strategies for operating and funding service delivery, making the model more sustainable, less dependent on external funding and more commercially viable.

About this study

To accelerate this process, IDH is leveraging its strength as a convener of key public-private partnerships to gain better insight into the effectiveness of SDMs. IDH developed a systematic, data-driven approach to understand and improve these models. The approach makes the business case for service delivery to investors, service providers, and farmers. By further prototyping efficiency improvements in service delivery, IDH aims to catalyze innovations in service delivery that positively impact people, planet, and profit.

Thanks

IDH would like to express its sincere thanks to Rungwe and Busokelo Tea Cooperative Joint Enterprise (RBTC-JE) for their openness and willingness to partner through this study. By providing insight into their model and critical feedback on our approach, RBTC-JE is helping to pave the way for service delivery that is beneficial and sustainable for farmers and providers.

RBTC-JE introduction

RBTC-JE has the vision to socially and economically empower tea growing communities of Rungwe district, while substantially contributing to national prosperity for improved and sustainable livelihood

Co-operative overview

- Rungwe and Busokelo Tea Cooperative Joint Enterprise (RBTC-JE) is a co-operative society that was officially registered in 2019 following the transformation of the Rungwe Smallholders Tea Growers Association (RSTGA). The latter was established in 1998 subsequent to the privatization of state-owned tea factories in Rungwe district. RBTC-JE comprises 8 registered Agricultural Marketing Co-operative Societies (AMCOS), namely, Masebe, Rungwe, Kapugi, Segela, Nditu/Suma, Mwakaleli, Manow/Lwangwa and Lupata/Itete.
- RBTC-JE has two fully owned subsidiaries: 1) the Rungwe Smallholder Tea Development Trust Fund (Trust), through which it owns 30% shareholding in Wakulima Tea Company (WATCO), and 2) Rungwe Fair Trade Fund (RFTF), through which it manages all the fair-trade funds. See the organisation structure on page 42.
- RBTC-JE facilitates marketing of green leaf tea to Wakulima Tea Company (WATCO), which guarantees offtake of the green leaf from RBTC-JE farmers and processes this into made tea for sale in both local and export markets. WATCO has capacity to process ~60,000 MT of green leaf per annum and obtains about 10-15% of green leaf requirement from its own tea estate.
- The co-operative has mainly been financed through management fees from WATCO, farmer membership contributions and grants from the Trust. RBTC-JE has a management team comprising of a CEO, senior accountant, communication manager, assistant accountant and extension services manager.

Goals and objectives

- RBTC-JE's goal is to contribute towards doubling of smallholder tea farmers' income by:
  - Promoting and sustaining Rungwe tea farmers' initiatives in production, processing and marketing of adequate volumes and quality tea leaves.
  - Enabling fair environment for its members to acquire and access adequate, reliable and quality socio-economic services.

Outgrower operations

- RBTC-JE currently provides smallholder tea farmers with planting material, quality inputs (fertilisers and crop protection) through credit, certification, training on good agricultural practices (GAP), access to markets, access to finance trough provision of input credit.
- Whilst tea is the main crop, RBTC-JE's smallholder farmers also grow other crops such as bananas, beans, avocadoes, potatoes and maize as part of their diversification strategy to promote food security.

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Executive summary (1/2)

- Rungwe and Busokelo Tea Cooperative Joint Enterprise (RBTC-JE) is a cooperative society formally registered in 2019 with over 14,000 farmer members in Rungwe district. RBTC-JE facilitates marketing of green leaf tea to Wakulima Tea Company (WATCO), which guarantees full offtake of the green leaf from RBTC-JE farmers.
- RBTC-JE is looking to double the incomes of the farmers in 3 years and increase their resilience while tapping into the growing demand of quality green leaf. However, the smallholder tea value chain in Rungwe district is characterized by low green leaf yields and quality; limited smallholder access to services, finance, and markets; limited tea farming land; and potential climatic changes such as change in frequency of rainfall leading to droughts. All these factors have resulted in the historical low incomes for smallholder tea farmers, which RBTC is seeking to improve.
- This study sets out the most important recommendations for RBTC-JE to sustainably scale up its service delivery model (SDM) in a cost-efficient and effective way, in line with its growth and strategic ambitions. These recommendations are structured along three main topics: (1) increasing impact at farms; (2) supporting diversification; and (3) enhancing organizational capacity.

RBTC-JE will increase impact at farms, thereby making tea farming economically attractive to smallholder farmers, by providing services that promote higher incomes. We explore a combination of factors that can achieve this result, notably:

1

- Effective training on GAP, improved seedlings, inputs and mechanizations significantly increases tea yields and quality on current farms
- A revolving input credit scheme increases farmers timely access to quality inputs, allowing them to invest in their farms
- An effective farmer segmentation and graduation approach with clear incentives improves farmer performance over time
- Better market price, quality bonus and dividend payments to farmers would enhance the financial benefits received from tea farming

RBTC-JE can further support farmers to diversify their sources of income, thereby increasing their resilience, by promoting production and marketing of complementary crops and livestock:

2

- RBTC-JE can identify the portfolio of non tea crops and livestock based on the key enablers and challenges in the operating environment
- RBTC-JE can develop several attractive farmer propositions for crop diversification that could support its farmers earn incomes above the poverty line
- RBTC-JE can improve farmers' food security by identifying the optimal crop diversification portfolio that incorporates the value of production for own consumption
- RBTC-JE can improve production and marketing of identified portfolio of non-tea crops and livestock by providing additional services

RBTC-JE will effectively scale up its business operations and offer improved services by enhancing organizational capacity enables RBTC-JE:

3

- RBTC-JE can increase farmer value by investing in developing management capacity and professionalization of service provision to smallholder farmers
- RBTC-JE needs to expand its access to affordable financing to support growth and generate better returns for farmers
- RBTC-JE would benefit from strengthening and building mutually beneficial strategic alignments with farmers and other key actors in the value chain
- RBTC-JE should implement a digital infrastructure that collects agronomic, sourcing and farmer financial data for informed decision-making and enabling access to finance

Executive summary (2/2)

- The study reveals that:
  1) RBTC-JE is **expected to positively impact the livelihood** of smallholder tea farmers through sustainable intensification of the services it currently offers, particularly, the provision of seedlings, provision of inputs on credit and GAP training. However, the current income from tea farming alone is below the national poverty line and remains as such over the 10 years forecast from 2020.
  2) Based on the primary farmer survey, there appears to be **differences in productivity** between farmers in Rungwe and Busokelo councils and between tea farm sizes. This would suggest a need for tailored approaches in service delivery.
  3) There is **a strong case for supporting farmers to diversify their incomes**, thereby enabling them reach incomes above the poverty line and move towards earning a living income. However, a detailed analysis and market research is required in order to determine the most suitable crop diversification portfolio, farmers capabilities and supporting services that RBTC-JE can provide and the impact creation of food security and gender inclusivity.
  4) Finally, RBTC-JE is **well positioned to scale and strengthen their organizational capacity** by expanding access to additional financing and improving operational infrastructure.
- Building on the outcomes of this study, IDH suggests prioritizing the preceding recommendations and explore them in more detail as follows, based on the level of control that RBTC-JE has over each activity and the investment required (both technical and financial) to implement them. Within the high priority recommendations, RBTC-JE could benefit mostly from support in 1) Creation of a quality and up to date farmer database through a farmer census; 2) a robust farmer management system that allows them to know the farm characteristics and service needs and adoption; and 3) financing for establishing the blending factory, seedlings nursery and revolving input credit scheme.

High priority	Medium priority	Low priority
• Strengthen management capacity • Invest in digital infrastructure • Secure additional financing • Establish a revolving input credit scheme • Enhance current service offering	• Identify the crop diversification portfolio • Build a business case for farmer diversification • Optimize the diversification strategy • Offer production and marketing services	• Strengthen and build stakeholder relationships • Adopt a farmer segmentation approach • Improve payments to farmer
0 to 6 months	6 to 12 months	12 to 18 months

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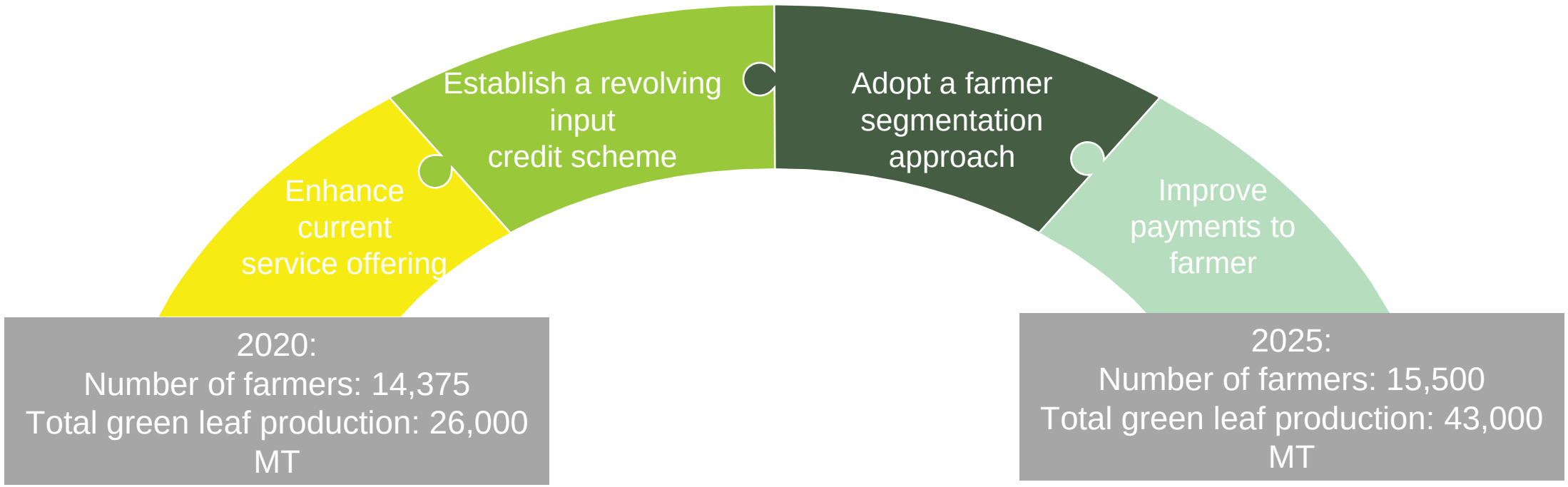
Increasing impact at farms

1. RBTC-JE will make tea farming economically attractive to farmers by providing services that promote higher incomes



Enhance current service offering

1.a Effective training on GAP, improved seedlings, inputs and mechanizations significantly increases tea yields and quality on current farms

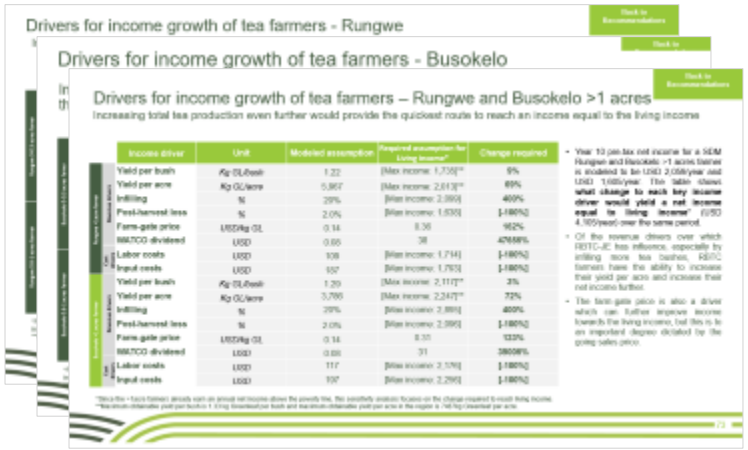
RBTC-JE currently offers a variety of **services** to farmers. Amongst these services, a combination of the services highlighted below results in increased farmer incomes due to higher revenues and reduced cost of production. However, some impacts are difficult to quantify due to limited **data availability.**

Service	Training and extension services	Improved seedlings	Inputs (Fertilizer and herbicides)	Mechanization	Infrastructure (roads, collection centers, trucks)
Target impact	• Increased green leaf yield • Increased green leaf quality/consistency • Improved relationship between farmer and WATCO factory	• Increased green leaf yield • Increased green leaf quality • Increased area under tea	• Increased green leaf yield • Increased green leaf quality • Increased area under tea	• Reduced labor costs	• Increased transportation efficiency (lower costs, quicker movement of people, produce and inputs) • Increased green leaf quality through better post harvest handling

Slide 61 and 62

Overall farmer performance

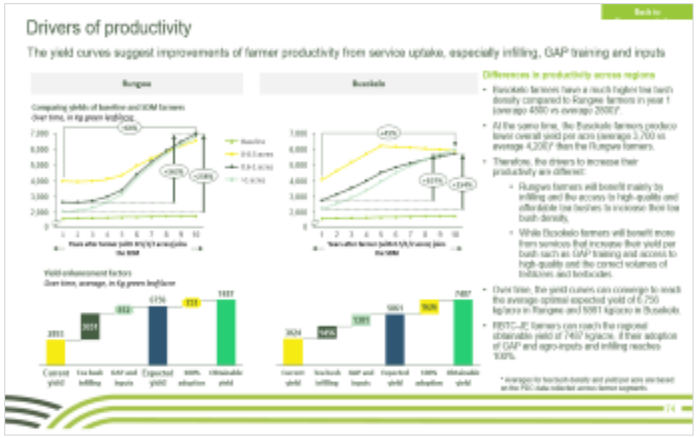
The farmer P&Ls show that there is positive impact from participating in RBTC-JE's SDM, with the baseline farmers generally performing lower than SDM farmers for the different farmer segments.



Slide 65, 66 and 67

Divers of farmer income growth

Increased green leaf production, driven by higher yields, would generate the quickest route to higher incomes for farmers, holding current farm sizes constant.



Slide 68

Divers of farmer yields/productivity

Tea bush gap/infilling appears to have the highest impact on yields, followed by application of GAP and inputs.

Establish a revolving input credit scheme

1.b A revolving input credit scheme increases farmers timely access to quality inputs, allowing them to invest in their farms

Concurrent with setting up the revolving input credit scheme, input providers should be embedded in service ecosystem to absorb increased demand for inputs. With RBTC-JE providing the inputs on credit, the SDM farmers are not only able to access finance at a slightly lower cost but are also able to repay the inputs at times when **cashflow** constraints are lowest – at sales of the harvested produce. This is also expected to improve farmer loyalty and reduce side-selling.

The current demand for inputs, particularly fertilizer, far outweighs the available supply, locking out most farmers from accessing required quantities

- RBTC-JE estimated that the total fertilizer demand (both for NPK and Urea) in 2020 for its farmers is 24,086 bags, compared to 15,160 bags of fertilizer that it was able to secure for the farmers on credit.
- It also estimates the recommended fertilizer requirement at 140 Kg/acre, against the current average application rate of 90 Kg/acre.
- As such, most farmers do not derive the maximum productivity enhancement that comes with fertilizer application.
- At the current application rates, the yield of a farmer applying fertilizer is 2,959 Kg/acre, compared to 2,000 Kg/acre for a farmer not applying fertilizer.

The returns from accessing inputs on credit justifies the cost of financing, both for the farmers and SDM operator

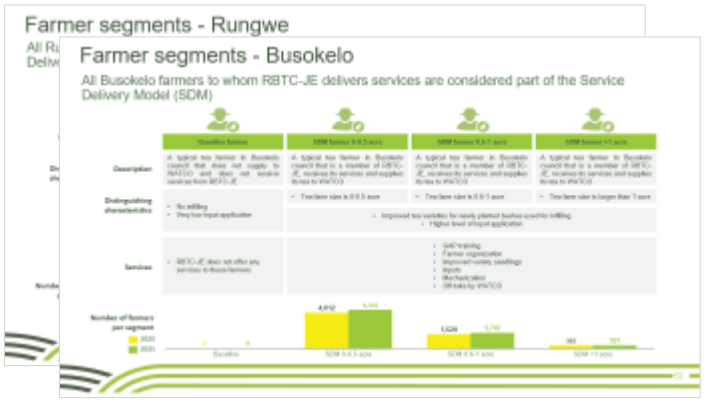
- RBTC-JE currently obtains limited quantities of fertilizer through a partnership with Yara. Yara charges an all-in cost of delivery at WATCO warehouses of 54,000 TZS/bag, with an interest free credit period (cost of fertilizer is recovered from the farmers payment for green leaf over 5 months). ETG, another input provider, charges a lower price 52,000 TZS/bag) but requires upfront cash payment.
- If RBTC-JE is able to secure input financing from a local financial service provider, this would come at a market interest rate of 17% but would allow them to get the required quantities from Yara,

A successful input credit scheme requires alignment of objectives between the SDM operator, input provider and financial service Provider (FSP)

- Whilst there are various **models** through which RBTC-JE could set up an input credit scheme, a shared risks & returns model allows for scaling and hence more sustainable in the long term.
- Such a revolving input credit scheme however requires initial capital to establish it. For this to be optimized, an off-balance sheet structure could be set up, with an impact investor providing a loss guarantee to the FSP (who provides the initial capital), thereby mitigating the perceived risk of lending to smallholder farmers.

Adopt a farmer segmentation approach

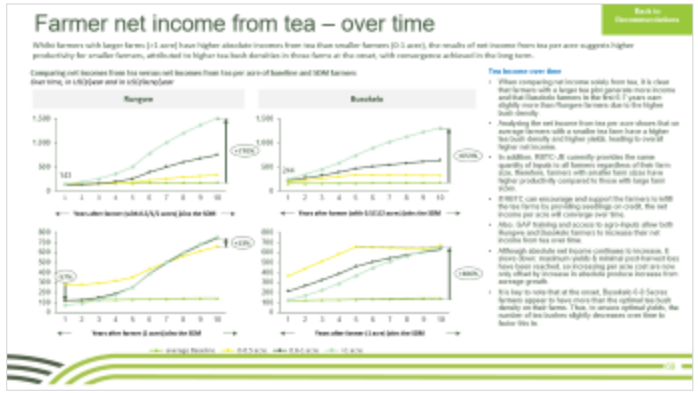
1.c An effective farmer segmentation and graduation approach with clear incentives improves farmer performance over time



Slide 49 and 50

Current farmer segmentation practice

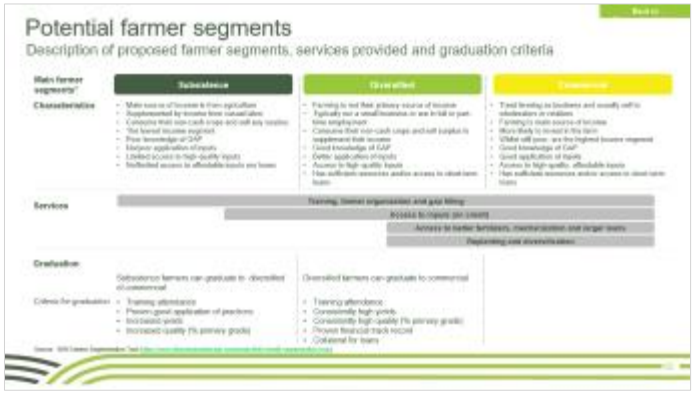
RBT-JE does not currently segment its farmers according to a specific criteria. For purposes of analysis in this report, farmer segments have primarily been based on land size for both Rungwe and Busokelo councils, given availability of this data.



Slide 63

Performance across modelled farmer segments

Comparing performance, Farmer P&Ls suggest that smaller farms are more productive than larger farms. This would suggest that increasing farm size is of lower priority compared to increasing yields per acre, mainly through infilling.



Slide 59

Farmer segmentation approach

When farmers are eligible for service provision they are registered into a database and grouped into one segment (based on key performance indicators). Performance will be tracked over time and farmers incentivized to graduate to high-level segments. Meeting certain performance criteria, farmers can graduate and receive more advanced services.

RBTC-JE can be supported to institute an effective farmer segmentation approach by first building a robust farmer database that contains information that enables tailoring of service packages for each segment. Such a farmer segmentation approach:

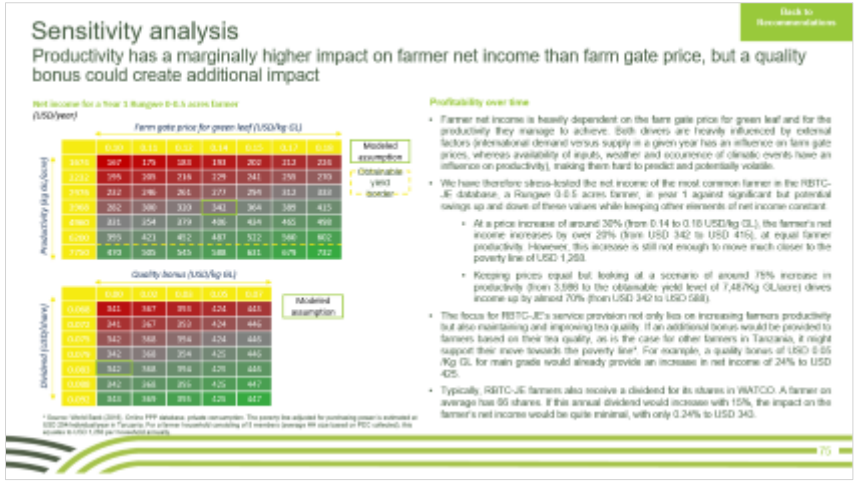
- Is embedded into the organizations' strategy and operations and offers a roadmap and clear objectives;
- Introduces a clear and useful terminology that aligns people within and outside the organization and can be used for decision-making;
- Has a clear graduation strategy, linked to progressive incentives (e.g. quantity bonuses for higher quality and sourcing volumes) and service packages built around segments;
- Defines measurable and relevant performance indicators (e.g., yield, inputs used, costs of production) per segment; and
- Defines segments that are representative of farmers in the field (e.g. through data points on assets, qualifications, performance, motivation and competitions).

Improve payments to farmers

1.d Better farmgate price, quality bonus and dividend payments to farmers would enhance the financial benefits received from tea farming

RBTC-JE farmers do not directly receive certification premiums – these are channeled through community projects. This payment structure is not expected to change in the near future. In addition, they do not receive performance bonuses based on profitability of the factory (WATCO). In comparison, farmers in the neighboring Mufindi region, who work with Unilever Tea Tanzania, receive quality bonus as part of their second payments.

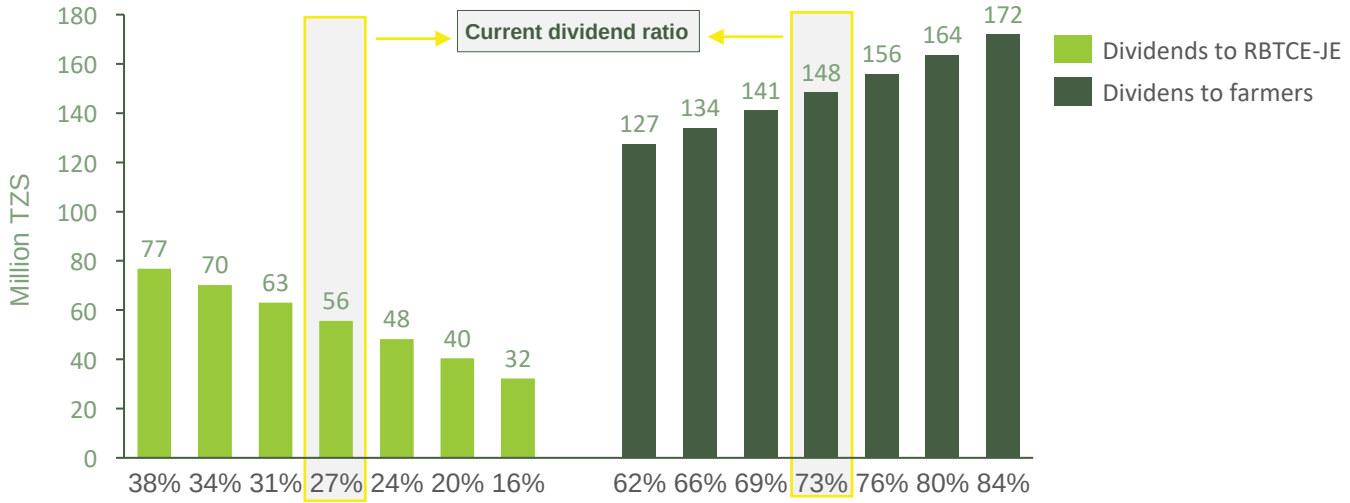
Impact on farmer net income of change in payment components (TZS/Kg)



Slide 69

An increase in farm gate price and a quality bonus would have a bigger impact on farmer net income, compared to an increase in dividends, given the current levels of dividends beings received.

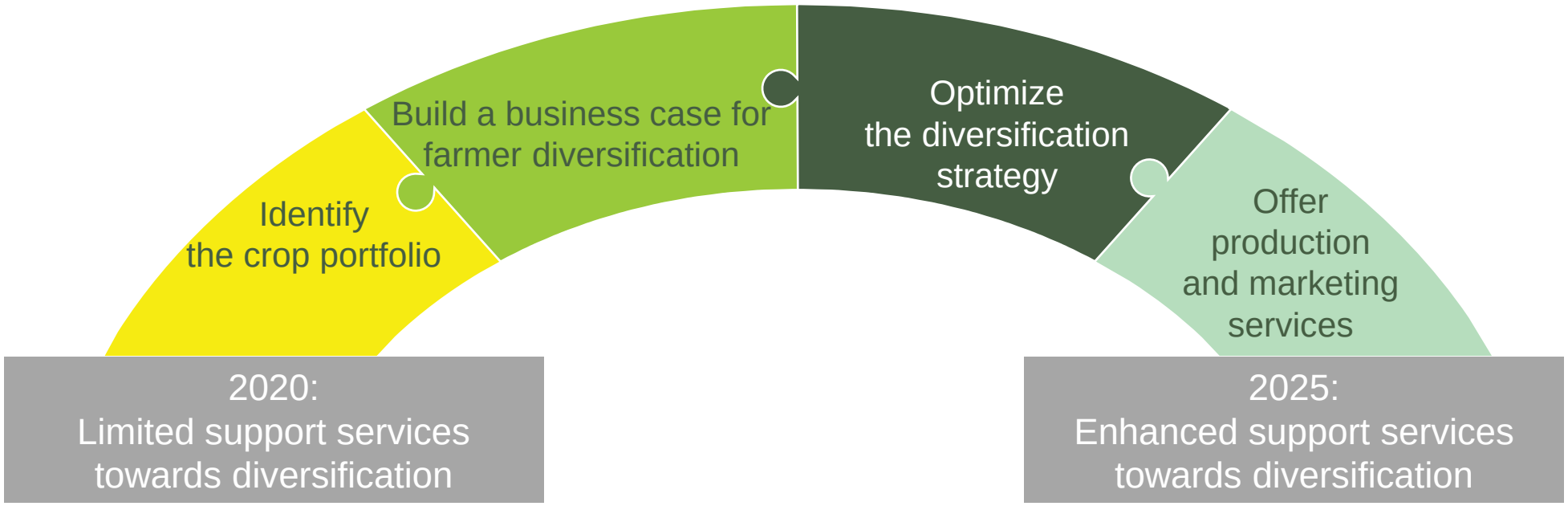
Impact on RBTC-JE and farmer net income of percentage change in dividend ratio (Million TZS)



A favorable increase in the ratio of dividends received by farmers beyond their current ratio of 73% results in a corresponding reduction in the dividends retained by RBTC-JE, and would thus impact the services RBTC-JE is able to offer to farmers. Therefore, such a decision should be carefully considered prior to implementation.

Supporting diversification

2. Production and marketing of complementary crops and livestock supports farmers to diversify their sources of income and increase their resilience



Identify the crop portfolio

2.a RBTC-JE can identify the portfolio of non tea crops and livestock based on the key enablers and challenges in the operating environment

	Decision criteria	Irish potato	Avocado	Banana	Beans	Coffee	Maize
Challenge 1 Market access	Potential market[3-9]? International, regional, national or local	Local, national, regional	Local, International	Local, national	Local, national, regional	International	Local, national, regional
	Potential offtakers identified?	No	Yes	No	No	No	No
	Demand vs supply[3-9]?	• Growing national demand • Net exporter	• Stable national demand • Growing international demand	• Large national demand • Little export	• Large national demand • Net exporter, growing regional demand	• Net exporter	• Large national demand • Export ban, growing regional demand
	Value chain status[3-9]?	• Lack of high-quality seed • Limited GAP knowledge • Undeveloped national processing industry	• Lack of high-quality seed • Limited GAP knowledge • Undeveloped infrastructure and logistics	• Undeveloped infrastructure and logistics	• Lack of high-quality seed • Undeveloped infrastructure, logistics and processing industry	• Need for replanting • Lack of affordable and resistant seedlings	• Lack of high-quality inputs • Limited infrastructure and logistics
Challenge 2 Regional feasibility	Agronomy[1]: Soil and climate suitability?	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
	Governance[3-9]: Governmental support programs?	SAGCOT	SAGCOT	No	No	No	No
	Farmer[4-9,10,11]: Labor needs, prior experience and skills?	• Moderate labor intensive • High GAP requirement	• High labor intensive • High GAP requirement	• High labor intensive • High GAP requirement	• Moderate labor intensive • Moderate GAP requirement	• High labor intensive • High GAP requirement	• Moderate labor intensive • High GAP requirement
Challenge 3 Impact creation	Gender[12]: women's participation and value capturing ability in value chain?	• Participation is equal • Peeling of potatoes	• Participation is limited	• Participation is limited	• Participation is equal • Cleaning of beans	• Participation is limited	• Participation is equal
	Food Security[2]: additional income stream vs own consumption and nutritional value?	• 10% own consumption • Moderate	• 10% own consumption • High	• 20% own consumption • Moderate	• 10% own consumption • High	• 0% own consumption • Low	• 25% own consumption • High
Challenge 4 RBTC-JE alignment	Potential for integration with RBTC-JE SDM?	Yes	Yes	Yes	Yes	Yes	Yes

Note: The list of crops is not exhaustive. This list is based on the most common crops grown by RBTC-JE farmers (PDC data) and district data on area allocation to crops.
Sources: see the references in the sources overview

Shortlisted crops selected for scenario analysis based on highest potential in enabling environment analysis and the profitability analysis on slide 70

Build a business case for farmer diversification

2.b RBTC-JE can develop several attractive farmer propositions for crop diversification that could support its farmers earn incomes above the poverty line

Comparison of diversification scenarios

Four scenarios were created to demonstrate the optimal business case for diversification, taking into account the results from the crop portfolio analysis. The most common RBTC-JE farmer, a Rungwe 0-0.5 acre tea farmer, is used for this analysis. This farmer typically has a total farm size of 2 acres, of which the tea farm takes up 25% (0.5 acre) and the remaining 1.5 acres are used for a combination of other crops.

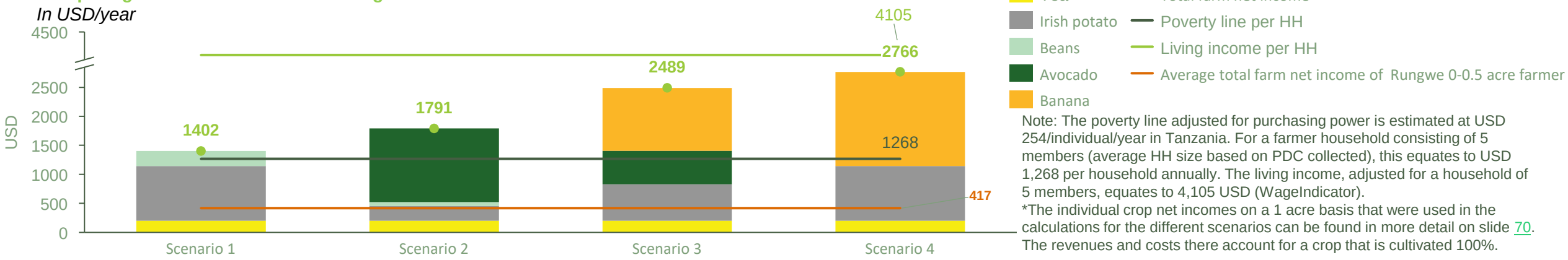
- Scenario 1 is a mix of potato and beans crop rotation on 1.5 acres and tea.
- Scenario 2 is a combination of potato and beans crop rotation on 0.4 acre, avocado on 1.1 acres and tea.
- Scenario 3 is a mix of potato and avocado intercropping on 1 acre, banana on 0.5 acre and tea.
- Scenario 4 is a combination of potato and banana intercropping on 1.5 acres, and tea.

A diversification portfolio containing potato and banana appears to be the most profitable for the farmer and can even increase up to 2,766 USD for a 2-acre farm. All diversification portfolios shown below could allow the farmer to earn a net income above the poverty line and brought closer to a living income. When comparing the optimized diversification crop portfolios with the net income of an average Rungwe 0-0.5 acre tea farmer that includes an average of non-SDM crop income, the former seems much more optimistic. Therefore, it is advised to interpret the graphs with caution and more in-depth analysis of the other crops grown by Rungwe farmers is required to pinpoint the reasons why average farmers seem to be producing other crops below their optimal levels (i.e., on level of professionalism, GAP knowledge, access to inputs, labor availability and offtake). In addition, the impact of intercropping avocado and potato needs to be investigated further, as high use of fertilizers and agro-chemicals in potato production may have affect the quality of avocado.

The graphs show that especially perennial crops such as avocado and banana appear to lead to a high net income per acre. However, it is important to note that these scenarios do not take into account the need for a farmer to invest in the initial set-up of these perennial crops and that production only starts after several years, especially avocado. Therefore, if a farmer wants to diversify into these value chains, the lack of income in the first years needs to be covered by intercropping with for example potato and beans.

Comparing total farm net income through different diversification scenarios*

In USD/year



Note: The poverty line adjusted for purchasing power is estimated at USD 254/individual/year in Tanzania. For a farmer household consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,268 per household annually. The living income, adjusted for a household of 5 members, equates to 4,105 USD (WageIndicator).
*The individual crop net incomes on a 1 acre basis that were used in the calculations for the different scenarios can be found in more detail on slide 70. The revenues and costs there account for a crop that is cultivated 100%.

Optimize the diversification strategy

2.c RBTC-JE can improve farmers' food security by identifying the optimal crop diversification portfolio that incorporates the value of production for own consumption

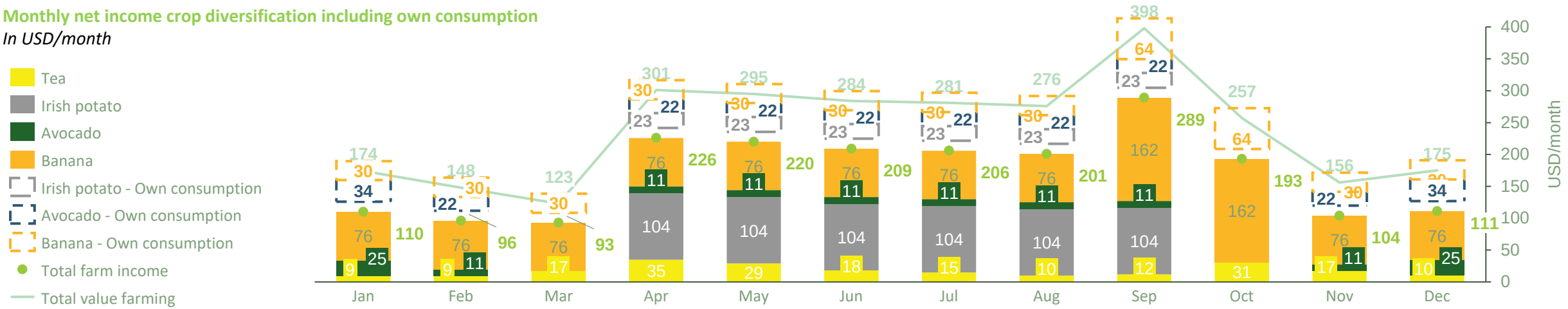
Improved food security for the farmer

When looking at the different diversification scenarios, it is important to keep in mind a farmer's food security and monthly cash flow. It therefore might be more optimal to select a diversification strategy that is less profitable overall annually but that provides more stability throughout the year. Below, Scenario 3 was analyzed in detail to demonstrate the monthly net income from sales and own consumption per crop. It is critical to assess the value of produce farmers do not sell and use for own consumption.

In general, November and December are the months with most food insecurity and cash flow challenges for Rungwe farmers, however this diversification strategy provides them with a peak in September, which could create a buffer for the months following. Additionally, the farmers are able to produce some crops for own consumption in November and December.

Monthly net income crop diversification including own consumption

In USD/month



Own consumption (kg)**	*Potato*				75kg	75kg	75kg	75kg	75kg	75kg			
	Avocado	52kg	35kg			35kg	35kg	35kg	35kg	35kg		35kg	52kg
	Banana	8kg	8kg	8kg	8kg	8kg	8kg	8kg	8kg	16kg	16kg	8kg	8kg
Food Security*													
Cash-flow*													

Note: this optimization has been developed for the most common farmer – Rungwe 0-0.5 acre

*This data has been obtained through the farmer PDC. **This data is based on conversations with RBTC-JE on different production cycles of crops for Rungwe farmers.

Offer production and marketing services

2.d RBTC-JE can improve production and marketing of identified portfolio of non-tea crops and livestock by providing additional services

If RBTC-JE could provide certain services for the additional crops and livestock opportunities as well as for tea, the SDM farmers could optimize their yields and their livelihoods. This is because they are potentially not only able to get access to training and increase yields, or to access inputs at a slightly lower cost, but are also able to manage their cash outflows by repaying for inputs when they have access to additional markets for secondary crops. However, prior to implementation of any support services, it is critical that RBTC-JE participates in the assessment of factors jointly determining farm suitability for diversification, such as **local geo-climate, soil test and proximity to market.**

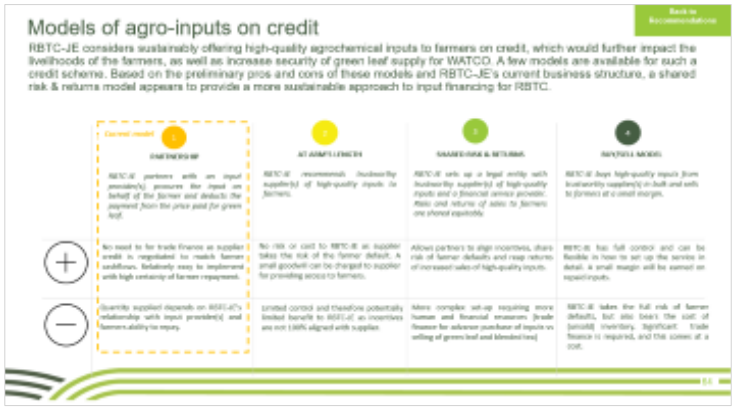
Production services

Training and extension

1. **AT ARM'S LENGTH**: *RBTC-JE links farmers to other specific crop associated farmer groups who provide training on GAP or to Government extension officers.*
   - ⊕ Allows for RBTC-JE to support farmers with limited human resources and no additional costs.
   - ⊖ Limited control on quality and frequency of training on GAP and therefore potentially limited benefit to RBTC-JE as incentives are not 100% aligned with the training provider.
2. **IN-HOUSE**: *RBTC-JE creates an additional extension officer's unit to provide training themselves with capacity building support of another partner such as a research institute.*
   - ⊕ Complete control on quality and frequency of training on GAP and the impact of GAP on farmer's yields.
   - ⊖ RBTC-JE would need to co-invest in additional extension officers to provide training and to provide support for demoplots.

Access to agro-inputs

Similar to the agro-inputs provision for tea, RBTC-JE could explore different approaches for provision of fertilizers, herbicides and pesticides for other key crops grown by RBTC-JE farmers, thereby contributing to increased yields.



Slide 58

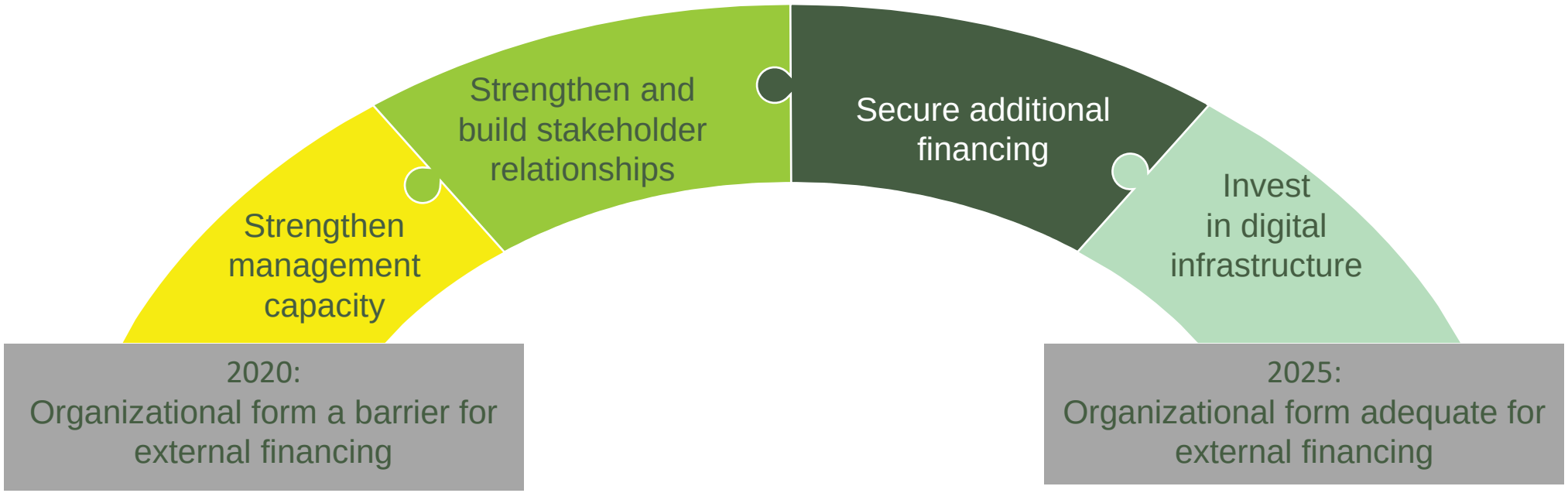
Marketing services

Access to markets

1. **AT ARM'S LENGTH**: *RBTC-JE matches farmers with other specific crop aggregators or processors that operate in the region.*
   - ⊕ Allows for RBTC-JE to support farmers with limited human resources and no additional costs.
   - ⊖ Limited financial benefits to RBTC-JE as it cannot recover any costs from the sale of produce.
2. **PARTNERSHIP**: *RBTC-JE enters into a joint venture with other crop specific aggregators or processors to source produce from farmers*
   - ⊕ RBTC-JE can earn revenue from this service through a profit-sharing arrangement with the buyer in order to offset its costs of service delivery. It can also leverage the existing service provision infrastructure.
   - ⊖ Requires investment in additional staff equipped to handle marketing of non-tea crops. There may be misalignment of incentives amongst partners making it difficult to draw up a partnership agreement.

Enhancing organizational capacity

3. Enhancing organizational capacity enables RBTC-JE to effectively scale up business operations and offer improved services



Strengthen management capacity

3.a RBTC-JE can increase farmer value by investing in developing management capacity and professionalization of service provision to smallholder farmers

Lever	Current situation	Success factors	Short-medium term investment needs
Human resources	• 17 extension officers serving 14,375 farmers (ratio of 1 extension officer to 846 farmers). These are currently managed by RBTC-JE but paid for by WATCO • 1 extension officer currently doubling up as the junior accountant and data officer	• Increase number of extension officers to achieve the ideal ratio of extension officer to farmer is 1:300 for better service delivery • Decouple the role of junior accountant and data officer from extension officer to leverage specialized skills for more efficiency • Recruit skilled staff at various functions: financial, agronomy, communication and data analysis	• 7 additional extension officers by 2022 at an average annual cost of USD 2,490 per officer • 1 data officer and 1 junior accountant at an annual average cost of USD 2,490 per staff • Capacity building of current staff through specialized training for each role
Financial management	• QuickBooks accounting package is used for financial record keeping while Excel is used to generate financial reports and for farmer database management • Gaps, such as incomplete data and inconsistent accounting schedules, identified in accounting records • Separate plans for various projects and activities	• Consider reviewing the chart of accounts to facilitate accurate mapping of activities to correct revenue and expenditure lines, thus improving performance analysis by service • Institute internal audits to provide assurance on the financial performance and position of the business • Develop a single robust strategic plan that can be used for fundraising	• IT assessment to determine the appropriate farmer management system • TA to review the cooperative's business strategy and prioritize key milestone
Financial resources and bankability	• Reliance on grants and member contributions (up to 11% and 24% of total income in 2020, respectively) to fund operations • Lack of collateral (low member equity and assets) to attract external debt financing	• Wean off grant funding by diversifying income sources through profitable and self-sustaining ventures • Increase member equity by promoting higher retention of dividends and ploughing back retained earnings into the business • Secure a partnership with an impact investor that can offer credit guarantee for debt financing	• USD 200,680 to support acquisition of additional 19% shares in WATCO by 2022 • Pitch the cooperative's business strategy to impact investors
Service provision	• 90 demo plots were established and run by 10 agronomists through funding from Agdevco • Seedlings provided by WATCO based on available surplus • Inputs sometimes provided to non-deserving farmers • No farmer segmentation approach to facilitate decision making	• Continued operations of the demo plots to train farmers on GAP • Establish and maintain own nursery for seedling propagation and supply the seedlings to farmers at a small margin • Conduct a cleanup of the farmer database and specify the selection criteria for qualifying to receive input. Define input packages for each farmer segment	• 10 extension officers at total annual cost of USD 24,900 • Annual maintenance costs of demo plots of USD 106 per plot • A farmer census and a digital farmer management system
Governance	• Hold annual AGMs where key decisions are made • Board members are democratically elected although it is headed by the Chief Executive Officer, who is also part of management • No supervisory/control/audit committee	• Independence between Board and Management to enhance accountability, with management reporting to the board • Strong and independent supervisory Board comprising of members with different but complimentary professional profiles • An advisory committee of non-members with specific technical expertise in running of cooperatives and tea processing	• TA to strengthen the Board, especially with strategic skills to support diversification of operations into blending

Secure additional financing

3.b RBTC-JE needs to expand its access to affordable financing to support growth and generate better returns for farmers

RBTC-JE does not generate sufficient internal cash flows (it is loss making up to 2022) to finance its growth plans, given reliance on management fee from WATCO and farmer contributions, necessitating additional funding. Debt funding unlocks long term growth, albeit at a cost, with higher returns generated from the blending factory.

The following financing options are available for RBTC-JE, taking into consideration what is permissible for a cooperative society

Current funding sources

Category	Advantages	Barriers
Institutional capital or base capital • Comprises retained surplus, or profits not distributed amongst members	• Cheaper for cooperative than debt financing	• Dependent on level of profitability • Limits amount of dividend available for distribution to members • Transfers business risk to members
Member capital • Comprises: Entrance/membership fee; Shares (transferable or non-transferable); Transaction based fee (% of transaction stays within the cooperative); and Member accounts/deposits: certain % of the result (profit) remains on a member account within the cooperative	• Cheaper for cooperative than debt financing	• Limits amount of dividend available for distribution to members • Willingness of farmers to pay in capital or forego dividends
Quasi internal capital (hybrid capital) • Comprises: Guarantees; Grants; and Subordinate finance (debt)	• Releases cashflows for period of the financing, allowing members to cash in through dividend distribution	• Very high finance cost (cost of the credit guarantee and interest on debt) • Willingness of banks to enter into the transaction

Strengthen and build stakeholder relationships

3.c RBTC-JE would benefit from strengthening and building mutually beneficial strategic alignments with farmers and other key actors in the value chain

As a farmer organisation, RBTC-JE relates with multiple stakeholders (see page 45, 46 and 47) in the agricultural value chain, both for tea and the non-tea crops, all of whom play a key role in supporting smallholder farmers livelihoods. We highlight key stakeholders that RBTC-JE must continue to engage

Stakeholder	Farmers	Input providers	Tea processor(s)	Offtakers	NGOs & Government
Key issues and barriers	• Lack of information to support tailored services to farmers • Poor understanding of differences in behavior and performance across gender roles • Uncommitted farmers within the AMCOS and VTCs	• Lack of formal agreements/contracts with suppliers • Negotiations based on personal relationships with RBTC-JE management • Lack of collateral amongst farmers to secure inputs on credit	• Poor quality of green leaf sourced from farmers • Unreliable sourcing volumes • Price control that limits amount available to RBTC-JE and farmers for green leaf	• Fragmented and uncoordinated approach to sourcing (of non-tea crops), with multiple offtakers and middlemen	• Lack of a continuity plan for projects started to support RBTC-JE • Changing political priorities on smallholder farmer initiatives
Best practices in stakeholder engagement	• Building a robust farmer database and conducting regular townhall meetings to understand different farmer needs, socialize and enhance inclusivity • Strengthening AMCOS and VTCs through provision of training and advisory services to ensure these are run professionally and member commitment is secured	• Drafting and maintaining formal agreements with clear terms of supply • Transparency in disclosing farmer performance and challenges in order to develop joint interventions that will ensure consistent supply of inputs needed by farmers	• Liaising with WATCO in service delivery and project monitoring, e.g. in optimizing logistics (reorganizing route plan and advising collection trucks requirements) • Building consensus with WATCO on a reasonable quality bonus to pay to farmers for green leaf and other farmer incentives	• Having a more structured aggregation of supply can help farmers to achieve higher incomes through better farm-gate prices • It can also attract more external investments and buyers in the SDM regions, driven by potential reductions in sourcing costs and improved quality of the produce.	• Agreeing on specific project milestones and deliverables • Developing project plans that are self sustaining in the long term beyond grant funding • Lobbying for the implementation of favorable smallholder farmer policies and interventions (such as building of infrastructure)

BACK TO RECOMMENDATIONS

Invest in digital infrastructure

3.d RBTC-JE should implement a digital infrastructure that collects agronomic, sourcing and farmer financial data for informed decision-making and enabling access to finance

Leveraging digital platforms could generate value to RBTC-JE, farmers and WATCO. Value accrues in the form of efficiency gains (accuracy in data collected, reduced waiting time), improved knowledge on farmer productivity and additional needs, and access to services for farmers.

Key barriers and risks

- Limited functionality of Excel in enterprise, financial and client management
- Absence of investment in digital initiatives and a dedicated resource on digital strategy and/or digital agriculture innovations
- Lack of a robust and accurate farmer database
- Lack of digital literacy and incentive among smallholder farmers

Recommendations

- Invest in a digital platform after considering the total cost of ownership over the expected payback period, which includes setup costs, transaction costs, annual fees/license costs and any administrative and management overheads
- Drive farmer financial inclusion by creating awareness of advantages of transacting through bank accounts and mobile money, through demonstration in pilot groups

We have therefore identified a few applicable digital platforms that RBTC-JE could consider investing in within the medium and long term.

Functionalities	Possible use-cases	Data points	Priority for RBTC-JE	Value to RBTC-JE	Value to farmers	Value to WATCO
Customer relationship management (CRM)	• An integrated CRM platform for streamlined interaction between RBTC-JE and farmers (and WATCO) • RBTC-JE or AMCOS can capture and feed farmer data at various stages of engagement with farmers to keep RBTC-JE (and WATCO) informed • Empower RBTC-JE by providing relevant and timely actionable information about farmers and activities	• Unique identifier • Name, age and gender of person managing tea farm, not HH head • Land size: total land size, tea land size • Land dedication to: main crop, secondary crop, tertiary crop • Services ordered by gender • Time preference for training attendance • Number of tea bushes and annual production	High	High	High	High
Payments	Digital/mobile payments for: • Payments to farmers for produce • Payments by farmers for seedlings, inputs and mechanization • Loan disbursement and repayments	• SACCO in which farmers are members • Bank account number • Ownership of land • Other assets	Medium	Medium	High	Medium
Planning, forecasting and logistics	• Forecasting seedling and input requirements at farmer/ AMCOS level • Coordinating delivery of inputs to farmer • Managing and tracking collections at buying centers	• Sourced volumes by WATCO • Seedling and agro-input required volumes	Medium	High	Medium	High
Coordination of services	• Training • Marketplace for connecting service providers and farmers	• Training attendance (adoption) • Services needed (seedlings, agro-inputs, mechanization) • Services for additional crops	Low	Medium	High	Low

Table of content

3.1 About the context

Introducing the tea sector in Tanzania, its challenges and priorities

This section:

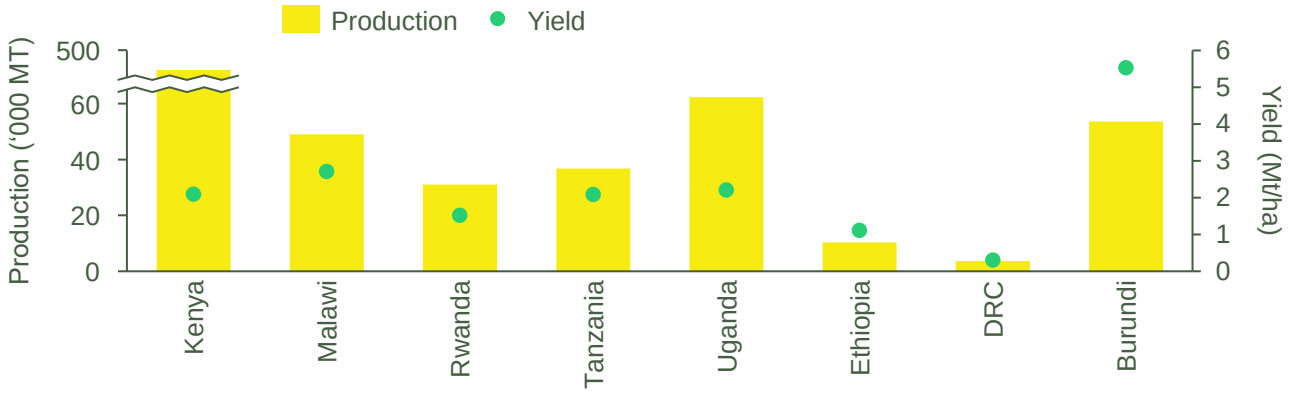
- *Describes the tea market and value chain in Tanzania*
- *Analyses the enabling environment and key sustainability risks*

Market

Tanzania has seen slow increase in tea production and yield over the last decade, which means there is room for improvement

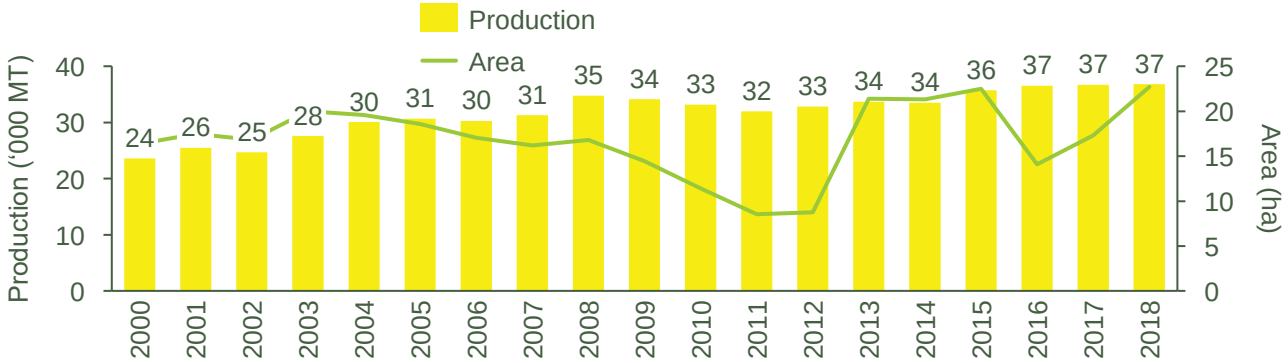
Made tea production by country (2018)[1]

Production in '000 MT and yield in MT per hectare in 2018



Domestic production of made tea[1]

Total production in '000 MT of made tea and production area



Production

- Within the African tea market Kenya is the biggest tea producer with nearly 500,000 MT of Made Tea per year.
- Among the tea producing countries in East Africa, Tanzania ranks fifth, as per 2018 statistics. The country's production has been rising steadily in the past two decades, from 24,000 MT in 2000 to 37,000 MT in 2018.
- However, the country's average yields are 40% lower than neighboring Kenya, largely due to the low productivity of smallholder farmers[5]. Low productivity is mainly attributed to relatively lower altitudes compared to tea growing zones in Kenya, poor application of good agricultural practices, lack of extension services, lack of adequate and affordable inputs, amongst others. However, there are opportunities to increase Tanzania's tea production.
- Tanzania has about 20,000 hectares of tea farmland[2]. However, available farmland cultivated by tea appears to follow a more volatile trend.
- In general, agricultural land in Tanzania is increasingly coming under pressure due to population pressure, land degradation and climate change. Additionally, the wide range of crops for which farmland often is suitable leads to crops competing for land[4].

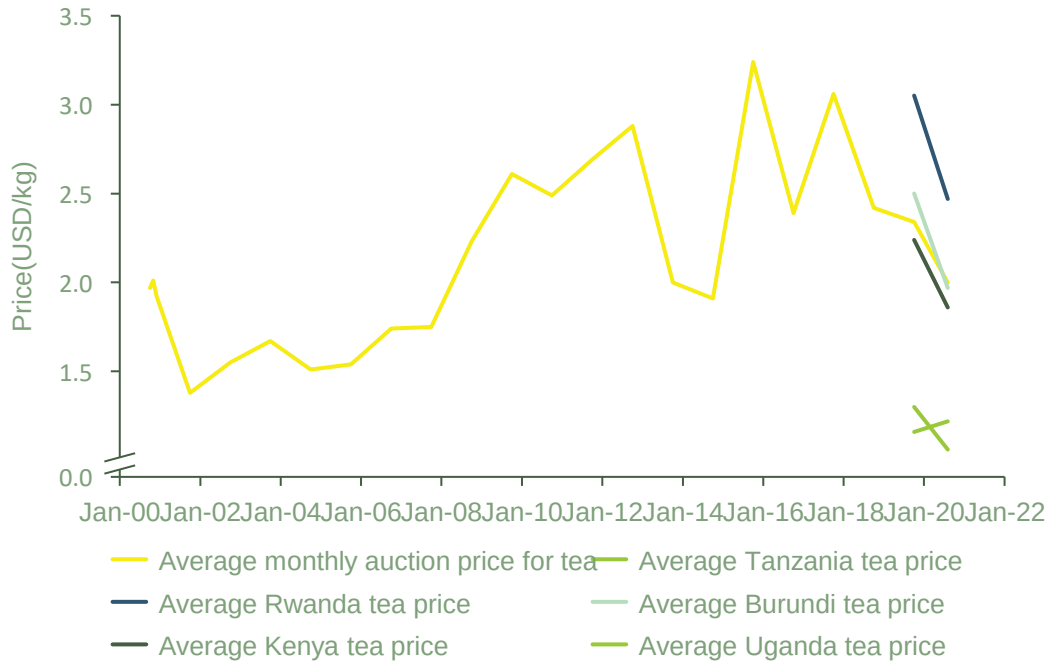
Sources: [1]FAOSTAT (October 2020). [2]Theteadetective.com, Teas of Tanzania. [3]Committee on Commodity Problems, Report on the Tea Industry of Tanzania (2016). [4]Land for Agriculture in Tanzania: Challenges and Opportunities (2014). [5]SAGCOT.

Tea prices

East Africa has had generally volatile tea prices, with Tanzanian tea capturing the lowest prices due to lower tea quality

Mombasa tea auction prices[1,2,4]

Made Tea price USD per kg over time



Sources: [1]Indexmundi. [2]TheEastAfrican: Rwandan tea price beats Kenyan at Mombasa auction on quality. [3]TheCitizen (2020) Start of tea auction in Dar. [4]NewVision(2020) Uganda fetches low price at Mombasa auction. [5]Value Chains and Chains of Values: Tracing Tanzanian Tea (2012)

Tanzania made tea prices

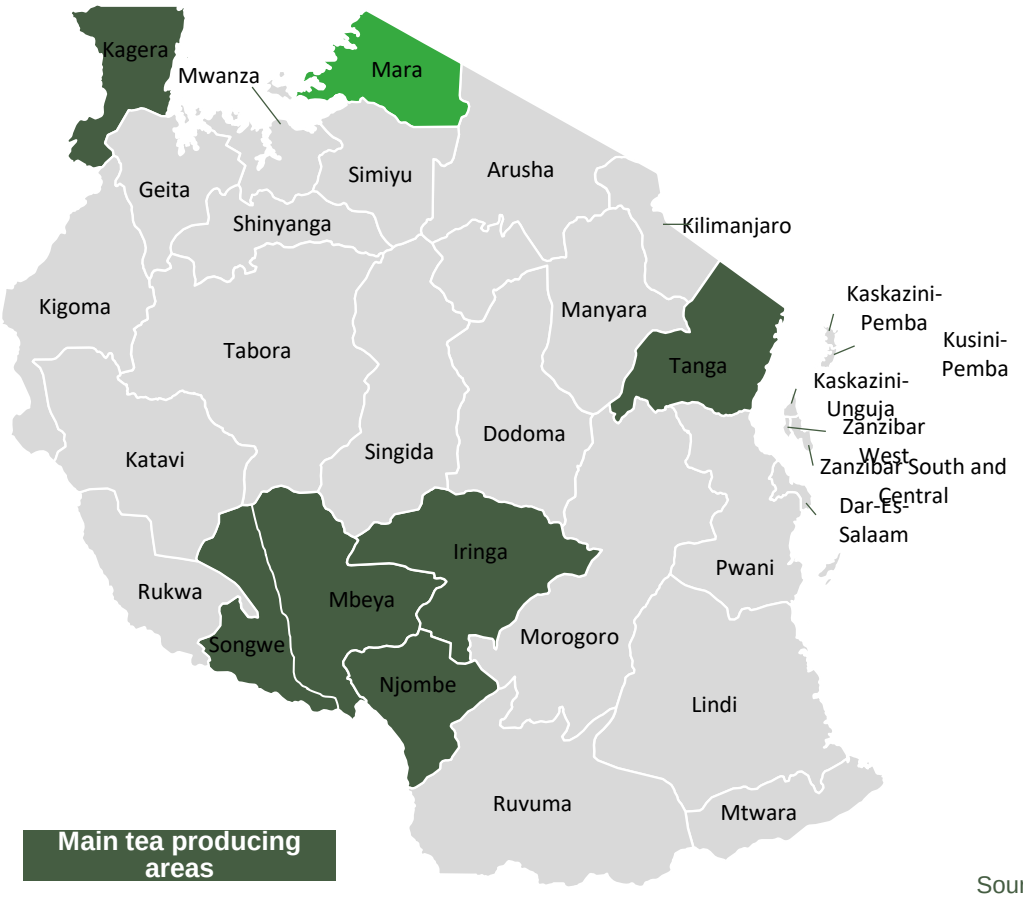
- Most of the East-African tea is auctioned at the Mombasa tea auction, making Kenya the leading tea exporter in the world[2]. More than three quarters of the produce traded comes from the country itself and the rest from its neighboring countries such as Rwanda, Tanzania, Uganda and Burundi.
- The historical Mombasa tea auction prices provides a good overview of African tea price fluctuations[1] and demonstrates a highly volatile nature, which impacts the rest of the value chain.
- Tea quality plays a vital role in determining the final value at auction. Although market forces may affect the general price levels, it is quality which distinguishes the value of tea across different factories irrespective of demand and supply patterns in the market[5]. Therefore, Rwandan tea often tends to capture the highest price of the teas offered due to its high quality. In 2019, Rwandan tea received 3.05USD/kg compared to a mere 1.3 USD/kg for Tanzanian tea[2].
- Due to the relatively low tea prices and the additional cost for Tanzanian tea aggregators to auction their tea in Kenya instead of in Tanzania, the Tanzanian government is planning to open their own tea auction house in Dar es Salaam[3].

Tanzania green leaf tea prices

- Each year the Tea Board of Tanzania (TBT) sets the green leaf tea price, based on an annual average from the Made Tea prices of tea processors, the green-leaf-to-made-tea conversion ratio and exchange rates.
- The determined green leaf tea price is the minimum tea price which can be paid to farmers selling their tea to processing factories and it usually constitutes a fair share price ratio of 37% of the tea auction prices. For Kenyan smallholder farmers, this ratio has been improving and is generally around 40-50%.
- Typically, tea price to the farmer consists of two parts:
    1. first payment is the minimum price set by the Government, based on average prices reported by processing factories; and
    2. second payment applies to companies which have sold and received a premium above the minimum price. TBT instructs this payment in order to meet the fair share price ratio of 37%.
- The price control by the TBT, unlike in other East African countries, was to force processing factories to pay farmers a fair price. This was necessitated by the very low prices that farmers received from private tea factories. Government envisions to discontinue the price control in the future.

Farmer Base

Tanzanian tea farmers are mainly located in the south of Tanzania and cultivate small, low-yielding plots of land while using little agrochemical inputs



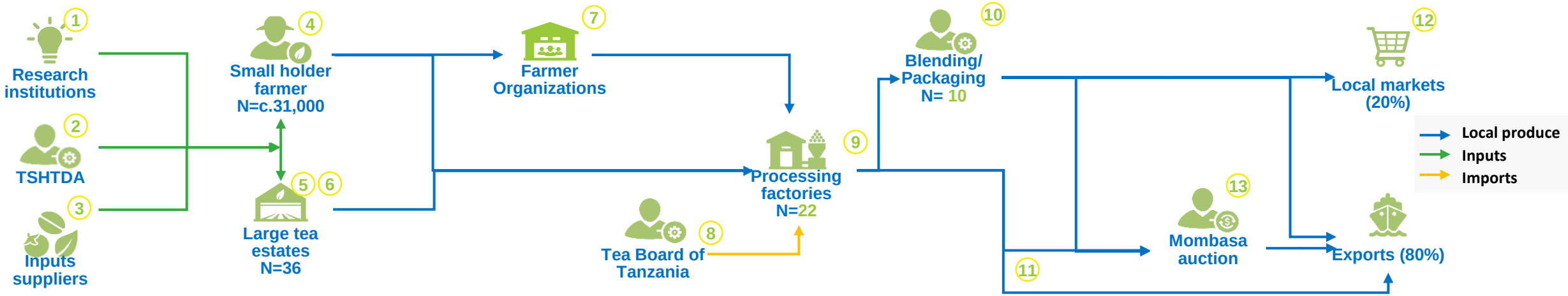
Tanzania tea farmers are low-yielding

- Tea cultivation areas are geographically limited, as tea is a sensitive crop that requires specific growing conditions to thrive[3]. Hence, only certain areas in Tanzania are qualified for tea cultivation.
- The Southern Highlands of Tanzania are one of the country's main tea-growing areas. Mufindi (Iringa), Njombe and Rungwe (Mbeya) are the most significant tea-producing areas in this region[1].
- Tea is a major crop for smallholder farmers. Smallholders account for almost half of the land allocated to tea[4], however, they only contribute to only 32% of national production[5]. The other half of land consists of private estates that produce 68% of national tea.
- The smallholder tea farmers struggle with low yields, averaging about 2,000 kg/acre. By comparison, average yield of private estates is 4,272/acre[2]. The main reason is their low use of farm inputs[6].
- Tea smallholders in Rungwe (Mbeya region) also tend to have on average 1.64 ha of farmland, of which ~0.22 ha is dedicated to tea[7].

Sources: [1]SAGCOT. [2]Woldbank (2004) Tanzania's tea sector constraints and challenges. [3]IISD (2019) Global market report: tea. [4]Theteadetective.com, Teas of Tanzania. [5]Committee on Commodity Problems, Report on the Tea Industry of Tanzania (2016). [6]LEI Wageningen: Baseline study of the Mufindi Outgrowers Project, Tanzania (2016). [7]RUBUTCO farmer database (2020). [7]TheEastAfrican: Tanzania targets five regions to boost tea yields and sales.

Tea value chain

The Tanzania tea value chain is split between high-yielding, vertically integrated estates and low-yielding, low-earning smallholder farmers



Production

1. Research institutions such as the TRIT and TARI are leading the development and implementation of cloned tea seeds[6] .
2. The Tanzania Smallholder Tea Development Agency (TSHTDA) provides high-quality seeds and extension services to other actors in the value chain such as farmers, farmer organizations and even processing factories[6] .
3. High-quality inputs are often unavailable or unaffordable for the farmers[6].
4. Tea in Tanzania is cultivated by either smallholders farmers, on plots averaging less than one hectare with lower yields or by large estates[1].
5. Large tea estates often exceed 1,000 hectares and apply a combination of ingrower and outgrower farmer schemes[1,2].

Aggregation

6. Large scale tea estates are in control of their own aggregation while smallholder farmers are mostly members of a farmer organization which manages the aggregation and transport of picked tea leaves to the buyer and processor.
7. Tea farmers are often organized as associations or in non-registered groups for input provision and to improve their access to finance.
8. The Tea Board of Tanzania regulates tea prices in the country and sets the minimum price payable by processing factories to smallholder farmers for their green leaf.

Processing

9. As picked leaves need to be processed within 6 hours, quick access to tea-processing facilities is key. Therefore, international tea manufacturers have established their own processing plants close to the fields, which has created a vertically integrated value chain[3].
10. Tanzania still counts relatively few blending factories as tea has historically been seen as an export crop. The increasing local interest in tea is seen as an opportunity in the blending market and a way to increase the focus on quality[6].

Markets

11. A majority of Tanzanian green leaf tea is sold outside of the auction through private contracts[5].
12. Although tea used to be seen as an export crop, the local market has increased to 20%[3].
13. Nearly two thirds of total Tanzanian made tea for export passes through the Mombasa tea auction[1] where market prices are fixed on a weekly basis. Afterwards it might get repackaged and branded by Kenya so the tea looses the Tanzanian brand. This loss of value and the additional transport cost from Dar es Salaam to Mombasa has lead Tanzania to contemplate launching their own tea auction[4].

Source: [1]Woldbank (2004) Tanzania's tea sector constraints and challenges. [2]WUR (2015) Furthering sustainable tea in Tanzania. [3]IISD (2019) Global market report: tea. [4]TheCitizen (2020) Start of tea auction in Dar. [5]Value Chains and Chains of Value: Tracing Tanzanian Tea (2012). [6]RBTC-JEinterviews

Enabling Environment (1/2)

Limited knowledge transfer and a lack of high-quality inputs and finance lead to low tea yields

Definition	Situation	Impact on farmer	Impact on SDM operator
Technology	• Research institutes have developed new tea varieties and fertilizers, however widespread usage and adoption levels remain low. This is often due to the small land size, which disincentivizes the large investments needed. • Lack of extension officers supported by the government or research institutes to inform farmers on GAP and new varieties. • Low connectivity levels and lack of knowledge on mobile payments.	• Low yields • Low quality • Low prices • Information dissymmetry	• Need to support farmers in access to knowledge on GAP and to high-quality inputs to ensure increasing yields and total tea production levels. • Need to provide knowledge to farmers on mobile banking and its benefits.
Environment	• Tea is a sensitive crop that requires specific growing conditions to thrive, and climate change is expected to affect temperature and rainfall patterns which can significantly impact yields. Tea estates are already reporting heavier rains and longer dry seasons leading to increased soil erosion and further use of fertilizers, pesticides and irrigation to maintain productivity[1].	• Low yields • Low quality • Low income	• Need to support farmers in obtaining affordable fertilizer to ensure increasing yields.
Infrastructure	• Most roads in rural areas are unhardened which increases transport costs and limits market access. • Good access to tea-processing facilities is essential for tea estates and smallholder tea farms as picked leaves need to be processed within 6 hours to ensure quality[1].	• Low quality • Low income	• Need to provide farmers with access to a stable offtaker to ensure a good farm-gate price.
Inputs & Financing	• Farmers' use of inputs is low due to low credit access, weak seed production systems, input infrastructure and the high presence of counterfeits[2]. • In Tanzania access to affordable credit is very low due to their high credit risk and their financial needs extending beyond agricultural purposes[3].	• Low yields • Low quality	• Need to support farmers in obtaining affordable and timely high-quality inputs to ensure increasing yields and total tea production levels. • Need to support farmers in getting finance to invest in high-quality inputs.

Sources: [1]IISD (2019) Global market report: tea. [2]GAFSP (2016) Agribusiness country diagnostic – Tanzania . [3]The Mastercard Foundation (2017) Responsible Agriculture Finance for Smallholder Farmers in Tanzania and Uganda. [4]RBTC-JEinterviews

Enabling Environment (2/2)

Limited governmental and financial incentives for cultivating tea leads to strong competition with other cash crops

Definition	Situation	Impact on farmer	Impact on SDM operator
Labor	• Many people possess the qualifications for plucking tea, however the supply of labor is limited as smallholder farmers are growing multiple other cash crops requiring attention as well.	• High labor costs • Suboptimal yields due to fewer or ill-timed plucking rounds	• Need to provide an incentive to farmers to focus on tea production to ensure overall tea production levels.
Trading System	• Tanzanian green leaf tea is sold both at the Mombasa auction and through private contracts. • Trading of export tea at the Mombasa tea auction is often through anonymous transactions[1], allowing intermediaries to easily switch between suppliers, pushing down prices and reducing margins for farmers[1].	• Low prices • Low income	• Need to provide an incentive to farmers to focus on increasing yields, quality and overall tea production levels. • Support farmers with income diversification projects.
Pricing & Competition	• The Tea board of Tanzania sets the minimum farm-gate price for green leaf tea.	• Ensured farm-gate price for tea • Lower quality	• Need to support farmers in obtaining affordable and timely high-quality inputs to ensure good quality.
Institutional Stability	• An institutional climate that disincentivizes tea farmers, farmer organizations or processing factories to make investments, especially through rapidly changing policies and regulations, disincentivizing tax rules and high obligatory cooperative registration costs. • Tea farmers are often organized as associations or in non-registered groups for support on input provision or access to finance.	• Low yields • Low quality • Low income	• Need to support farmers in obtaining affordable and timely high-quality inputs to ensure increasing yields and overall tea production levels. • Need to support farmers in getting finance to invest in high-quality inputs.
Land Tenure	• New farmland is available, however there is pressure on the land due to competing crops.	• Low yields • Low quality • Low income	• Need to provide an incentive to farmers to focus on increasing yields, quality and overall tea production levels.
Social Norms	• Many women are involved in tea farming, especially in plucking and the marketing process, allowing them to receive the earnings from cultivating the crop as well. • Several farmlands are abandoned due to cultural ownership issues.		• Need to provide an incentive to farmers to focus on tea production.

Sources: [1]IISD (2019) Global market report: tea. [2]GAFSP (2016) Agribusiness country diagnostic – Tanzania . [3]The Mastercard Foundation (2017) Responsible Agriculture Finance for Smallholder Farmers in Tanzania and Uganda. [4]RBTC-JEinterviews

Gender - RBTC-JE

Gender inequalities affecting women employed in the agriculture sector still exist in Tanzania, including in business, although women are well represented in leadership positions in RBTC-JE

Gender policies and approach within RBTC-JE

- RBTC-JE mentions gender as strategic goal for them, however there are no specific policies or practices in place to make the workplace inclusive for both women and men (e.g., equal payment policies, enforced sexual harassment policies; adopted hiring targets).
- RBTC-JE captures gender-disaggregated data, however it is not used to develop new or optimize its existing services.
- RBTC-JE delivers the same services in the same manner to both male and female farmers.

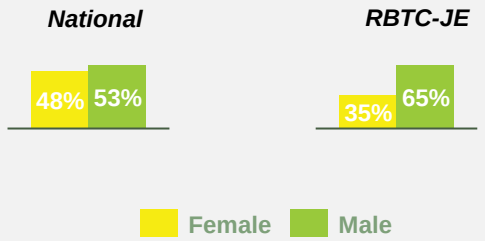
Comparison of RBTC-JE to the national context

- RBTC-JE has fewer female employees compared to the national level.
- However, out of 5 senior positions, two are held by women, resulting in ratio of women in leadership of 40% compared to 25% on national level.
- Female employees seem to earn less overall than their male colleagues. Although, they earn more than the national average.
- RBTC-JE's farmer database consists of 36% female farmers and 64% male farmers. This is significantly lower than the national average.

Gender dynamics within RBTC-JE

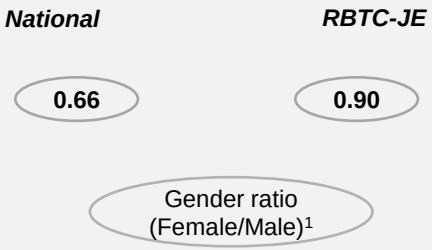
Employee ratio

How does RBTC-JE's ratio of female to male employees compare with the country labor force participation?*[1]



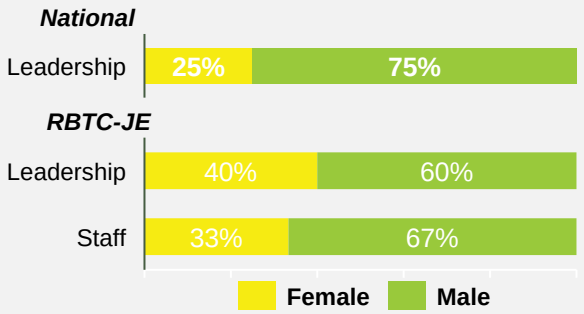
Income ratio

How do the incomes earned by RBTC-JE's employees compare with the incomes earned by women and men in the country?*[1]



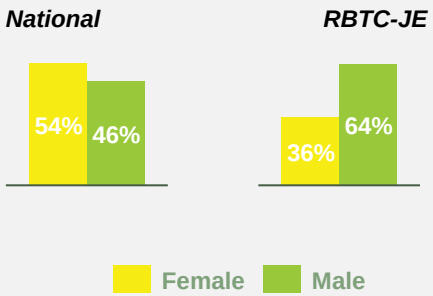
Women in Leadership

From the total female employees, what percentage are in middle to senior management?*[1]



Farmer base

How does RBTC-JE's proportion of female to male farmers compare with the country-wide farmer distribution?[4]



*Divide female indicator by male indicator to get ratio. A ratio of 1 indicates parity between the sexes; a ratio between 0 and 1 means a disparity in favor of males; whereas a ratio greater than 1 indicates a disparity in favor of females.

Sources: [1]World Economic Forum: Global Gender Gap report (2020); [2]World Bank (2017): Global Findex; [3]FAO (2018) Global crop database, [4]CLKnet Policy Brief No 8 (2013) Women participation in agriculture in Tanzania

Gender – Rungwe farmer

Women play a key role in the agriculture sector, however their decision-making influence and their access to finance and assets remains limited

Farm profile

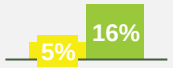
How does the yield (kg GL/acre) of RBTC-JE's male and female farmers compare with the country average?

Farm size (acre)	1.9	2.9
Tea farm size (acre)	1	1.3
Top 3 crops	Tea	Tea
	Maize	Banana
	n/a (Banana)	n/a (Maize)

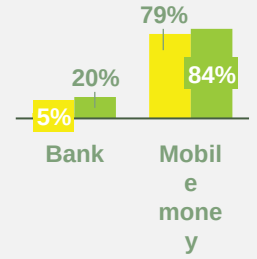
Farmer profile

		Female	Male
Labor activities	Fertilizer application	74%	78%
	Plucking	36%	47%
	Crop maintenance	31%	53%
Equipment usage	n/a	38%	24%
	Pruning knife	14%	34%
	Plucking sheers	22%	39%
Input usage	Fertilizer	79%	86%
	Herbicide	46%	68%
	Seeds	11%	19%

Taken out a loan in the past year (%)



Owner of a bank account or used a mobile money service in the past year (%)



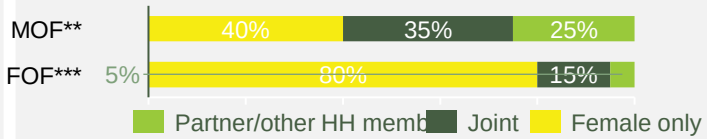
Household profile

Role division

	Female head of HH	Male head of HH
MOF**	2%	70%
FOF***	21%	7%

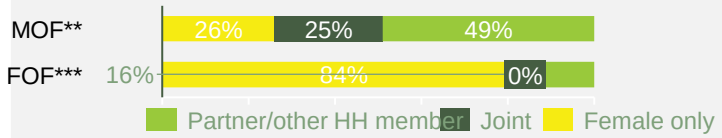
Few women are in charge of managing the farm if they are not the head of the household themselves.

Decision making in household activities



Women are mostly involved in activities such as cooking, cleaning, fetching water, washing clothes or buying food (75%). In both an MOF and FOF, women have a disproportionate load of unpaid care work, giving them limited time to engage in productive activities and to attend training on GAP.

Decision making in farm activities



Women are mainly involved in crop maintenance (29%), land preparation (19%) and plucking (23%). Being involved in both poorly and well renumerating activities allows them to capture some value.

*Female **Male-operated farms ***Female-operated farms

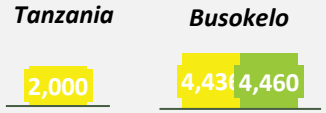
Sources: All data from farmer PDC except specified otherwise. [1]Tanzania Demographic and Health Survey (2015-2016), [2]World Bank (2017): Global Findex;

Gender – Busokelo farmer

Women play a key role in the agriculture sector, however their decision-making influence and their access to finance and assets remains limited

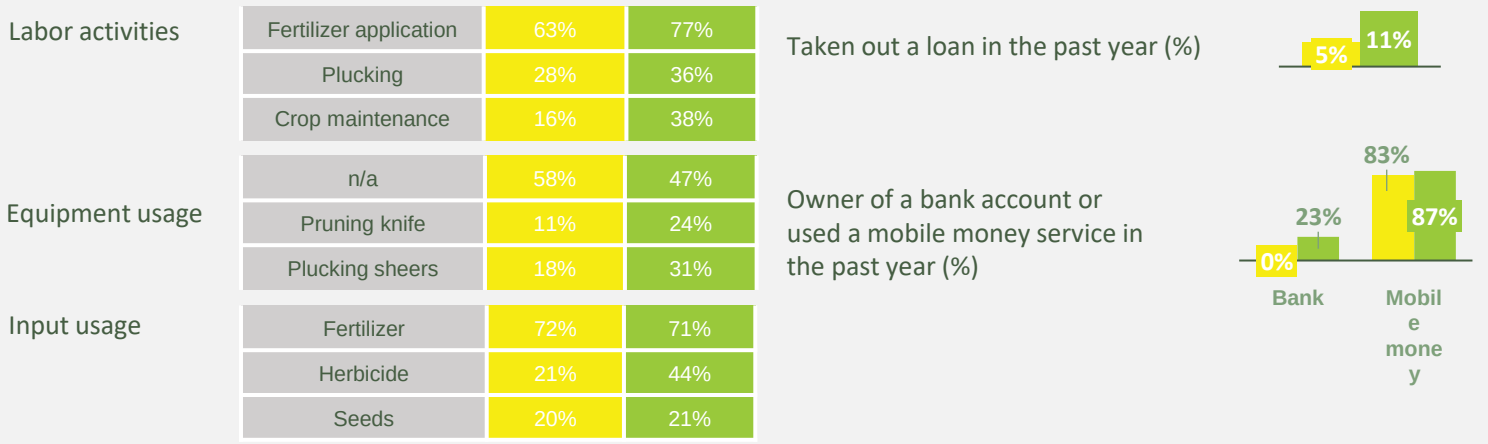
Farm profile

How does the yield (kg GL/acre) of RBTC-JE's male and female farmers compare with the country average?



	Female head of HH	Male head of HH
Farm size (acre)	2.4	3.1
Tea farm size (acre)	0.9	1.1
Top 3 crops	Tea	Tea
	Maize	Maize
	n/a (Potatoes)	n/a (Potatoes)

Farmer profile



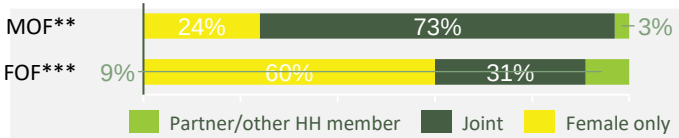
Household profile

Role division

	Female head of HH	Male head of HH
MOF**	2%	62%
FOF***	24%	12%

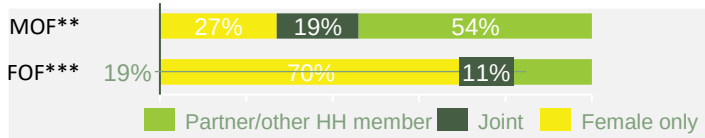
Fewer women are in charge of managing the farm if they are not the head of the household themselves.

Decision making in household activities



Women are mostly involved in activities such as cooking, cleaning, fetching water, washing clothes or buying food (68%). In both an MOF and FOF, women have a disproportionate load of unpaid care work, giving them limited time to engage in productive activities and to attend training on GAP.

Decision making in farm activities



Women are mainly involved in plucking (32%), crop maintenance (23%) and planting (21%). Being involved in both poorly and well renumerating activities allows them to capture some value.

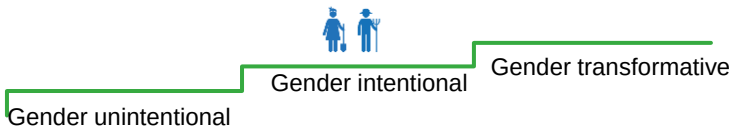
*Female **Male-operated farms ***Female-operated farms

Sources: All data from farmer PDC except specified otherwise. [1]Tanzania Demographic and Health Survey (2015-2016), [2]World Bank (2017): Global Findex;

Gender deep-dive

RBTC-JE and its farmers could benefit from directly implementing inclusive policies and services while lifting key barriers to women economic empowerment

Where is RBTC-JE on its gender journey?



RBTC-JE is gender intentional – The cooperative:

- *Mentions gender as a strategic goal in their scaling strategy;*
- *Mentions existence of gender inclusive policies at its workplace;*
- *Collects data disaggregated by sex. It serves all farmers with the same services but does not tailor its services to gender; and*
- *Works with other non-governmental organizations who provide services that allow women to have more independence and control over resources.*

RBTC-JE could strengthen its gender strategy by:

- *Taking a data-driven approach to understand the different needs and constraints of women and men in its internal and external processes with the goal of ensuring that both women and men have access to resources, have similar control over the benefits of those resources and/or are working in an inclusive workplace.*
- *Exploring how tailored services could improve RBTC-JE's business case, especially for income diversification, and allow women to have more independence and control over resources or move into roles in which they can gain more.*

Best practices to implement

Write gender strategy for clarity on goals and agenda. Establish KPIs (e.g. targets on the number of male and female farmers to be reached for each crop and livestock), develop a roadmap to get there and allocate resources to monitor and measure gender goals.

Include financial literacy in training (saving, budgeting, investment) to strengthen women's economic empowerment. Engender training methodology for new recruits.

Recruit women in groups that are already self organized. Foster women's leadership by encouraging the leaders of the women's groups to be lead farmers, particularly for secondary crops.

Use sex disaggregated data on needs and preferences of both men and women **to enhance productivity levels** by designing the service model to reflect this.

Foster the use of mobile money transfer to women. This ensures autonomy, control of their income, and bolsters financial resilience.

Develop a process of capturing, reporting and disseminating generated **knowledge and learnings** on gender.

Propose alternative credit scoring mechanisms to financial institutions to foster women's bankability, e.g., psychometric data that forecasts likelihood of default.

Barriers to be lifted

Economic: women's access and control of resources particularly finance is comparatively lower than that of men. **Practical:** some mode of transportation e.g. self ridden motorbikes is a challenge to most women

Benefits to RBTC-JE

Using existing women leaders to attract more women is an **effective farmer recruitment strategy.**

Adapting training to women's capacities, literacy rates, time schedules and location leads to **improved yields and quality of produce**[1].

Women's financial resilience is beneficial in household and community resilience and **fosters stable market and constant supply** chains[3].

Recruitment of women's groups is more likely to foster **higher loyalty levels** and **increased bankability**[2].

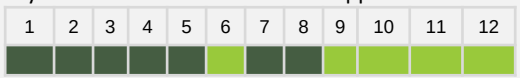
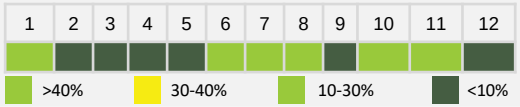
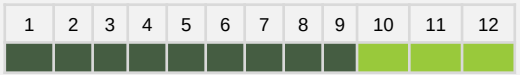
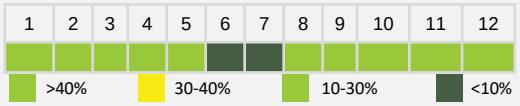
Higher probability of attracting impact finance from investors with a gender focus

1. Suri, T., Jack., W., (2016)., The long run poverty and gender impacts of mobile money; 2. IFC (2017)., Investing in women along agribusiness value chain; 3. Davies, M. Baars, M., (2017)., Link-up business case insights: Retrospective learnings from offering bank accounts to savings groups in Tanzania and Kenya; 4. Oxfam., (2016)., Women's Rights in the Cocoa Sector. Examples of emerging good practice

Food Security

Farmers in Rungwe are more cash strapped and experience more food shortages than farmers in Busokelo

Farmer's overall Food Security status

Category	Cash-flow (Stability & Access)	Food Security (Access & Availability)	Assets (Stability)
Score	Average risk	Low risk	Average risk
Data	***Rungwe*** 50% of farmers expressed that they are cash-strapped during the year. Farmers are most cash-strapped in Oct-Dec  1 2 3 4 5 6 7 8 9 10 11 12 ***Busokelo*** 31% of farmers expressed that they are cash-strapped during the year. Farmers are most cash-strapped in June and Oct  1 2 3 4 5 6 7 8 9 10 11 12 >40% 30-40% 10-30% <10%	***Rungwe*** 17% of farmers expressed that they face food shortages during the year. Farmers are most food insecure in Oct-Dec  1 2 3 4 5 6 7 8 9 10 11 12 ***Busokelo*** 5% of farmers expressed that they face food shortages during the year. Farmers are most food insecure in Oct-Jan  1 2 3 4 5 6 7 8 9 10 11 12 >40% 30-40% 10-30% <10%	***Rungwe*** • **Ownership:** Owns land • **Farm size:** 2.6 acres • **Tea farm size:** 1.2 acres (~45% of total land) • **Other crops:** 76% of the farmers grow diversified crops, mainly maize and banana. • **Animals:** 40% of the farmers own livestock. If they own livestock, it is primarily chickens and cows ***Busokelo*** • **Ownership:** Owns land • **Farm size:** 2.9 acres • **Tea farm size: 1** acres (~36% of total land) • **Other crops:** 90% of the farmers grow diversified crops, mainly maize. • **Animals:** 90% of the farmers own livestock. If they own livestock, it is primarily chickens and cows

Category	Income (Access & Availability)	Market (Availability)	Health & Sanitation (Utilization)
Score	Good	Average	Bad
Data	• **Poverty line:** poverty line is 1,268 USD/HH/year • **Household size:** 5 people ***Rungwe*** • **Tea sold:** 94% of total production • **Price:** 316 TZS/kg GL • **Income from crop:** average 766,487 TZS • **Income from other crops:** average 730,330 TZS • **Income from non-agricultural activities:** n/a ***Busokelo*** • **Tea sold:** 91% of total production • **Price:** 318 TZS/kg GL • **Income from crop**: average 751,531 TZS • **Income from other crops:** average 505,0511 TZS • **Income from non-agricultural activities:** n/a	• **Per capita food production variability:** 10.3 [1] • **Export vs Import:** 80% of Made Tea is exported. • **Local market:** No, very little tea is processed and sold in the local market • **Other crops**: see slide 16	• **District level nutrition status:** Generally, malnutrition is high[2]. However, few RBTC-JE farmers in Rungwe (2%) and Busokelo (4%) state it is an issue in their family. • **National average dietary energy supply adequacy:** 109% [1] • **Access to clean water:** Yes • **Access to sanitation:** 55% of households in Tanzania used unimproved toilet facilities or had no toilet facilities at all[2]

Sources: All data has been obtained from farmer PDC except specified otherwise. [1]FAOSTAT (2015,2018).[2]UNICEF (2019) Tanzanian national nutrition survey.

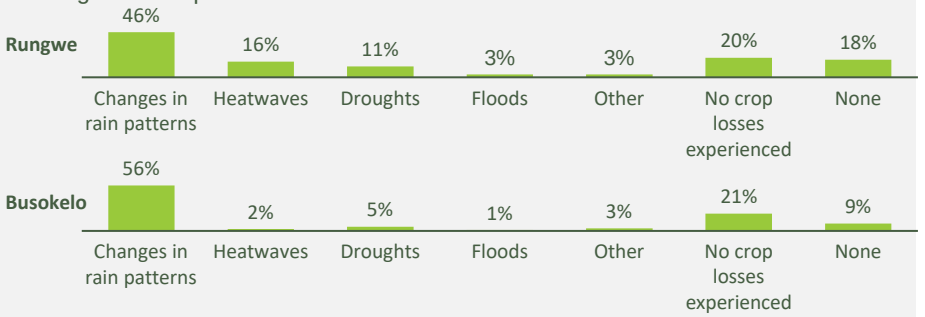
Climate Resilience

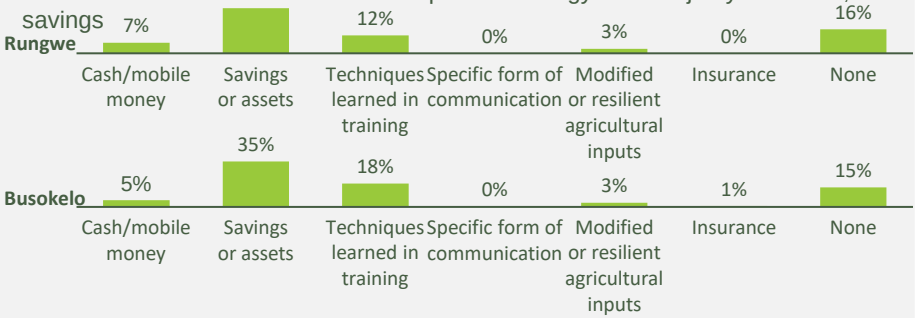
Tanzania is assessed to be low in climate resilience. Investing in climate smart agricultural practices could help farmers in dealing with climatic shocks

Farmer sensitivity and exposure to	Exposure	Detailed description of risk	Sensitivity	Expected impact
Changing temperatures	**High risk**	• The temperature in Tanzania and in Mbeya region are expected to increase due to climate change. The impacts of heat stress will be higher in cooler locations, such as Mbeya, where the length of the period experiencing heat stress conditions will increase the most[3]	**Severe**	• Increased prevalence of pests and diseases and emergence of new ones • Water stress due to droughts will affect yield
Changing rainfall patterns and soil conditions	**High risk**	• Tea estates are already reporting heavier rains and longer dry seasons leading to increased soil erosion and further use of fertilizers, pesticides and irrigation to maintain productivity[1] • While heavier rainfall is predicted, the total rainfall is projected to decrease in Mbeya region[4]	**Severe**	• Low soil fertility causes yields to decline
Frequent climate extremes	**Medium risk**	• Mbeya region has been experiencing deteriorating climatic conditions due to climate changes. The intense extreme weather events like droughts and wildfires will become more frequent[2]	**Average**	• Water stress due to droughts will affect yield

Farmer adaptive capacity

Category	Access to services	Climate issues faced	Coping mechanisms
Data	• **Phone**: Most farmers own a phone (72 female vs 83% male). But only 4-7% farmers own a smartphone • **Bank account:** Only 1% of female farmers have one, compared to 20% of males • **Mobile money account:** 70% of female and 83% of male farmers use mobile money • **Loan:** 5% of female farmers have a loan, while 7.5% of male farmers	• losses due to extreme weather events • Busokelo farmers experience more extreme climate events, mainly due to changes in rain patterns	• result of extreme weather. Those that do, are reported to mainly use GAP and savings • 15% of Busokelo farmers have no adaptation strategy. The majority that does, uses savings





Sources: [1]IISD (2019) Global market report: tea. [2]ThinkHazard – Mbeya county. [3]Climate Projections for United Republic of Tanzania (UCT). [4]Climate Change Projections for Tanzania Based on High-Resolution Regional Climate Models From the Coordinated Regional Climate Downscaling Experiment (CORDEX)-Africa (2018).

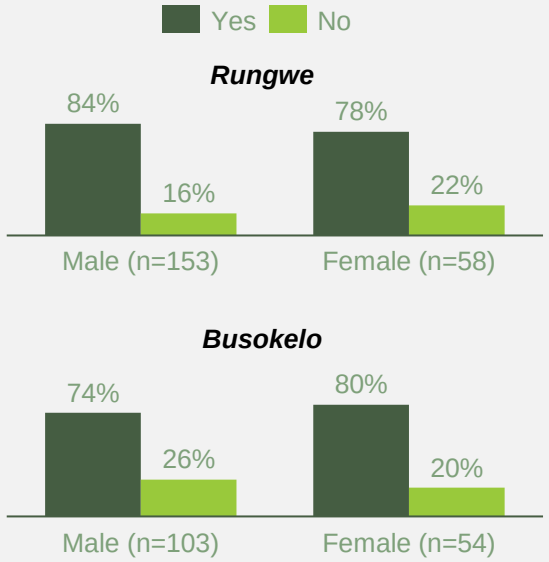
Farmer satisfaction with RBTC-JE

The majority of both Rungwe and Busokelo farmers would generally recommend RBTC-JE to others

In particular, access to high-quality services, access to markets and timely payments were cited as common factors for recommending RBTC-JE. However, those farmers that would not recommend RBTC-JE made that decision based on bad quality of inputs and services, as well as on the limited range of services offered.

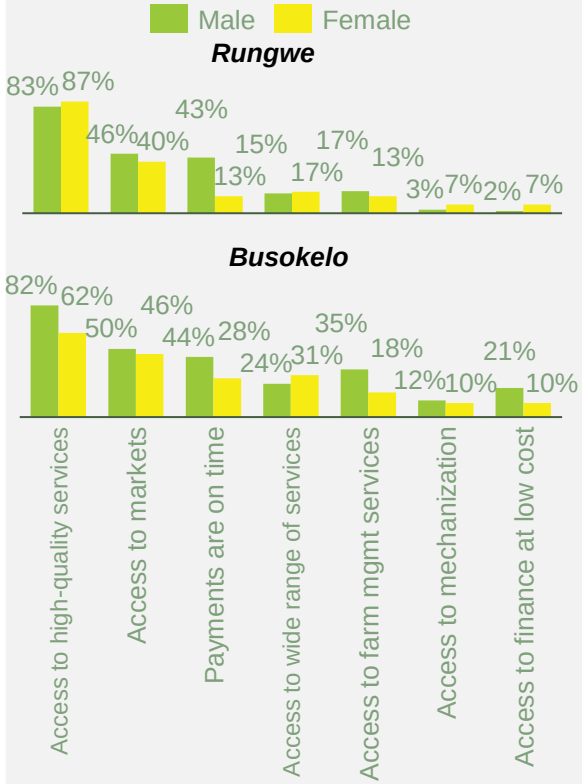
Overall recommendation

Would you recommend RBTC-JE to others?
(% of those who responded)



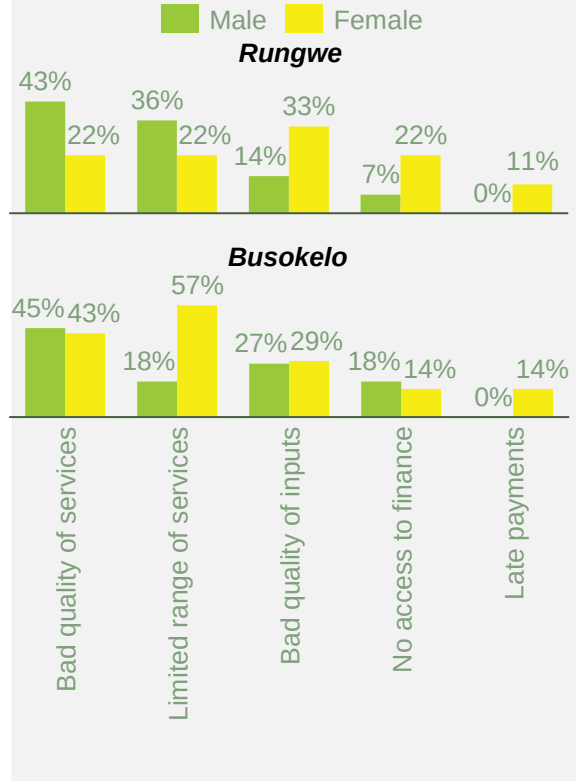
Positive recommendations

Reasons for recommending RBTC-JE to other farmers
(% of those who recommended)



Negative recommendations

Reasons for not recommending RBTC-JE to other farmers
(% of those who did not recommend)



Other farmer opinions

Rungwe

- 95% of the farmers stated they (mostly) receive their tea sales payments on time.
- 51% of women and 55% of men stated they face challenges in purchasing inputs. The main reasons are the lack of access to finance to purchase inputs and the high price of inputs.
- Only 23% of women and 35% of men indicated an interest in applying climate –smart agricultural practices, of which intercropping, irrigation, rainwater harvesting and the use of organic fertilizer were most highly valued.
- 90% of farmers would like the AMCOS to offer more services.

Busokelo

- 85% of the farmers stated they (mostly) receive their tea sales payments on time.
- 57% of the farmers stated they face challenges in purchasing inputs. The main reasons are the lack of access to finance to purchase inputs and the high price of inputs.
- 45% of women and 50% of men indicated an interest in applying climate –smart agricultural practices, of which intercropping, irrigation, the use of organic fertilizer and soil mulching were most highly valued.
- 95% of farmers would like the AMCOs to offer more services.

3.2 About the SDM

Understanding the SDM’s strategy and business model

This section:

- *Describes the current strategy of RBTC*
- *Details proposed improvements as included in the main recommendations*

Strategy and ambitions

RBTC-JE is looking to implement a robust operational strategy that will enable it to contribute towards doubling the incomes of smallholder tea farmers in Rungwe

Goals & Aspirations

- Growth aspirations for 2025:
  - ✓ Increase green leaf tea production from 24,000 MT to 40,000 MT
  - ✓ Improved tea quality > 90% main grade and 10% low grade
  - ✓ Commission a tea blending processing factory
- Contribute to farmers' livelihoods by fostering diversification, thereby increasing their income and food security
- Empowering the local communities through community projects such as building of rural health facilities, schools and clean water stations funded through certification premiums

Where to Play

- **Effective services:** Enhance service offerings ((training, seedlings, inputs, mechanization) to improve yields and farmer incomes
- **Own income diversification:** Set up tea blending factory in 2021 to generate additional income stream for the cooperative
- **Financing**: Increase access to affordable financing for farmers through input credit and SACCOs
- **Digitization**: Enhance the use of technology in farmer engagement and business operations

How to Win

Points of differentiation

- Having access to affordable, resilient, high yielding varieties of seedlings and quality inputs will provide extra yield against reduced cost
- By employing technology and paying farmers directly, RBTC-JE can offer competitive prices and increase farmer loyalty
- Farmers receive inputs on credit at affordable prices and free training

Points of parity

- Maintaining a close relationship with farmers to ensure farmer loyalty
- Good relationships with other key stakeholders such as government agencies which provides timely access to services

Capabilities Required

Critical capabilities

- Staff skilled at agronomy, communications and co-operative management
- Seedling production and multiplication
- Reliable supply of quality green leaf tea through enhanced farmer loyalty
- Reliable supply of quality and affordable agro-inputs from suppliers

Supporting capabilities

- Affordable asset financing to facilitate acquisition of the blending equipment
- Affordable working capital financing to support the input credit scheme and operations of the blending factory
- Input provider relationship management
- Social impact measurement, network and fundraising

Organization structure

Whilst RBTC-JE has 30% shareholding in WATCO, it operates autonomously from WATCO. RBTC-JE has set up a corporate governance structure that assures member farmers of transparency in its operations

- Has a democratically elected board and a 5-member management team led by the Chief Executive Officer
- Holds annual general meetings and provides capacity building for the AMCOS

RBTC- JE

- Each has a democratically elected board, with an appointed manager and treasurer
- Oversee the operations of the village tea committees

AMCOS (8)

- Village tea committees follow government administrative structures
- Have a democratically elected 5 member management team

VILLAGE TEA COMMITTEES

- Over 14,375 individual farmers spread across ~109 villages

FARMERS

RBTC-JE

100% 100%

RUNGWE FAIR TRADE FUND (RFTF)

RUNGWE SMALLHOLDER TEA DEVELOPMENT TRUST FUND (TRUST)

RBTC-JE management team overseas the operations of the two fully owned subsidiaries on behalf of farmers.
Regular updates on progress towards RBTC-JE core goals, as well as updates on implementation of the strategic plan are disseminated to farmers through Chai FM, which is operated under the Trust.

Key activities

BACK TO RECOMMENDATIONS

RBTC-JE provides a set of complementary services geared towards addressing challenges that have been faced by smallholder tea farmers in the region such as low productivity and marketing challenges

Training & extension services

- RBTC-JE provides farmers with free extension services and group trainings on good agricultural practices (GAP), certification and Fairtrade. Trainings are done throughout the year through demo plots (farmer field schools) and on individual farms.
- GAP training includes intercropping, crop rotation, pest management, post-harvest handling and storage.

Planting materials (seedlings) provision

- RBTC-JE supports farmers to receive tea seedlings from WATCO on credit. WATCO's seedlings are used for replanting both on its own plantation and the rest supplied to farmers.
- RBTC-JE is currently working with TSHTDA to develop tree nurseries that will be managed by RBTC-JE after 3 years.

Input provision

- RBTC-JE partners with input suppliers to provide farmers with high quality inputs on credit. These mainly comprise fertilizers (in partnership with Yara) and herbicides (in partnership with local companies). Herbicides suppliers are selected on an annual basis based on the price offered.
- RBTC-JE assesses the capacity of the farmers to repay before procuring the fertilizers.

Mechanization services

- RBTC-JE received plucking equipment from WATCO which it rents out to farmers at a small fee. Some plucking equipment are sold directly to the farmers through youth groups.
- RBTC-JE aims to operate the current equipment under management of the AMCOS and youth groups.

Access to markets

- RBTC-JE guarantees the offtake (by WATCO) of farmers' green leaf. It also supports in the recruitment of green leaf clerks who ensure transparency during sourcing (weighing and recording of green leaf).
- WATCO makes payments by the 15th of the next month after delivery of green leaf. Payments are done in cash through the village tea committee accounts.

Access to finance

- RBTC-JE has supported the establishment of Savings and Credit Cooperative Organizations (SACCOs), with branches for almost all the AMCOS.
- The SACCO enables farmers' access to financial services (both micro-credit and savings) using their tea farms as collateral. SACCO financing is provided for non-tea crops as well.

Farmer organisation

- RBTC-JE supports the organisation of farmers into AMCOS.
- RBTC-JE provides capacity building to the AMCOS management team, covers costs of personnel and setting up of physical offices.

Communication

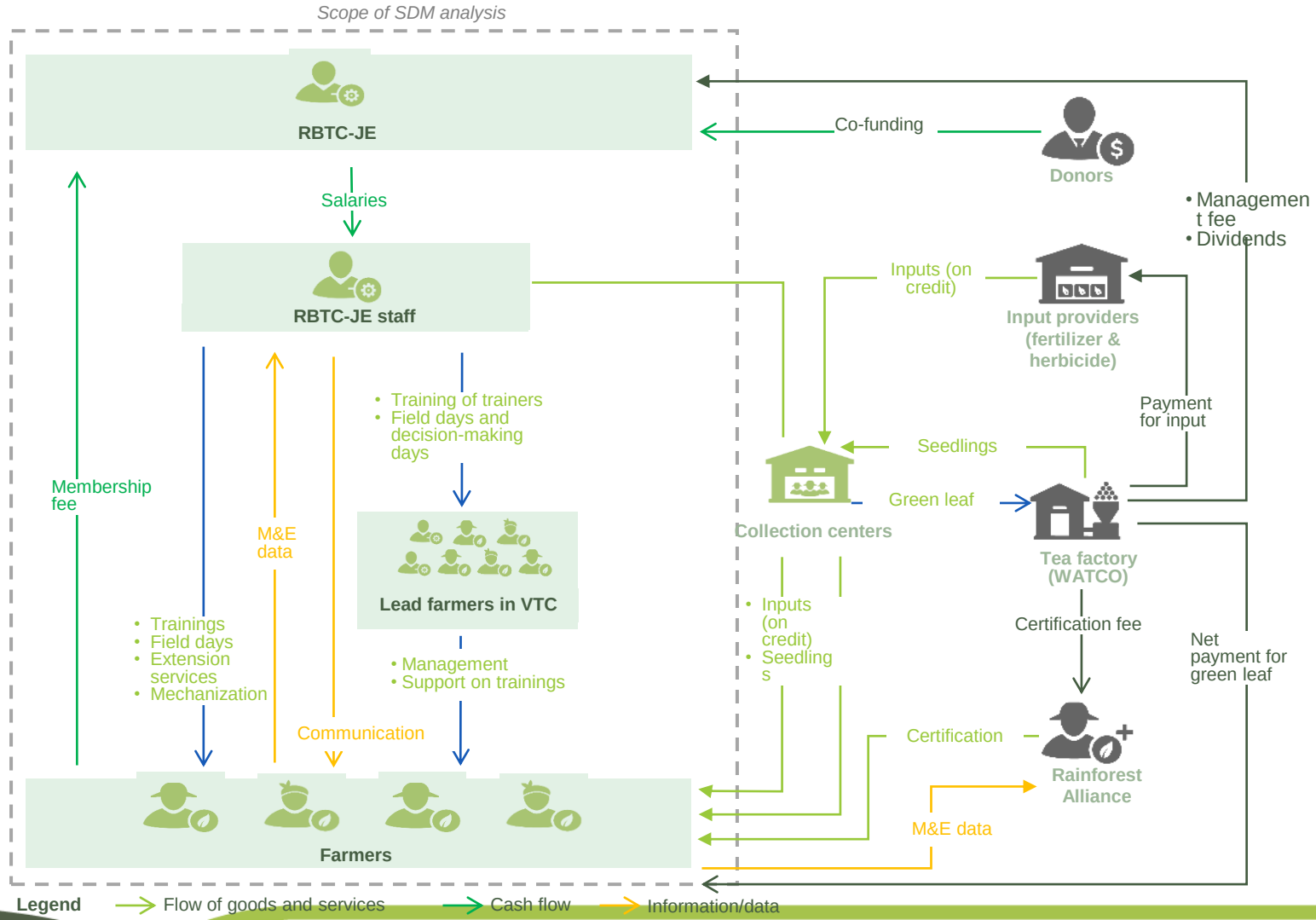
- RBTC-JE collects and disseminates information about tea cultivation, agricultural related issues, financial management matters, and local and international news to farmers through village tea committees, text messages, monthly newsletters and Chai FM radio, which it owns and operates.

Certification

- RBTC-JE, through WATCO, pays for acquisition of certification by the Rain Forest Alliance and Fairtrade.
- RBTC-JE facilitates the relevant training and audit to guarantee certification. Fairtrade certification assures farmers of good markets for any additional produce.
- Certification premiums are channeled through RFTF, with farmers benefitting through the community projects implemented.

Key channels

The RBTC-JE's business model enables farmers to supply their green leaf directly to WATCO, eliminating the loss of value that comes with middlemen



Service delivery channels

- RBTC-JE receives revenue in form of: farmer membership fee, management fee from WATCO and other funding from external donors.
- Input providers (of fertilizer and herbicides) supply inputs on credit to farmers and get paid by WATCO who deducts the amounts due from the green leaf payment.
- RBTC-JE determines the volume of inputs to be ordered after assessing the credit worthiness of farmers. The current volumes of fertilizer supplied have not been sufficient to meet all farmer needs. This is exacerbated by the fact that some farmers divert fertilizer for application on other non tea crops.
- RBTC-JE extension officers train famers, manage the distribution of inputs to farmers and arrange the provision of plucking equipment for harvesting.
- WATCO grows tea seedlings on its nucleus farm as input for farmers and for its own use.
- WATCO manages the tea processing facility and the transport of green leaf from farmers at the collection centres, which are owned and managed by WATCO. WATCO trucks are also used for the delivery of inputs to farmers.
- WATCO pays for the audit fee required for Rainforest Alliance and Fairtrade certification.

Main challenges in service delivery

- Limited funding to cover the high management and administrative costs at RBTC-JE level.
- Limited control on adoption of GAP and application of quality inputs to ensure quality of green leaf.
- Limited availability of quality inputs and seedlings to be provided to farmers on a timely manner.
- Poor road infrastructure in tea growing areas.
- Low prices for green leaf compared to the cost of production, discouraging production of quality tea.

Back to Recommendation

SDM partners and stakeholders (1/3)

WATCO remains one of the key partners to RBTC-JE's given their role of guaranteeing market of green leaf

Actors	Legal Status	Function (within this SDM)	Revenue model (within this SDM)	Incentive to participate (within this SDM)
Wakulima Tea Company (WATCO)	Limited liability company	• Sourcing and processing of tea • Provision of services to farmers	• Sale of tea	• Create a secure and steady supply of quality green leaf • Meet demand for tea
Yara Tanzania Ltd	Limited liability company	• Supply of fertilizers to farmers • Conducting trials with farmers	• Sale of fertilizers	• Expand customer base • Increase revenues
Input providers	Limited liability companies	• Supply of agro-inputs (herbicides)	• Sale of inputs	• Expand customer base • Increase revenues
Tea Research Institute of Tanzania (TRIT)	Public Institution	• Research on best practices for farmers • Assessment of tea farmer needs • Supply of tea seedlings during WATCO shortage	• None	• Catalyze the development of the tea value chain in Tanzania

Back to Recommendation

SDM partners and stakeholders (2/3)

Price control by the Tea Board of Tanzania has been to ensure that smallholder farmers receive a fair price

Actors	Legal Status	Function (within this SDM)	Revenue model (within this SDM)	Incentive to participate (within this SDM)
Tanzania Smallholders Tea Development Agency (TSHTDA)	Public institution	• Alignment of the Agri-Connect project with national smallholder tea strategy • Development of nurseries and provision of extension officers	• None	• Catalyze the development of the tea value chain in Tanzania
Tea Board of Tanzania (TBT)	Corporate body	• Coordination of tea pricing	• None	• Catalyze the development of the tea value chain in Tanzania
Government of Tanzania	Public institution	• Promoting (formation of) cooperatives and SACCOs • Development of infrastructure	• None	• Catalyze the development of the tea value chain in Tanzania
Rainforest Alliance	Non-governmental organization	• Certification of tea farmers	• Payments for audit services	• Increased sustainability of tea production

Back to Recommendation

SDM partners and stakeholders (3/3)

RBTC-JE has managed to collaborate and network with other stakeholders to support tea farmers of Rungwe district improve their livelihood through farming activities

Actors	Legal Status	Function (within this SDM)	Revenue model (within this SDM)	Incentive to participate (within this SDM)
the sustainable trade initiative	Public-private partnership (global aims)	• Implementation of the Agri-Connect project • Support on smallholder engagement (strategic, technical and convening) • Support of project M&E and capacity building of AMCOS	• None	• Improve farmer livelihoods and food security • Catalyze investments in smallholder value chains and sustainability projects
Donors (Wood Foundation Trust, Sainsbury UK, AGDEVCO, CAFEDIRECT, Producer Direct UK	Non-governmental organizations	• Funding of capacity building projects for RBTC-JE through grants	• None	• Improve farmer livelihoods
Knowledge partners (TADIO, INTERNEWS UNESCO, UNICEF DMI, FARM RADIO, OCP)	Non-governmental organizations	• Supporting Chai FM in capacity building and broadcasting	• None	• Improve farmer livelihoods

Scope and scale

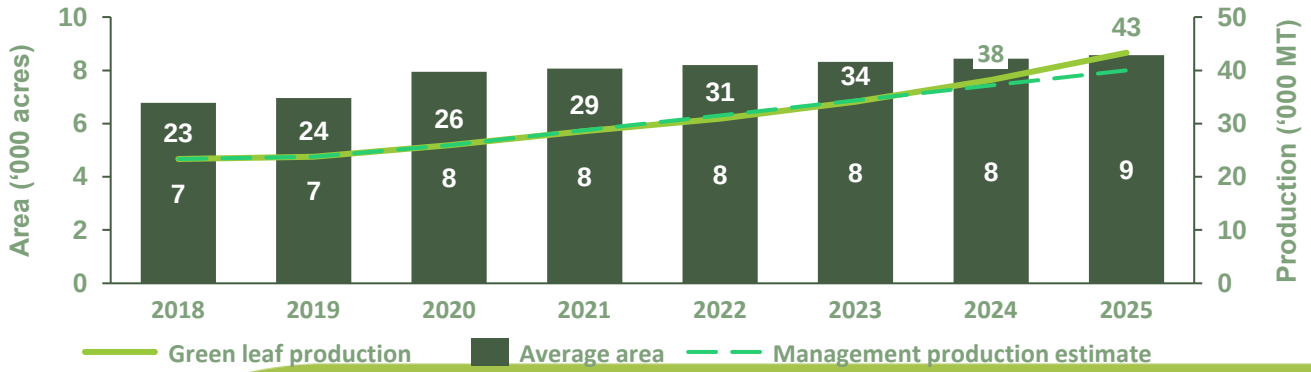
With application of good agricultural practices, infilling and replanting, smallholders in Rungwe are able to increase their productivity

RBTC-JE's outgrower model

- RBTC-JE works with smallholder farmers in Rungwe and Busokelo councils, Rungwe district in Mbeya region. These have an average tea farm size of 0.55 acres. Due to regulatory restrictions, the co-operative is limited from expanding to other regions.
- The co-operative currently has a membership base of 14,375 farmers, of which 36% are female. It aims to grow the farmer base to 15,500 by 2025.
- The outgrower program is currently run by 17 field officers within RBTC-JE. Each field officer covers about 6 farming communities/villages and manages an average of 850 farmers (against the local government recommended average of 300 farmers per officer) and are therefore currently in overcapacity. Whilst RBTC-JE intends to increase the number of extension officers to 24 by 2023, they would be operating above the recommended ratio.
- The co-operative is looking to increase farmer productivity from the current average yields of 2,959 Kg/acre to 6,308 Kg/ acre.
- In addition, the co-operative seeks to enable farmers diversify into food crops such as bananas, avocado, potatoes and maize, and livestock farming by supporting pig farming and bee keeping.

Scale of outgrower model

Total tea under cultivation (acres) and green leaf tea production (MT) per year



Location of current outgrowers

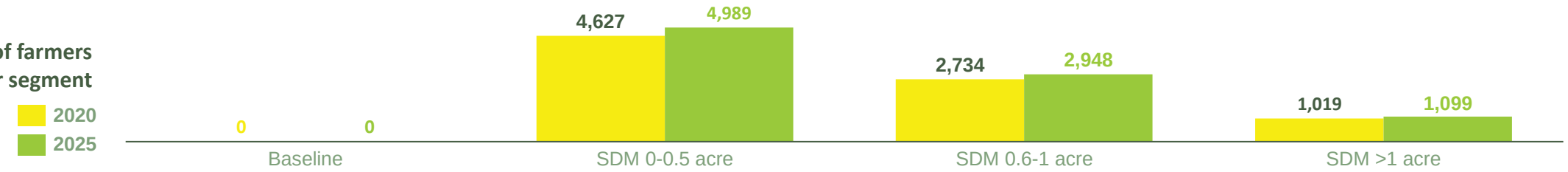
Tanzania

Farmer segments - Rungwe

All Rungwe farmers to whom RBTC-JE delivers services are considered part of the Service Delivery Model (SDM)

	Baseline farmer	SDM farmer 0-0.5 acre	SDM farmer 0.6-1 acre	SDM farmer >1 acre
Description	A typical tea farmer in Rungwe council that does not supply to WATCO and does not receive services from RBTC-JE	A typical tea farmer in Rungwe council that is a member of RBTC-JE, receives its services and supplies its tea to WATCO	A typical tea farmer in Rungwe council that is a member of RBTC-JE, receives its services and supplies its tea to WATCO	A typical tea farmer in Rungwe council that is a member of RBTC-JE, receives its services and supplies its tea to WATCO
Distinguishing characteristics	• No infilling • Very low input application	• Tea farm size is 0-0.5 acre • Improved tea varieties for newly planted bushes used for infilling • Higher level of input application	• Tea farm size is 0.6-1 acre • Improved tea varieties for newly planted bushes used for infilling • Higher level of input application	• Tea farm size is larger than 1 acre • Improved tea varieties for newly planted bushes used for infilling • Higher level of input application
Services	• RBTC-JE does not offer any services to these farmers	• GAP training • Farmer organization • Improved variety seedlings • Inputs • Mechanization • Off-take by WATCO		

Number of farmers per segment

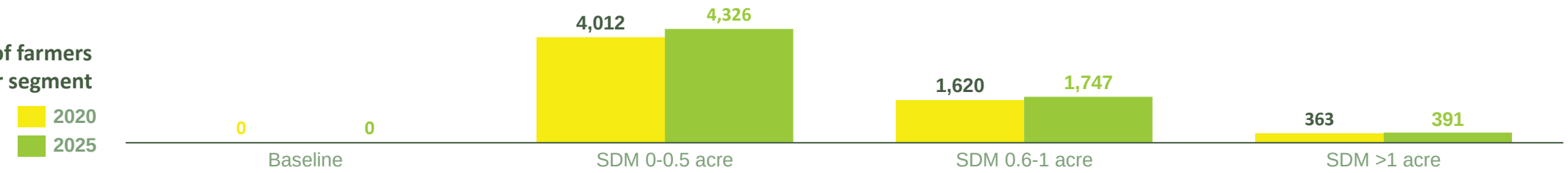


Farmer segments - Busokelo

All Busokelo farmers to whom RBTC-JE delivers services are considered part of the Service Delivery Model (SDM)

	Baseline farmer	SDM farmer 0-0.5 acre	SDM farmer 0.6-1 acre	SDM farmer >1 acre
Description	A typical tea farmer in Busokelo council that does not supply to WATCO and does not receive services from RBTC-JE	A typical tea farmer in Busokelo council that is a member of RBTC-JE, receives its services and supplies its tea to WATCO	A typical tea farmer in Busokelo council that is a member of RBTC-JE, receives its services and supplies its tea to WATCO	A typical tea farmer in Busokelo council that is a member of RBTC-JE, receives its services and supplies its tea to WATCO
Distinguishing characteristics	• No infilling • Very low input application	• Tea farm size is 0-0.5 acre • Improved tea varieties for newly planted bushes used for infilling • Higher level of input application	• Tea farm size is 0.6-1 acre • Improved tea varieties for newly planted bushes used for infilling • Higher level of input application	• Tea farm size is larger than 1 acre • Improved tea varieties for newly planted bushes used for infilling • Higher level of input application
Services	• RBTC-JE does not offer any services to these farmers	• GAP training • Farmer organization • Improved variety seedlings • Inputs • Mechanization • Off-take by WATCO		

Number of farmers per segment



SWOT Analysis

Low payments for green tea leaves remain the greatest threat in maintaining farmers motivation to grow tea

	Helpful	Harmful
Internal	**Strengths** • RBTC-JE facilitates provision of high quality inputs to farmers on credit that differentiates it from competition and attracts smallholders without carrying the risk of default on its books • RBTC-JE has a strong management team and experienced extension officers with the right technical know-how on agronomy practices • Strong relationships with key stakeholders in the value chain, enabling it negotiate for affordable services for farmers	**Weaknesses** • Inadequate extension officers and personnel specifically with expertise in communication • Lack of capacity to establish improved tea seedlings for gap filling and establishment of new fields • Inadequate funding for its operations and to increase ownership in WATCO, resulting from reliance on farmer subscription and management fee from WATCO, both of which are dependent on green tea production • Lack of tailored solutions for female farmers • Reliance on WATCO to pay certification premium to generate funds for investing in social programmes for the farmers
External	**Opportunities** • There is a growing demand for quality tea both locally and globally • Ease of entry into low cost production of blended tea for domestic consumption • Diversification into non competing crops and livestock to complement farmers incomes and maintain food security	**Threats** • Government price mechanism is a disincentive to cultivation of quality tea since farmers do not benefit from quality bonuses as tea processing companies only strive to pay the minimum price • Side selling as a result of demand from neighbouring tea factories who source from RBTC-JE farmers but who do not offer any services to farmers • Relatively small tea farms and competition from other crops, making it difficult to achieve economies of scale • Change in rain patterns and rainfall quantities due to climate change could lead to decreasing yields

SWOT

3.3 SDM performance

Understanding the SDM's strategy and business model

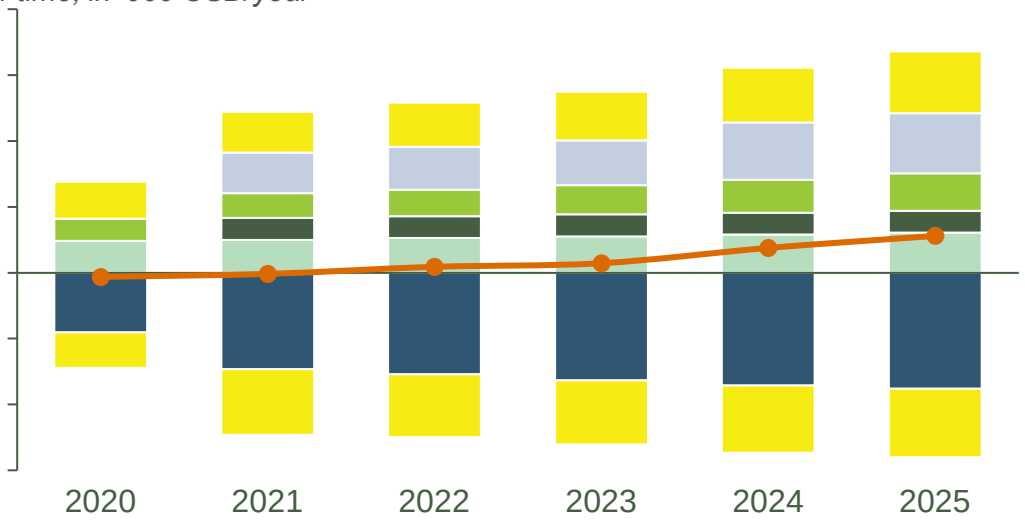
- *Assessing the SDM's financial performance*
- *Assessing the SDM's opportunities for improvement*

Overall Performance

If RBTC-JE can secure financing for the blending factory, their net income before tax has the potential to more than double over a 5-year time period.

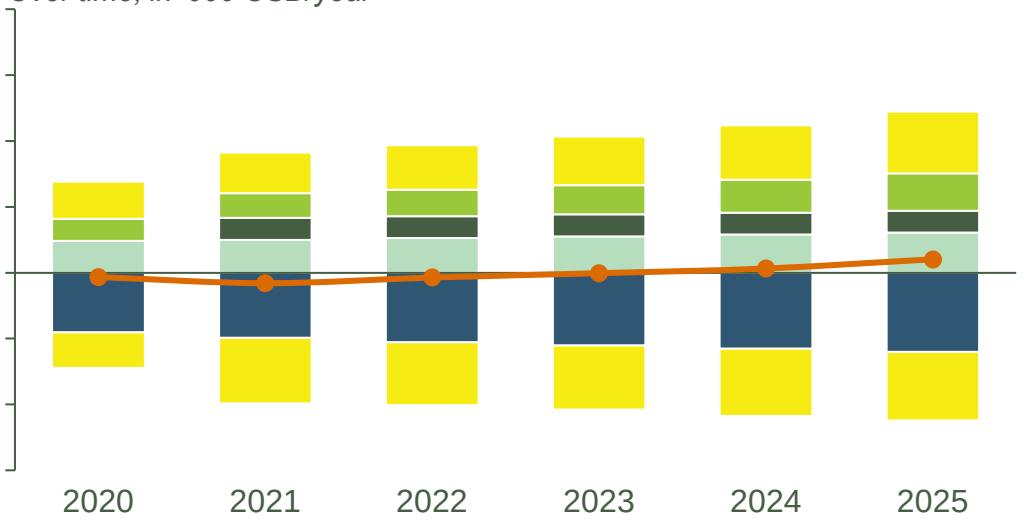
Profit & loss projections for RBTC-JE: Scenario 1 (with tea blending)

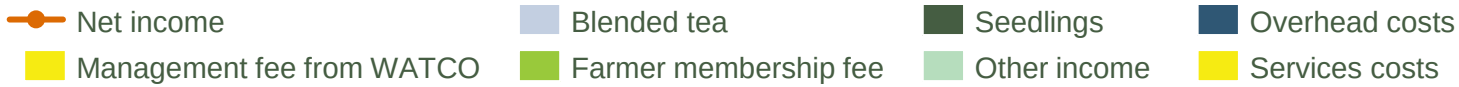
Over time, in '000 USD/year



Profit & loss projections for RBTC-JE: Scenario 2 (without tea blending)

Over time, in '000 USD/year



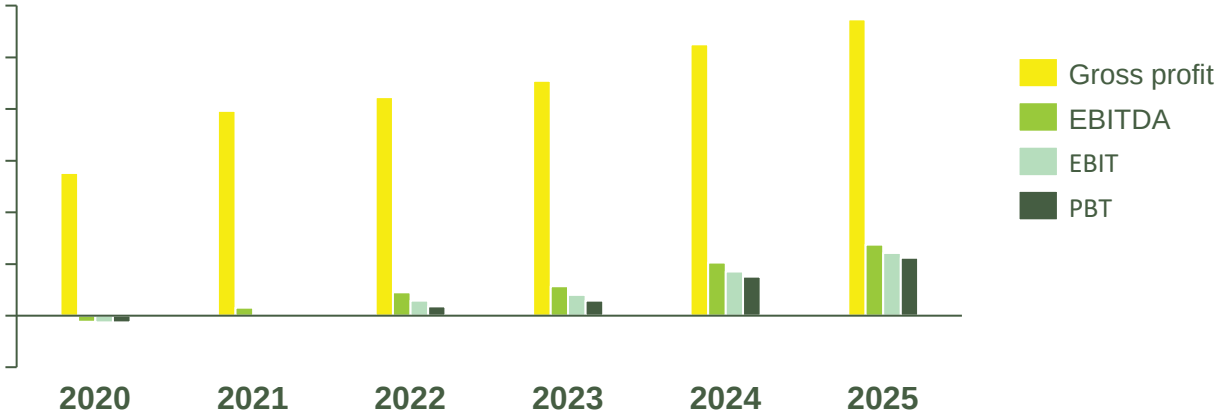


Overall Performance

External financing unlocks additional growth potential, as depicted by the higher EBITDA and PBT margins.

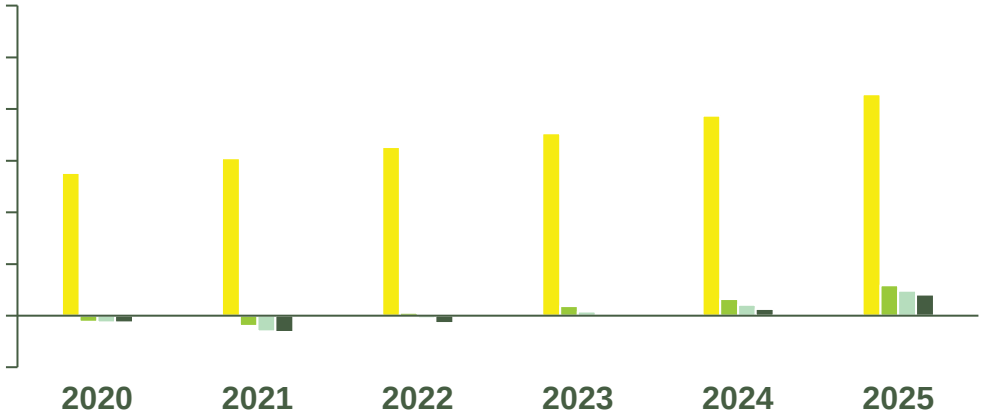
Profit & loss projections for RBTC-JE: scenario 1 (with tea blending)

Over time, in '000 USD/year



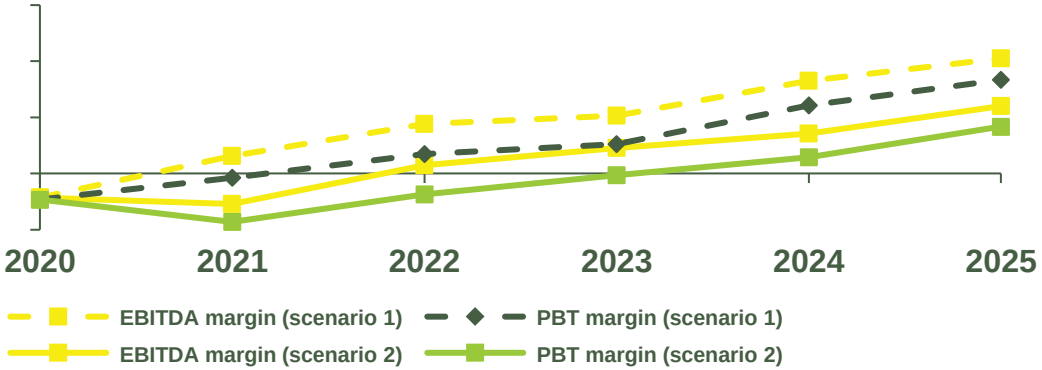
Profit & loss projections for RBTC-JE: scenario 2 (without tea blending)

Over time, in '000 USD/year



Margin projections for RBTC-JE: both scenarios

Over time, in %/year



Profitability of the SDM

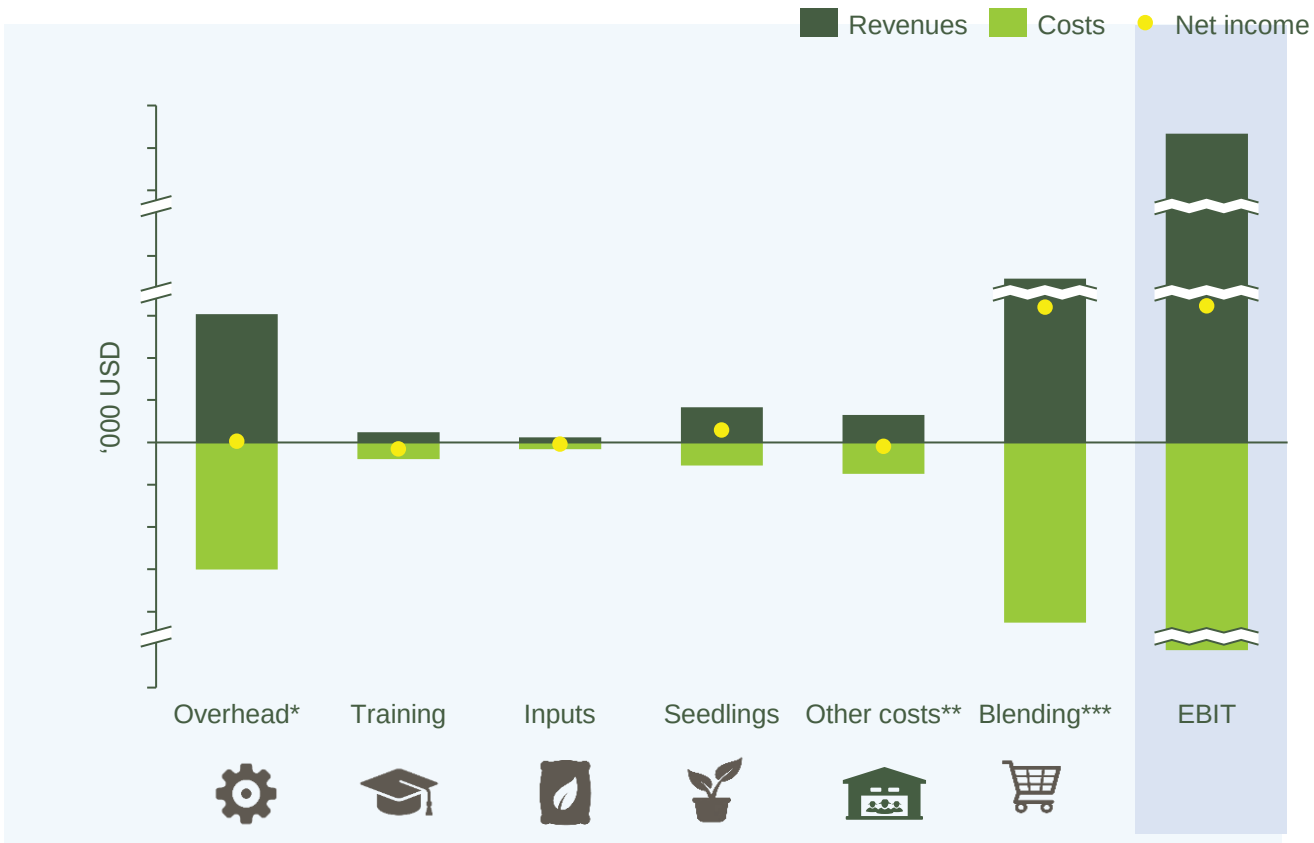
- The upper graphs show different levels of profits for RBTC-JE's SDM, both under current operations (without tea blending) and with tea blending (enabled by external financing).
- The lower graph shows that both EBITDA margin and PBT margin in the current scenario (without tea blending) are significantly lower compared to the tea blending scenario.

Financial sustainability of Service Delivery Model

The costs for providing all services to farmers are paid for by a mix of income from management fee, membership fee and grants. Blending provides a new source of income from 2021.

Overview of service profitability

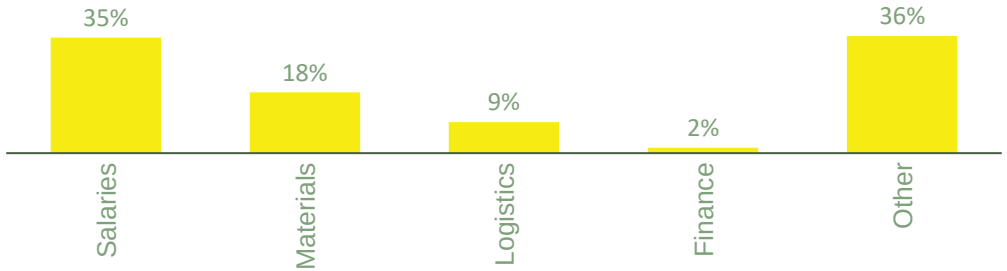
Annual averages in '000 USD during 2020 - 2025



Financial sustainability

- This SDM does not generate profits on most of the services provided: training and extension, input provision, farmer organization, access to markets, mechanization, access to finance and certification. This is because RBTC-JE does not charge farmers a fee for these services. The revenues shown on the graph aside is based on allocation of the general income received to the services using their respective average composition as a percent of total expenses.
- The planned move to commence tea blending and distribution of seedlings will allow RBTC-JE to earn a profit for these services from year 2022.
- Cost of goods for made tea leaves and staff costs represent the two largest expenses for tea blending, i.e., 41% and 26%, respectively. Marketing is the third key expense category due to promotion of the new tea brand that is needed.

Expense categories



- Largest costs included in Overhead category include costs for marketing & sales, finance costs & bank charges, motor vehicle running expenses and HR costs not attributable to a particular other category
- ** Other costs include costs of providing communication, farmer organization, access to markets, mechanization, access to finance and certification services

** Blending includes the revenues and costs related to the sourcing, processing and sale of blended tea

Sensitivity analysis

The table below shows **what change to each key variable would yield a +$1.0M cumulative pre-tax net income gain** over the period 2021-2025.

Income driver	Unit	Modeled assumption	Required assumption for poverty line income*	Change required
Revenue drivers				
WATCO management fee	*USD/kg GL*	0.002	0.006	**180%**
Loyalty of Busokelo farmers	*%*	90%	[Max income: 137,019]	**11%**
Loyalty of Rungwe farmers	*%*	85%	[Max income: 163,363]	**18%**
Greenleaf volume sold to WATCO	*MT GL*	44,637	350,670	**709%**
TRUST (WATCO dividend)	*USD*	24,132	1,024,132	**4,144%**
Membership fee	*USD/kg GL*	0.001	0.005	**300%**
Chai FM profit	*%*	5%	[Max income: 283,177]	**1,900%**
Seedlings revenues	*USD*	33,404	1,033,404	**2,994%**
Cost drivers				
Seedlings costs	*USD*	30,367	[Max income: 139,370]	**[-100%]**

- Of the income revenue drivers over which RBTC-JE has influence, the membership fee paid by the farmers per kg GL sold is as the most influential drivers, as the lowest required relative changes (300%) to increase the net income of RBTC-JE.
- Other drivers that would increase RBTC-JE's cumulative net income relatively easy, are the increase of the management fee that WATCO pays to RBTC-JE per kg GL they were able to source from the RBTC-JE farmers (an increase of 0.004USD per kg GL) or by increasing the overall volume of green leaf that is produced by RBTC-JE farmers and sold to WATCO. However, with the latter it is important to note that such an increase is limited by productive limitations by farmers and number of farmers.
- Farmer loyalty rates could improve the net income of the cooperative as well. Although, only limited gains can be made here as the loyalty rates are already considered to relatively high.

* For revenue drivers, 100% is the maximum possible change while for cost drivers, 0 is the minimum possible change

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Models of agro-inputs on credit

RBTC-JE considers sustainably offering high-quality agrochemical inputs to farmers on credit, which would further impact the livelihoods of the farmers, as well as increase security of green leaf supply for WATCO. A few models are available for such a credit scheme. Based on the preliminary pros and cons of these models and RBTC-JE's current business structure, a shared risk & returns model appears to provide a more sustainable approach to input financing for RBTC.

	Current model 1 **PARTNERSHIP**	2 **AT ARM'S LENGTH**	3 **SHARED RISK & RETURNS**	4 **BUY/SELL MODEL**
	RBTC-JE partners with an input provider(s), procures the input on behalf of the farmer and deducts the payment from the price paid for green leaf.	*RBTC-JE recommends trustworthy supplier(s) of high-quality inputs to farmers.*	*RBTC-JE sets up a legal entity with trustworthy supplier(s) of high-quality inputs and a financial service provider. Risks and returns of sales to farmers are shared equitably.*	*RBTC-JE buys high-quality inputs from trustworthy supplier(s) in bulk and sells to farmers at a small margin.*
+	No need to for trade finance as supplier credit is negotiated to match farmer cashflows. Relatively easy to implement with high certainty of farmer repayment.	No risk or cost to RBTC-JE as supplier takes the risk of the farmer default. A small goodwill can be charged to supplier for providing access to farmers.	Allows partners to align incentives, share risk of farmer defaults and reap returns of increased sales of high-quality inputs.	RBTC-JE has full control and can be flexible in how to set up the service in detail. A small margin will be earned on repaid inputs.
−	Quantity supplied depends on RBTC-JE's relationship with input provider(s) and farmers ability to repay.	Limited control and therefore potentially limited benefit to RBTC-JE as incentives are not 100% aligned with supplier.	More complex set-up requiring more human and financial resources (trade finance for advance purchase of inputs vs selling of green leaf and blended tea)	RBTC-JE takes the full risk of farmer defaults, but also bears the cost of (unsold) inventory. Significant trade finance is required, and this comes at a cost.

Potential farmer segments

Description of proposed farmer segments, services provided and graduation criteria

Main farmer segments[1]	Subsistence	Diversified	Commercial
Characteristics	• Main source of income is from agriculture • Supplemented by income from casual labor • Consume their non-cash crops and sell any surplus • The lowest income segment • Poor knowledge of GAP • No/poor application of inputs • Limited access to high-quality inputs • No/limited access to affordable inputs nor loans	• Farming is not their primary source of income • Typically run a small business or are in full or part-time employment • Consume their non-cash crops and sell surplus to supplement their income • Good knowledge of GAP • Better application of inputs • Access to high-quality inputs • Has sufficient resources and/or access to short-term loans	• Treat farming as business and usually sell to wholesalers or retailers • Farming is main source of income • More likely to invest in the farm • Whilst still poor, are the highest income segment • Good knowledge of GAP • Good application of inputs • Access to high-quality, affordable inputs • Has sufficient resources and/or access to short-term loans
Services	**Training, farmer organization and gap filling**		
		Access to inputs (on credit)	
		Access to better fertilizers, mechanization and larger loans	
		Replanting and diversification	
Graduation	Subsistence farmers can graduate to diversified of commercial	Diversified farmers can graduate to commercial	
Criteria for graduation	• Training attendance • Proven good application of practices • Increased yields • Increased quality (% primary grade)	• Training attendance • Consistently high yields • Consistently high quality (% primary grade) • Proven financial track record • Collateral for loans	

Source: [1]IDH Farmer Segmentation Tool (https://www.idhsustainabletrade.com/project/idh-farmfit-segmentation-tool/)

3.4 Farmer performance

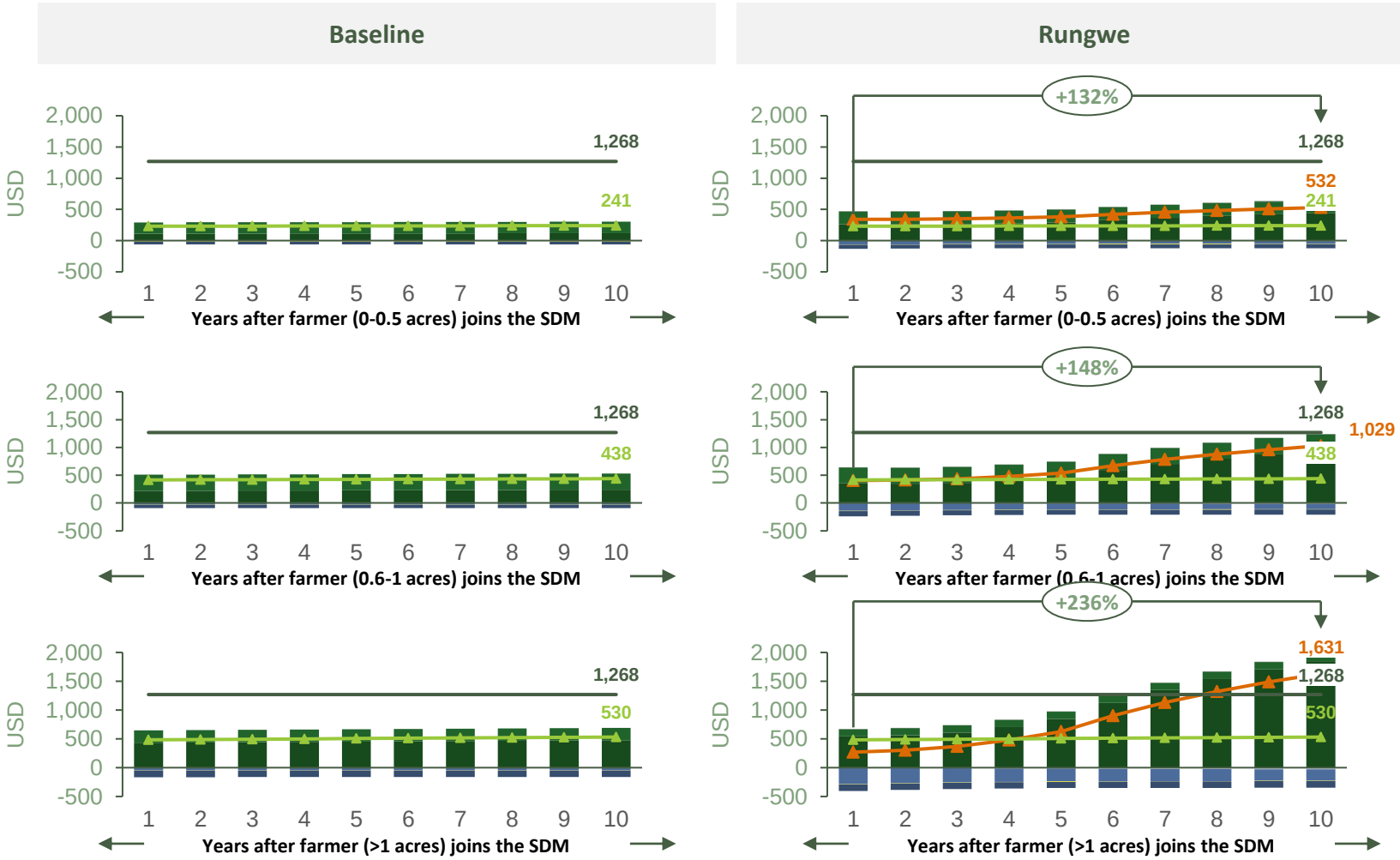
Understanding the SDM’s strategy and business model

- *Assessing farmer impact*
- *Assessing opportunities for improvement*

Rungwe total farmer profit and loss – over time

Comparing net incomes of baseline and SDM farmers - Rungwe

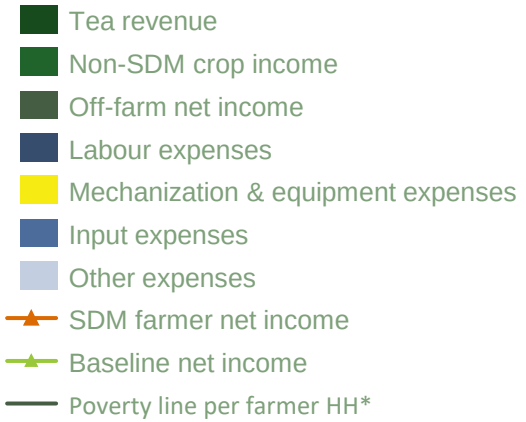
Over time, in USD/year



Note: This farmer P&L is projected over ten years as Tea is a tree crop and the impact of infilling and plucking is only demonstrated after several years.
* Source: World Bank (2016), Online PPP database, private consumption. The poverty line adjusted for purchasing power is estimated at USD 254/individual/year in Tanzania. For a farmer household consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,268 per household annually.

Profitability over time

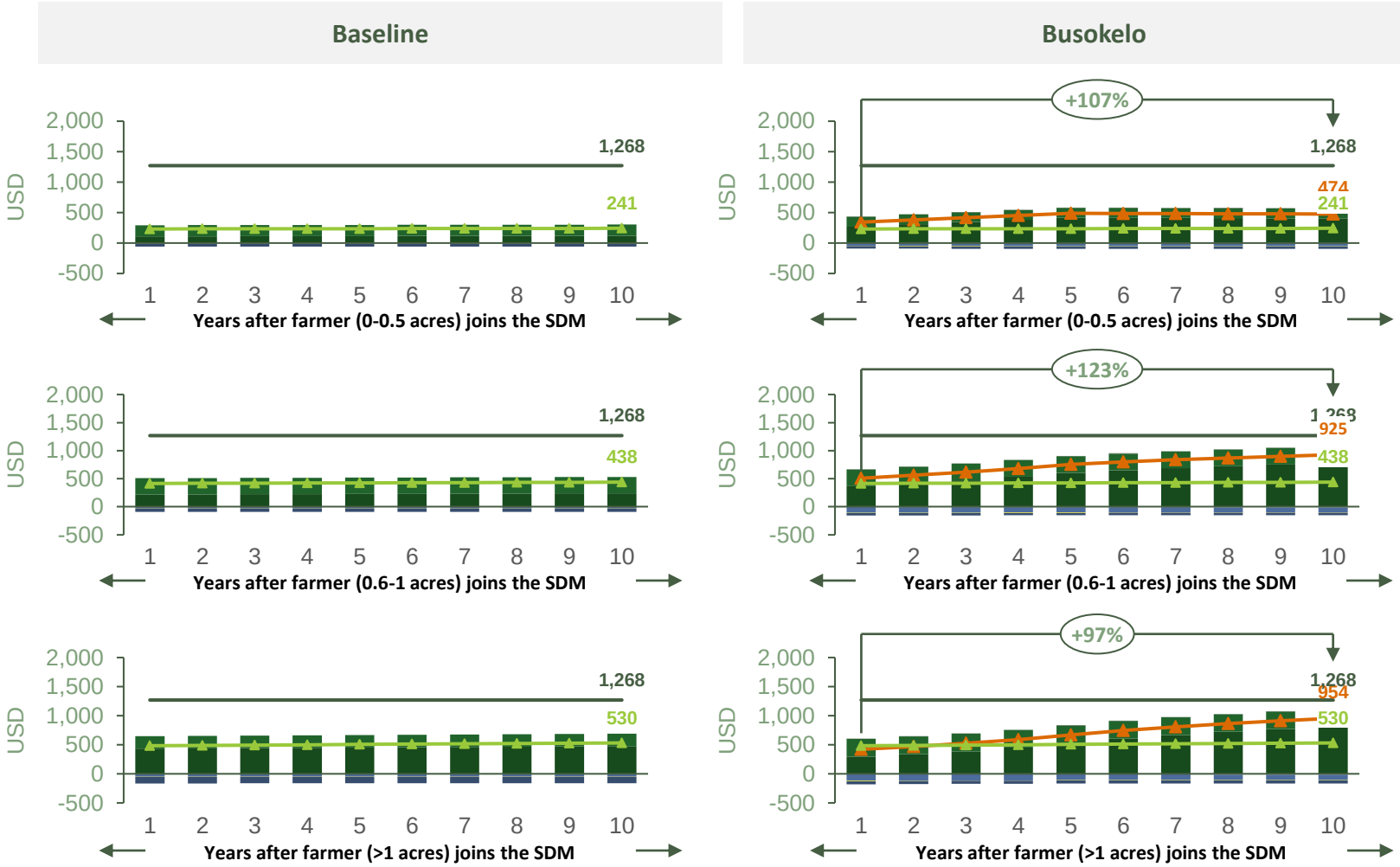
- Comparing the 10-year development of net income of a Baseline and Rungwe farmer for all plot sizes shows a very positive impact from participating in RBTC-JE's SDM.
- This positive increase is explained by the Rungwe farmers' access to more and high-quality agro-inputs and tea seedlings, allowing them to increase their tea bush yield and density over time. In year 1 Rungwe farmers have a very low bush density of 3000-4000 bushes/acre on average as compared to the optimal tea bush density of 5,620. Therefore in the five years, their investment costs are relatively high, but from year 5 onwards they start reaping the benefits with increasing yields.
- While in contrast baseline farmers generally perform no infilling and have very limited access to inputs. Additionally, the provision of GAP training contributes to higher yields.
- The main cost drivers for farmers are the purchase of fertilizer and labor costs for pruning and plucking.



Busokelo total farmer profit and loss – over time

Comparing net incomes of baseline and SDM farmers - Busokelo

Over time, in USD/year



Profitability over time

- Comparing the 10-year development of net income of a Baseline and Busokelo farmer for all tea plot sizes demonstrates a positive impact from being member of the RBTC-JE cooperative and receiving their services.
- When comparing the different Busokelo farmers with different tea plot sizes, it appears that >1 acres farmers are more profitable. This is due to their higher relative increase in Greenleaf production (174% vs 50% and 113% for 00.5acres and 0.6-1acres farmers).

- Tea revenue
- Non-SDM crop income
- Off-farm net income
- Labour expenses
- Mechanization & equipment expenses
- Input expenses
- Other expenses
- SDM farmer net income
- Baseline net income
- Poverty line per farmer HH*

Note: This farmer P&L is projected over ten years as Tea is a tree crop and the impact of infilling and plucking is only demonstrated after several years.

* Source: World Bank (2016), Online PPP database, private consumption. The poverty line adjusted for purchasing power is estimated at USD 254/individual/year in Tanzania. For a farmer household consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,268 per household annually.

Farmer net income from tea – over time

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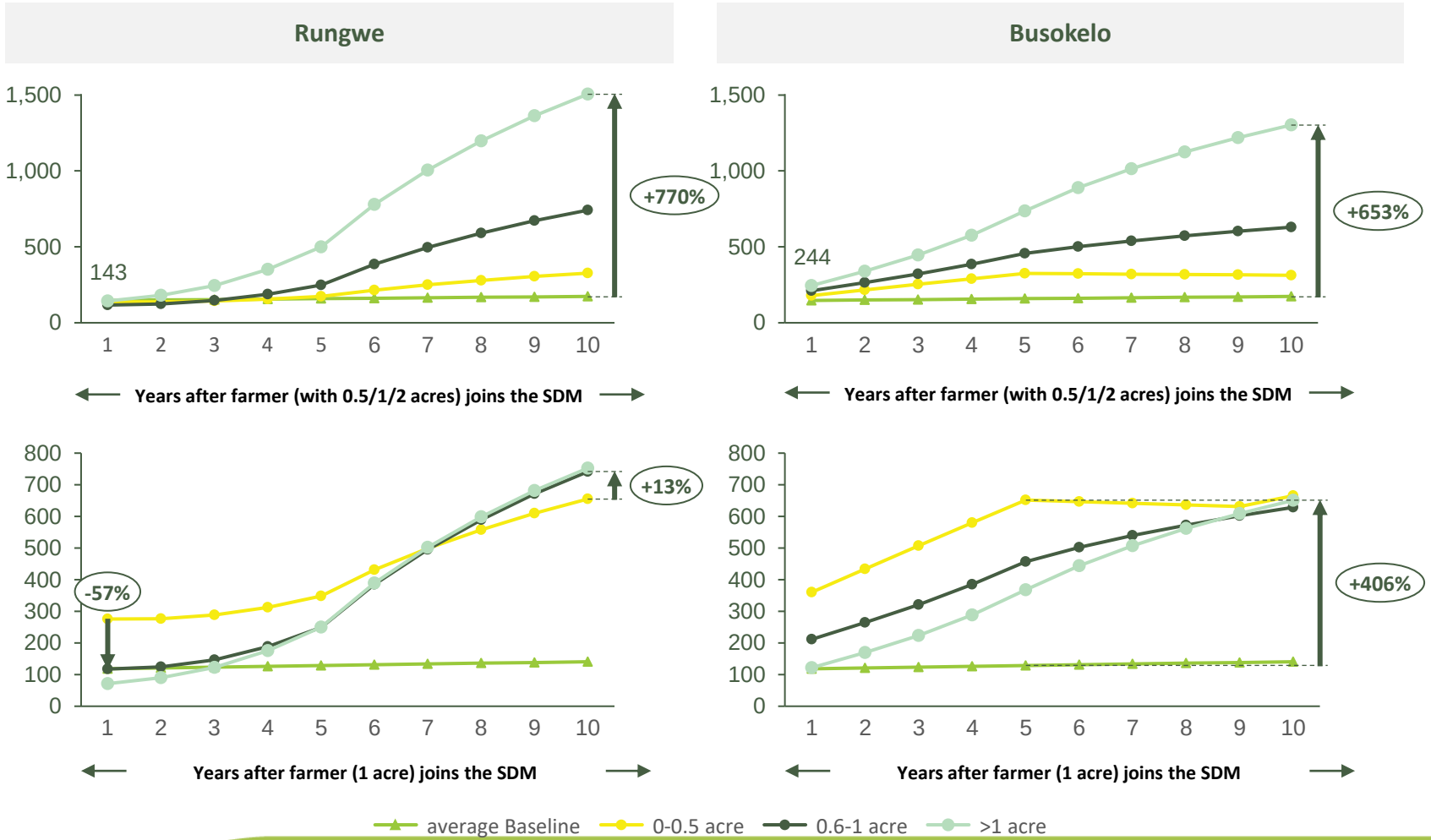
Whilst farmers with larger farms (>1 acre) have higher absolute incomes from tea than smaller farmers (0-1 acre), the results of net income from tea per acre suggests higher productivity for smaller farmers, attributed to higher tea bush densities in those farms at the onset, with convergence achieved in the long term.

Comparing net incomes from tea versus net incomes from tea per acre of baseline and SDM farmers

Over time, in USD/year and in USD/acre/year



Tea income over time

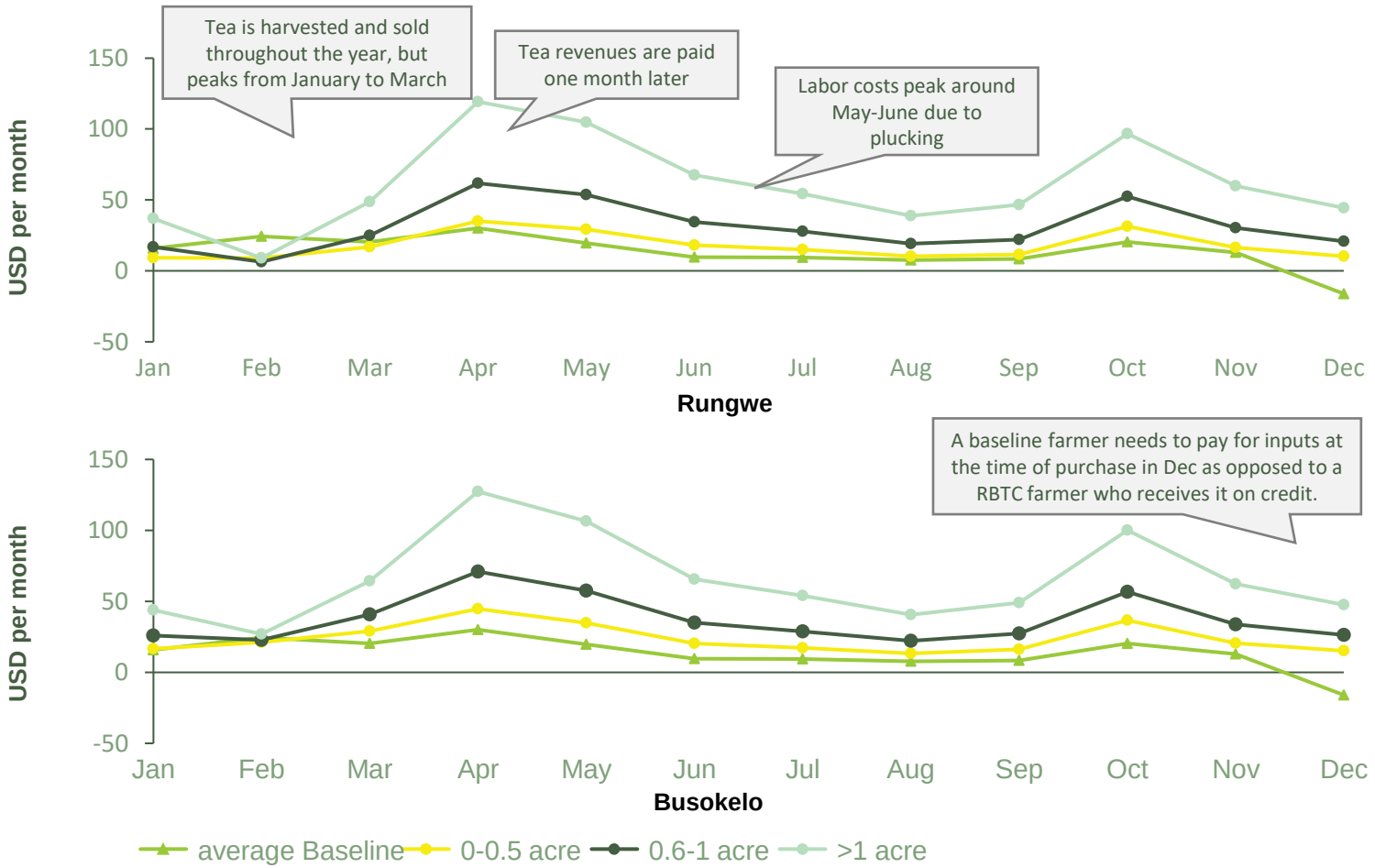
- When comparing net income solely from tea, it is clear that farmers with a larger tea plot generate more income and that Busokelo farmers in the first 6-7 years earn slightly more than Rungwe farmers due to the higher bush density.
- Analysing the net income from tea per acre shows that on average farmers with a smaller tea farm have a higher tea bush density and higher yields, leading to overall higher net income.
- In addition, RBTC-JE currently provides the same quantity of inputs to all farmers regardless of their farm size, therefore, farmers with smaller farm sizes have higher productivity compared to those with large farm sizes.
- If RBTC can encourage and support the farmers to infill the tea farms by providing seedlings on credit, the net income per acre will converge over time.
- Also, GAP training and access to agro-inputs allow both Rungwe and Busokelo farmers to increase their net income from tea over time.
- Although absolute net income continues to increase, it slows down: maximum yields & minimal post-harvest loss have been reached, so increasing per acre cost are now only offset by increase in absolute produce increase from acreage growth.
- It is key to note that at the onset, Busokelo 0-0.5acres farmers appear to have more than the optimal tea bush density on their farms. Thus, to ensure optimal yields, the number of tea bushes slightly decreases over time to factor this in.

Farmer cash-flow for tea

RBTC-JE's SDM gives farmers access to high quality inputs, without exacerbating cashflow challenges

Comparing average cash flows for tea over 10 years of Baseline and SDM farmers

USD/month



Stable cashflow is positively impacted

- Cashflow for tea farmers is quite stable as tea farming continues year-round and farmers receive monthly payments for their Greenleaf volumes sold. Even though a clear peak can be distinguished from February to April and a minimum from July to August.
- The cashflow for SDM farmers is improved compared to baseline farmers because of the higher revenues from tea sales. The increased yield of RBTC farmers due to training, good high-quality inputs and infilling allows them to produce more Greenleaf overall.
- Additionally, the SDM farmers have access to agro-inputs and seedlings on credit. Therefore, they do not occur a negative cashflow in December – like the baseline farmer- but are able to deduct it from their tea revenues and even spread it over several months (1-3months in general).
- The cashflow for Busokelo farmers and Rungwe farmers follows the same pattern, although Busokelo farmers have a slightly higher cashflow than Rungwe farmers. This is due to the higher infilling need for Rungwe farmers.

[1] Note: we were not able to obtain cash-flow assumptions from interviews with farmers, so these numbers potentially exclude some significant annual expenses, like school fees. They also do not account for unexpected off-farm expenses like medical costs, weddings, funerals etc. The assumptions were obtained from BNL field staff who are expected to have a good understanding of farmer cash-flows, and stress-tested against literature where available.

Drivers for income growth of tea farmers - Rungwe

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Increasing total tea production even further would provide the quickest route to reach an income equal the poverty line

		Income driver	Unit	Modeled assumption	Required assumption for poverty line income*	Change required
Rungwe 0-0.5 acres famer	Revenue drivers	**Yield per bush**	*Kg GL/bush*	1.33	n/a**	**n/a**
		Yield per acre	*Kg GL/acre*	6,522	[Max income: 596]**	**130%**
		Infilling	*%*	20%	[Max income: 666]	**400%**
		Post-harvest loss	*%*	2.0%	[Max income: 483]	**[-100%]**
		Farm-gate price	*USD/kg GL*	0.14	0.39	**184%**
		WATCO dividend	*USD*	0.08	11	**14034%**
	Cost drivers	**Labor costs**	*USD*	63	[Max income: 594]	**[-100%]**
		Input costs	*USD*	47	[Max income: 579]	**[-100%]**
Rungwe 0.6-1 acres farmer	Revenue drivers	**Yield per bush**	*Kg GL/bush*	1.33	n/a**	**n/a**
		Yield per acre	*Kg GL/acre*	6,958	[Max income: 1,100]**	**8%**
		Infilling	*%*	20%	[Max income: 1,439]	**400%**
		Post-harvest loss	*%*	2.0%	[Max income: 1,048]	**[-100%]**
		Farm-gate price	*USD/kg GL*	0.14	0.18	**28%**
		WATCO dividend	*USD*	0.08	4	**4556%**
	Cost drivers	**Labor costs**	*USD*	93	[Max income: 1,122]	**[-100%]**
		Input costs	*USD*	98	[Max income: 1,127]	**[-100%]**

- Year 10 pre-tax net income for a SDM 0-0.5 acres farmer and 0.6-1 acres farmer is modeled to be USD 532/year and USD 1,029/year. The table shows **what change to each key income driver would yield a net income equal to the poverty line*** (USD 1,268/year) over the same period.
- Of the income revenue drivers over which RBTC-JE has influence, green leaf yield per acre and infilling tea bushes both stand out as the most influential drivers, as the lowest required relative changes (130% for a 0-0.5acre farmer and 8% for a 0.6-1acre farmer, and 400% for infilling) to allow farmers to reach poverty income levels.
- It is important to note that even though the farm-gate price is a farmer income driver, RBTC-JE has no control over this as WATCO is responsible for purchasing the green leaf.

*Poverty line per household was used as benchmark instead of Living income per household for Tanzania is 1,268 USD/year, as the change required to reach living income was considered too high and thus less indicative for a sensitivity analysis.
**Maximum obtainable yield per bush is 1.33 kg Greenleaf per bush and maximum obtainable yield per acre in the region is 7487 kg Greenleaf per acre.

Drivers for income growth of tea farmers - Busokelo

Increasing total tea production even further would provide the quickest route to reach an income equal the poverty line

		Income driver	Unit	Modeled assumption	Required assumption for poverty line income*	Change required
Busokelo 0-0.5 acres famer	Revenue drivers	Yield per bush	*Kg GL/bush*	1.22	[Max income: 511]**	**9%**
		Yield per acre	*Kg GL/acre*	2,954	[Max income: 580]**	**407%**
		Infilling	*%*	20%	n/a	**n/a**
		Post-harvest loss	*%*	2.0%	[Max income: 483]	**[-100%]**
		Farm-gate price	*USD/kg GL*	0.14	0.43	**208%**
		WATCO dividend	*USD*	0.08	12	**15127%**
	Cost drivers	Labor costs	*USD*	39	[Max income: 514]	**[-100%]**
		Input costs	*USD*	43	[Max income: 518]	**[-100%]**
Busokelo 0.6-1 acres farmer	Revenue drivers	Yield per bush	*Kg GL/bush*	1.22	[Max income: 995]**	**9%**
		Yield per acre	*Kg GL/acre*	5,708	[Max income: 1,164]**	**31%**
		Infilling	*%*	20%	[Max income: 1,089]	**400%**
		Post-harvest loss	*%*	2.0%	[Max income: 941]	**[-100%]**
		Farm-gate price	*USD/kg GL*	0.14	0.20	**47%**
		WATCO dividend	*USD*	0.08	5	**6532%**
	Cost drivers	Labor costs	*USD*	45	[Max income: 970]	**[-100%]**
		Input costs	*USD*	91	[Max income: 1016]	**[-100%]**

- Year 10 pre-tax net income for a SDM 0-0.5 acres farmer and 0.6-1 acres farmer is modeled to be USD 474/year and USD 925/year. The table shows **what change to each key income driver would yield a net income equal to the poverty line*** (USD 1,268/year) over the same period.
- Of the income revenue drivers over which RBTC-JE has influence, green leaf yield stands out as the most influential driver, as the lowest required relative changes (407% for a 0-0.5acre farmer and 31% for a 0.6-1acre farmer) to allow farmers to reach poverty income levels.
- However, it is key to note that there is a limit to tea bush yield increase which can be achieved by the services and in the specific farming context. Therefore, it is key to also support farmers with services that focus on additional income generation through diversification or increase of land size.
- Additionally, infilling tea bushes is a driver that can further improve income towards the poverty line with a relative minor change of 400% for a 0.6-1acre Busokelo farmer.

*Poverty line per household was used as benchmark instead of Living income per household for Tanzania is 1,268 USD/year, as the change required to reach living income was considered too high and thus less indicative for a sensitivity analysis.
**Maximum obtainable yield per bush is 1.33 kg Greenleaf per bush and maximum obtainable yield per acre in the region is 7487kg Greenleaf per acre.

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Drivers for income growth of tea farmers – Rungwe and Busokelo >1 acres

Increasing total tea production even further would provide the quickest route to reach an income equal to the living income

		Income driver	Unit	Modeled assumption	Required assumption for Living income*	Change required
Rungwe >1acre famer	Revenue drivers	**Yield per bush**	*Kg GL/bush*	1.22	[Max income: 1,735]**	**9%**
		Yield per acre	*Kg GL/acre*	5,967	[Max income: 2,013]**	**69%**
		Infilling	*%*	20%	[Max income: 2,099]	**400%**
		Post-harvest loss	*%*	2.0%	[Max income: 1,638]	**[-100%]**
		Farm-gate price	*USD/kg GL*	0.14	0.36	**162%**
		WATCO dividend	*USD*	0.08	38	**47655%**
	Cost drivers	**Labor costs**	*USD*	109	[Max income: 1,714]	**[-100%]**
		Input costs	*USD*	187	[Max income: 1,793]	**[-100%]**
Busokelo >1 acres farmer	Revenue drivers	**Yield per bush**	*Kg GL/bush*	1.29	[Max income: 2,117]**	**3%**
		Yield per acre	*Kg GL/acre*	3,786	[Max income: 2,247]**	**72%**
		Infilling	*%*	20%	[Max income: 2,895]	**400%**
		Post-harvest loss	*%*	2.0%	[Max income: 2,096]	**[-100%]**
		Farm-gate price	*USD/kg GL*	0.14	0.31	**123%**
		WATCO dividend	*USD*	0.08	31	**39005%**
	Cost drivers	**Labor costs**	*USD*	117	[Max income: 2,176]	**[-100%]**
		Input costs	*USD*	197	[Max income: 2,256]	**[-100%]**

- Year 10 pre-tax net income for a SDM Rungwe and Busokelo >1 acres farmer is modeled to be USD 2,059/year and USD 1,605/year. The table shows **what change to each key income driver would yield a net income equal to living income*** (USD 4,105/year) over the same period.
- Of the revenue drivers over which RBTC-JE has influence, especially by infilling more tea bushes, RBTC farmers have the ability to increase their yield per acre and increase their net income further.
- The farm-gate price is also a driver which can further improve income towards the living income, but this is to an important degree dictated by the going sales price.

*Since the >1acre farmers already earn an annual net income above the poverty line, this sensitivity analysis focuses on the change required to reach living income.
**Maximum obtainable yield per bush is 1.33 kg Greenleaf per bush and maximum obtainable yield per acre in the region is 7487 kg Greenleaf per acre.

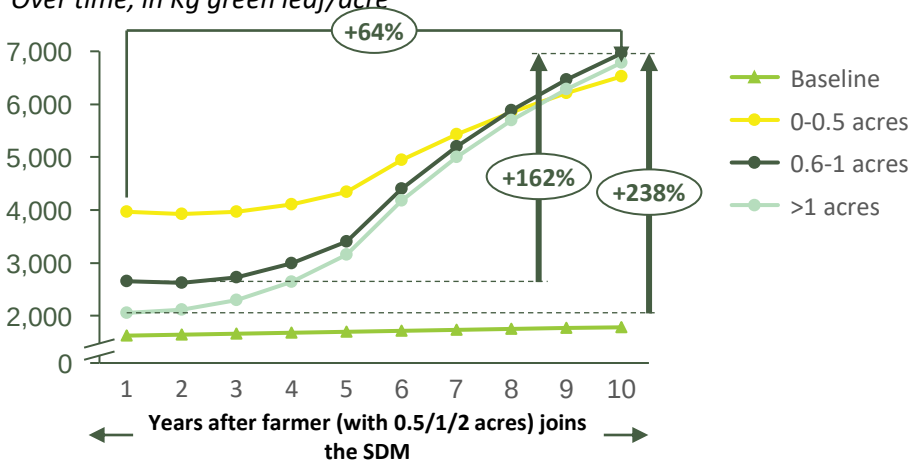
Drivers of productivity

The yield curves suggest improvements of farmer productivity from service uptake, especially infilling, GAP training and inputs

Rungwe

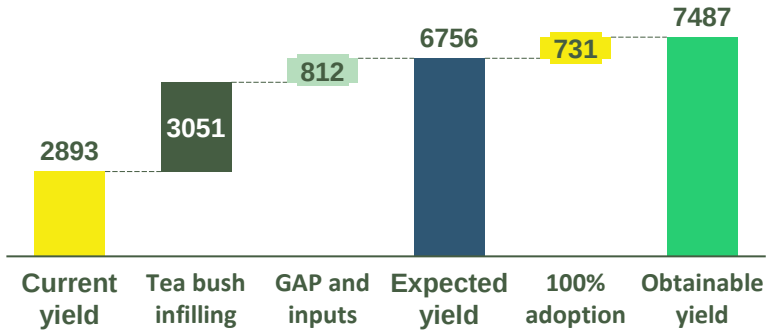
Comparing yields of baseline and SDM farmers

Over time, in Kg green leaf/acre

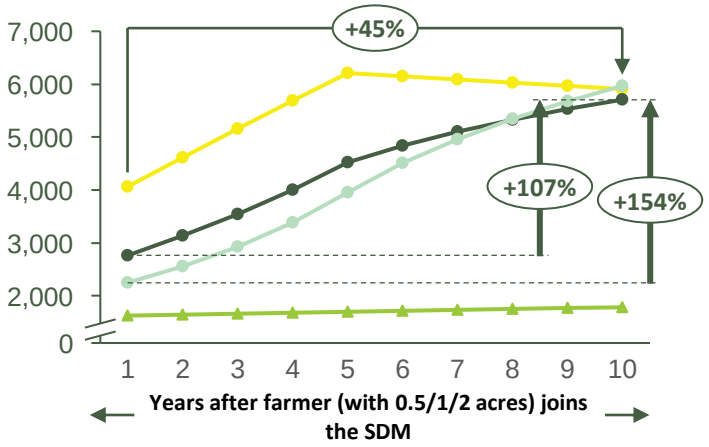


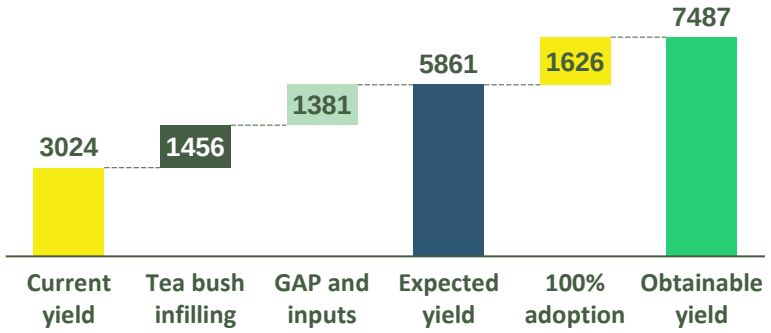
Yield enhancement factors

Over time, average, in Kg green leaf/acre



Busokelo





Differences in productivity across regions

- Busokelo farmers have a much higher tea bush density compared to Rungwe farmers in year 1 (average 4800 vs average 2800)*.
- At the same time, the Busokelo farmers produce lower overall yield per acre (average 3,700 vs average 4,200)* than the Rungwe farmers.
- Therefore, the drivers to increase their productivity are different:
  - Rungwe farmers will benefit mainly by infilling and the access to high-quality and affordable tea bushes to increase their tea bush density,
  - While Busokelo farmers will benefit more from services that increase their yield per bush such as GAP training and access to high-quality and the correct volumes of fertilizers and herbicides.
- Over time, the yield curves can converge to reach the average optimal expected yield of 6,756 kg/acre in Rungwe and 5861 kg/acre in Busokelo.
- RBTC-JE farmers can reach the regional obtainable yield of 7487 kg/acre, if their adoption of GAP and agro-inputs and infilling reaches 100%.

* Averages for tea bush density and yield per acre are based on the PDC data collected across farmer segments.

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Sensitivity analysis

Productivity has a marginally higher impact on farmer net income than farm gate price, but a quality bonus could create additional impact

Net income for a Year 1 Rungwe 0-0.5 acres farmer
(USD/year)

Farm gate price for green leaf (USD/kg GL)

Productivity (kg GL/acre)	0.10	0.11	0.12	0.14	0.15	0.17	0.18
1674	167	175	183	193	202	212	224
2232	195	205	216	229	241	255	270
2976	232	246	261	277	294	312	333
3968	282	300	320	342	364	389	415
4960	331	354	379	406	434	465	498
6200	393	421	452	487	522	560	602
7750	470	505	545	588	631	679	732

Modeled assumption

Obtainable yield border

Quality bonus (USD/kg GL)

Dividend (USD/share)	0.00	0.02	0.03	0.05	0.07
0.068	341	367	393	424	445
0.072	341	367	393	424	446
0.075	342	368	394	424	446
0.079	342	368	394	425	446
0.083	342	368	394	425	446
0.088	342	368	395	425	447
0.092	343	369	395	425	447

Modeled assumption

* Source: World Bank (2016), Online PPP database, private consumption. The poverty line adjusted for purchasing power is estimated at USD 254/individual/year in Tanzania. For a farmer household consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,268 per household annually.

Profitability over time

- Farmer net income is heavily dependent on the farm gate price for green leaf and for the productivity they manage to achieve. Both drivers are heavily influenced by external factors (international demand versus supply in a given year has an influence on farm gate prices, whereas availability of inputs, weather and occurrence of climatic events have an influence on productivity), making them hard to predict and potentially volatile.
- We have therefore stress-tested the net income of the most common farmer in the RBTC-JE database, a Rungwe 0-0.5 acres farmer, in year 1 against significant but potential swings up and down of these values while keeping other elements of net income constant.
  - At a price increase of around 30% (from 0.14 to 0.18 USD/kg GL), the farmer's net income increases by over 20% (from USD 342 to USD 415), at equal farmer productivity. However, this increase is still not enough to move much closer to the poverty line of USD 1,268.
  - Keeping prices equal but looking at a scenario of around 75% increase in productivity (from 3,986 to the obtainable yield level of 7,487Kg GL/acre) drives income up by almost 70% (from USD 342 to USD 588).
- The focus for RBTC-JE's service provision not only lies on increasing farmers productivity but also maintaining and improving tea quality. If an additional bonus would be provided to farmers based on their tea quality, as is the case for other farmers in Tanzania, it might support their move towards the poverty line*. For example, a quality bonus of USD 0.05 /Kg GL for main grade would already provide an increase in net income of 24% to USD 425.
- Typically, RBTC-JE farmers also receive a dividend for its shares in WATCO. A farmer on average has 66 shares. If this annual dividend would increase with 15%, the impact on the farmer's net income would be quite minimal, with only 0.24% to USD 343.

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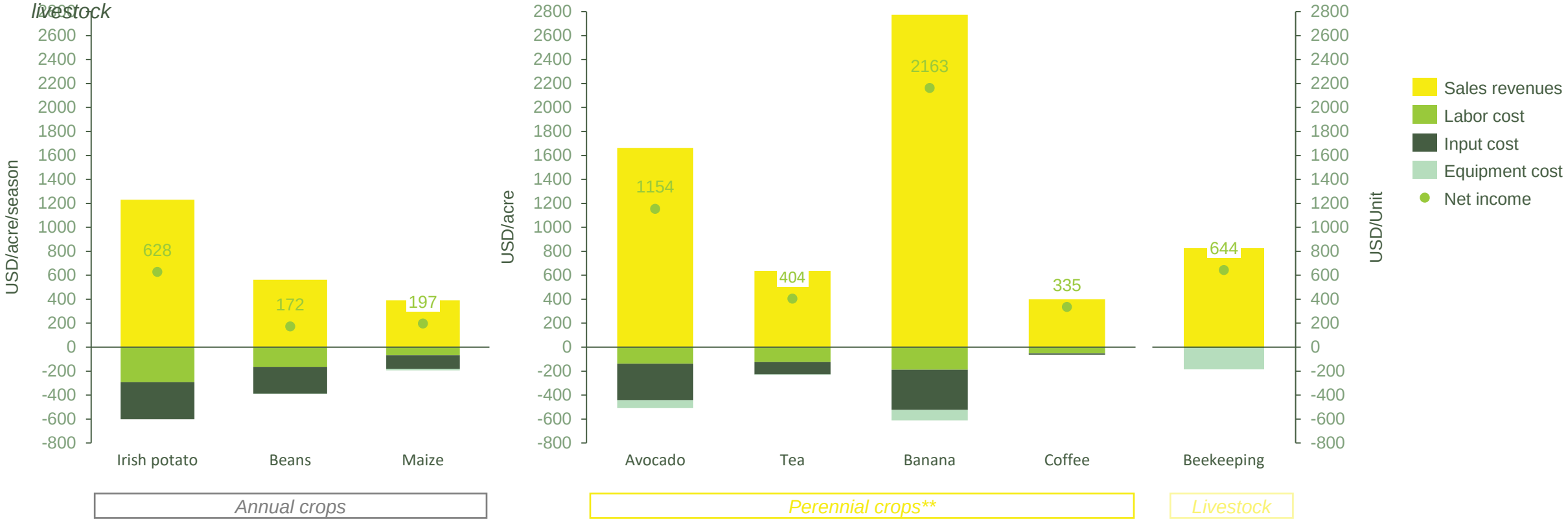
Comparison of crop and livestock profitability

Caution is required when comparing average net income between seasonal and perennial crops, as it is important that for a) seasonal crops the number of seasons and productivity per season and for b) perennial crops the large set up costs, are considered as well

Profitability per crop and livestock

Revenues, labor, input and equipment cost, and total net income in USD per acre per season or USD per acre for crops and in USD per unit for livestock*



Note: The presented crops and livestock are not an exhaustive list. This list is based on the most common crops grown by RBTC-JE farmers (PDC data) and district data on area allocation to crops.
* The annual crops are represented in USD per acre per season (long rain season) and the perennial crops in USD per acre per year
** Due to limited data availability the costs for perennial crops do not include the initial start-up costs such as land preparation and purchase of seedlings. It represents only the costs for annual maintenance and harvesting.
Sources: [1]Other SDM analyses in Tanzania. [2]Uyole Agriculture Research Institute. [3]Rungwe district agriculture office

4. Assumptions

- *Key assumptions*
- *Background data and analyses*

Glossary

Abbreviation	Meaning
CoC	Cost of Capital
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
FFF	Farmfit Fund
FTE	Full-time equivalent
GAP	Good Agricultural Practices
P&L	Profit & Loss Statement
p.a.	Per Annum
PBT	Profit Before Taxes
PDC	Primary Data Collection
ROE	Return On Equity
SDM	Service Delivery Model
SWOT	Strengths, Weaknesses, Opportunities & Threats
TARI	Tanzania Agricultural Research Institute
TBT	Tea Board of Tanzania
TRIT	Tea Research Institute of Tanzania
TSHTDA	Tanzania Smallholders Tea Development Agency
USD	United States Dollar (currency)

SDM operator assumptions

The below key assumptions were used for the SDM operator analyses

	General
Exchange rate	2,305.1 TZS/USD
Loyalty rate - Rungwe	85%
Loyalty rate - Busokelo	90%
Purchase price of made tea	TZS 2,375
Selling price of blended tea	TZS 1,000/ 40g box TZS 2,000/ 100g box
Made tea to green leaf out-turn ratio	21%
Conversion rate from made tea to blended tea	100%
Unit cost of seedling production	TZS 175
Unit selling price of seedling	TZS 193

	2020	2025
New farmers	-	1,125
Total number of farmers	14,375	15,500
Total acreage SDM farmers	7,7947	8,564
Share of capex financed externally	-	100%
Share of external working capital finance	-	100%
Cost of capital (Capex, inputs, working capital)	17%	17%
Share purchase finance interest rate	5%	5%

Key assumptions – Rungwe Farmer

	Rungwe 0-0.5 acres	Rungwe 0.6-2 acres	Rungwe >1 acres
Farm size (acre)	2	3	4
Tea farm size (acre)	0.5	1	2
Total bushes (#/acres)	3,666	2,453	2,271
Yield per acre (Kg GL/acre/year)	6,697	3,614	2,532
Production (Kg GL/year)	**y1:** 3,968, **y10:** 6,522	**y1:** 2,655, **y10:** 6,958	**y1:** 2,057, **y10:** 6,786
Post-harvest loss (%)	**y1:** 5%, **y10:** 2%	**y1:** 5%, **y10:** 2%	**y1:** 5%, **y10:** 2%
Side selling (%)	**y1:** 15%, **y10:** 10%	**y1:** 15%, **y10:** 10%	**y1:** 15%, **y10:** 10%
Tea FGP WATCO (TZS/kg GL)	320 TZS/kg GL		
WATCO Dividend (TZS)	12,092 TZS (66 shares at 183TZs per share)		
Other crop net income (TZS/year)	470,923	661,737	985,697
NPK requirement (kg/acre)	100kg/acre		
Urea requirement (kg/acre)	40kg/acre		
Herbicides requirement (l/acre)	1.6l/acre		
NPK price (TZS/bag)	54,000 TZS/bag		
Urea price (TZS/bag)	47,000 TZS/bag		
Herbicides price (TZS/l)	9,000 TZS/l		
Seedlings price (TZS/seedling)	192.5 TZS/seedling		
RBTC membership fee (TZS/kg GL)	3 TZS/kg GL		
AMCO membership fee (TZS/kg GL)	2 TZS/kg GL		

Key assumptions – Busokelo Farmer

	Busokelo 0-0.5 acres	Busokelo 0.6-2 acres	Busokelo >1 acres
Farm size (acre)	2	3	4
Tea farm size (acre)	0.5	1	2
Total bushes (#/acres)	6,535	4,442	3,648
Yield per acre (Kg GL/acre/year)	5,001	3,400	2,765
Production (Kg GL/year)	**y1:** 4,063, **y10:** 5,907	**y1:** 2,763, **y10:** 5,708	**y1:** 2,247, **y10:** 5,967
Post-harvest loss (%)	**y1:** 5%, **y10:** 2%	**y1:** 5%, **y10:** 2%	**y1:** 5%, **y10:** 2%
Side selling (%)	**y1:** 10%, **y10:** 5%	**y1:** 10%, **y10:** 5%	**y1:** 10%, **y10:** 5%
Tea FGP WATCO (TZS/kg GL)	320 TZS/kg GL		
WATCO Dividend (TZS)	12,092 TZS (66 shares at 183TZs per share)		
Other crop net income (TZS/year)	372,125	683,483	455,769
NPK requirement (kg/acre)	100kg/acre		
Urea requirement (kg/acre)	40kg/acre		
Herbicides requirement (l/acre)	1.6l/acre		
NPK price (TZS/bag)	54,000 TZS/bag		
Urea price (TZS/bag)	47,000 TZS/bag		
Herbicides price (TZS/l)	9,000 TZS/l		
Seedlings price (TZS/seedling)	192.5 TZS/seedling		
RBTC membership fee (TZS/kg GL)	3 TZS/kg GL		
AMCO membership fee (TZS/kg GL)	2 TZS/kg GL		

Sources

Source	Link (if publicly available)
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FAO – Report on tea industry in Tanzania	http://www.fao.org/economic/est/est-commodities/tea/tea-meetings/tea22/en/
FAOSTAT	http://www.fao.org/faostat/en/#data/QC
GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAM	http://repository.businessinsightz.org/handle/20.500.12018/7315?show=full
IDH – Farmer segmentation tool	https://www.idhsustainabletrade.com/project/idh-farmfit-segmentation-tool/
IFC	https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/gender+at+ifc/priorities/entrepreneurship/investing+in+women+along+agribusiness+value+chains
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WORLD ECONOMIC FORUM	https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality

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3. SAGCOT	http://repository.businessinsightz.org/bitstream/handle/20.500.12018/7318/SAGCOT%20Center%20Ltd%20Tanzania%20Investment%20Opportunities%29.pdf?sequence=1&isAllowed=y
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