KILOMBERO CLUSTER DEVELOPMENT FRAMEWORK (KCDF)

IN-DEPTH VALUE CHAIN ANALYSIS

Submitted to:

WWF – Tanzania Country Office
Dar es Salaam Tanzania

By

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JULY 2023

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ABOUT THE REPORT

The report presents an in-depth analysis of prioritized value chains with the Kilombero Cluster. The analysis maps the core functions of the value chain the key value chain actors, business service providers and supportive stakeholders for value chains development. An in-depth analysis of the value chains overlays key performance measures including volume of transactions, costs and revenue. The analysis establishes trends and development futures of the value chains in terms of demand shaped by mega-trends such as population, income, urbanization and climate change. The report presents the dynamics of the value chains, investment opportunities, and green growth opportunities and constraints. It further explores policy and planning spaces available and reforms for addressing the critical value constraints.

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PART ONE
INTRODUCTION

1.1 Background

In-depth analysis of the priority value chains in Phase III extends deeper analysis of the priority value chains identified under preceding Phase II on value chains scoping and prioritization. A wealth of invaluable information had been already generated under Phase II. In-depth analysis and mapping provide deeper insights in the value chains regarding the structural and functional dynamics, investment opportunity spaces, binding constraints, best-bet upgrading strategies and business models. The Phase further underscored the IGG opportunities and constraints along the priority value chains.

1.2 The Approach and Methodology

Schematically, Phase III followed the process presented in in Figure 1. The prioritized value chains were mapped and analysed. Phase III provides the basic inputs for the Inclusive Green Growth (IGG) results-based M&E framework. In-depth analysis of the value chains underpins investment opportunities, biding constraints and best-bet solutions and business models in the priority value chains upgrading and development.

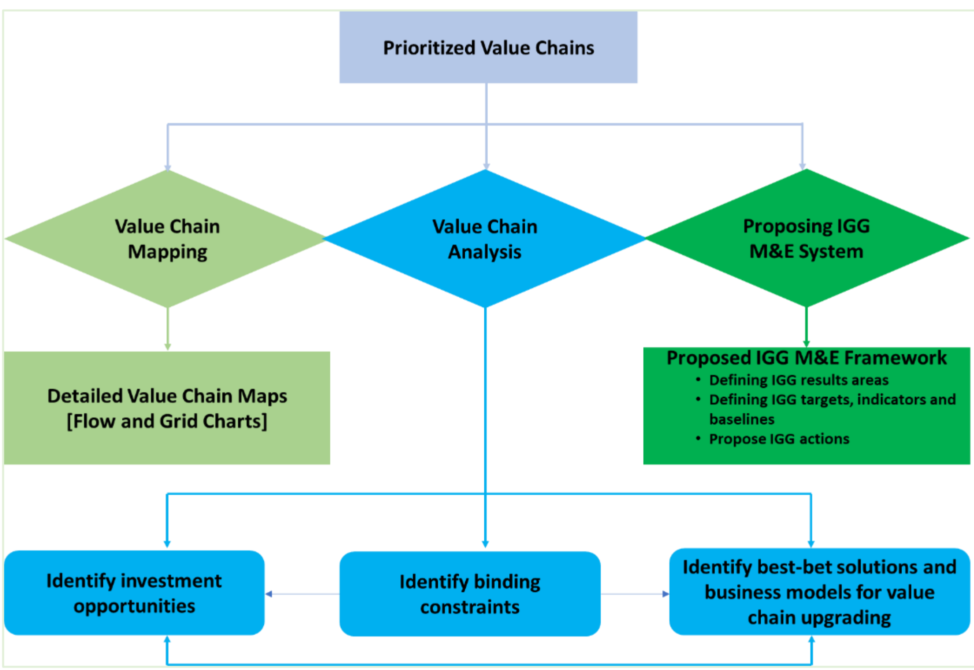

Figure 1: Phase III analytical flow diagram

Phase III deepened prioritization of the value chains through further ranking by stakeholders. Ranked prioritization was done for the value chains across the seven districts namely Ulanga DC, Malinyi DC, Mlimba DC, Ifakara TC, Kilosa DC, Gairo DC, Morogoro DC, and Mvomero DC. The value chains in the Kilombero cluster were prioritized and ranked differently by the key informants and stakeholders involved in the consultative process. The criteria proposed by the Southern Africa Development Cooperation (SADC[1]) for regionally targeted value chains development were adapted to prioritize and rank the value chains (Figure 2). Basically, the criteria were used to illuminate the value chains within the economic, social and institutional dimensions.

Figure 2: Criteria used for prioritising value chains in Kilombero cluster

In addition to economic, social, and institutional considerations the priority value chains were then ranked using the dimension of environmental friendliness (Figure 3). Arguably, combining economic objectives, social goals, an enabling institutional environment, along with environmental consideration enhances green growth.

[1] [1] SADC 2020. Value Chains – SADC Vision 2050. https://www.sadc.int/pillars/value-chains

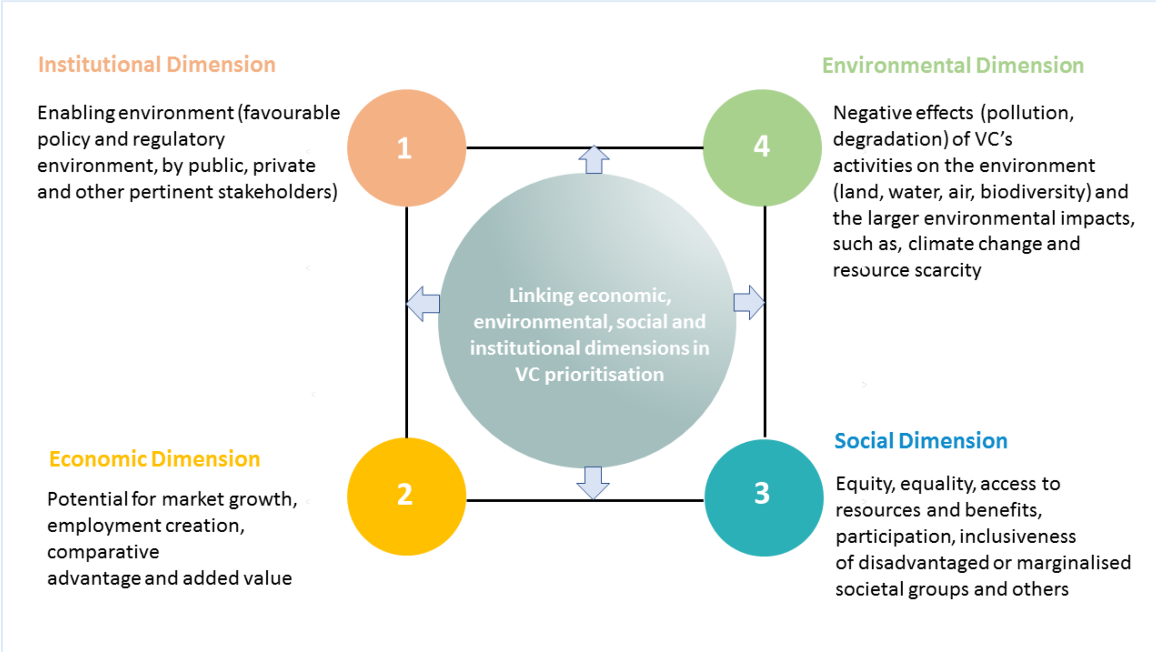

Figure 3: Four dimensions used to prioritise value chains in Kilombero cluster

The prioritized and ranked value chains across the districts within the Kilombero Cluster are as presented in Table 1. The topmost three ranking value chains include rice, edible oil seeds and edible oil. Rice ranked as the most important value chain in five out of 8 districts. The six prioritized and ranked banked value chains are presented in Table 1.

Table 1: The Value Chain Selection through Scoring Levels of Scoring

SN	Value Chains	Economic								Environmental, Social and Institutional Dimension				Total score	% score
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		
1	Rice	3	3	3	3	3	3	2	3	2	3	3	3	34	**94**
2	Edible oil (sesame, sunflower, palm)	3	3	3	3	3	3	3	3	2	2	3	3	34	**94**
3	Spices	3	3	3	2	3	3	3	2	3	3	2	3	33	**92**
4	Livestock	3	3	2	3	3	3	3	3	1	2	3	3	32	**89**
5	Sugarcane	3	3	2	3	3	3	3	2	2	2	3	3	32	**89**
6	Maize	2	2	2	2	2	2	2	2	3	3	3	3	28	**78**

Raking Criteria: 1. Growth Potential; 2. Availability and Access to Resources; 3. Level and segmentation of participants; 4. Upgrading potential; 5. End Market and Market access; 6. Competitiveness; 7. Complementarity; 8. Potential for embeddedness; 9. GG Inclusiveness; 10. Gender Inclusiveness; 11. National priority; 12. Regional priority **Ranking:** 3= Excellent, **2=** Good/Moderate, **1=** Poor

PART TWO

RICE VALUE CHAIN DEVELOPMENT AND UPGRADING

2.1 Rice Production

Rice scored highly (94.4%) by stakeholders as one of important value chains in the Kilombero Cluster. At national and regional levels, the rice is among the strategic crops for both food security and export trade. Based on the national agricultural census of 2019/20, Tanzania produces around 3.4 million tonnes of paddy – equivalent to 2.2 million tons of milled rice (URT 2021[2]). Tanzania is among the 5 major producers of rice in Africa (Figure 4[3])

) and a leading producer in East Africa. In 2019/20, large-scale farms contributed around 2% of the total rice production. This implies that an opportunity exists for increased investment in large-scale production and rice processing.

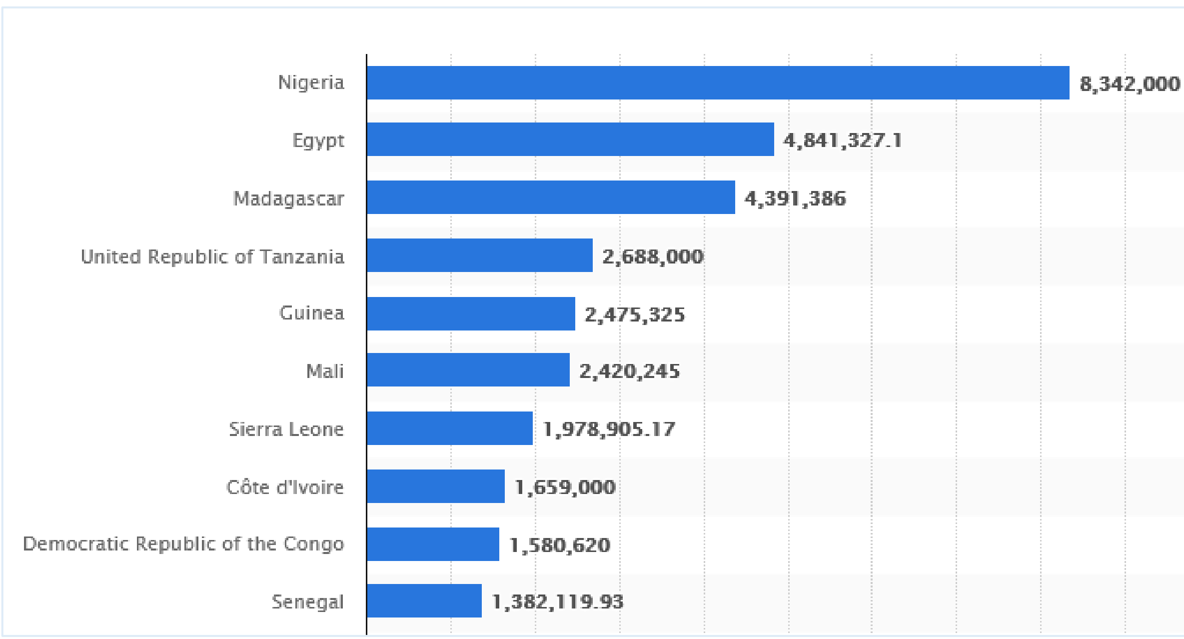

Figure 4: Ten major rice producers in Africa in 2021

Rice is the main target crop in the public investment in irrigation infrastructure. Between 2017-2022, the Government has invested about US$ 20.2 million in irrigation (URT 2023[4]). Investment in irrigation expands the production base in the rice value chain that creates an opportunity for domestic and regional export trade.

[2] URT 2021. National Sample Census of Agriculture 2019/2020. Main Report.
[33] https://www.statista.com/statistics/1322372/rice-production-in-africa-by-country/
[4] World Bank & FAO 2022. Tanzania Agriculture Public Expenditure Review.

2.2 Demand, Trade and Profitability of Rice

Current national rice consumption is estimated at 1.8 tons and is projected to reach 2.6 tons by 2025 and 3.5 tons by 2030. Rice contributes about 21% of the Dietary Energy Supply (DES) in Tanzania (URT 2019[5]). Regional rice production – in sub-Saharan Africa – meets only a half of the demand, with the rest being met through imports, costing the region US$ 5–6 billion annually (URT 2019[6]). In Africa, the demand for rice growing at 4% per annum mainly due to population growth. Moreover, with rising income and urbanization, consumer preferences tend to shift to rice over other starchy crops. In neighbouring Kenya, the demand for rice grows at over 12%, hence creating an opportunity for rice export trade (URT 2019).

At subnational scale in the Kilombero Cluster, rice is an important crop for both food security and incomes to farmers and other value chain actors. Morogoro region that constitutes the Kilombero Cluster is the major rice producer in Tanzania. According to the National Agriculture Census of 2019/20, Morogoro region produced about 572,884 tons of paddy rice (372,373 tons of milled rice) which accounted for about 18% of the national production. However, the data collected from the LGAs do not add up to the same amount of regional production reported in the agricultural census (Table 2). This presents the paucity and inconsistencies inherent in the national agricultural statistics. However, the bottom line remains that, Morogoro is a major rice producing region in the country. In the Kilombero Cluster, rice production exhibits an upward trend.

Table 2: Rice production trend in the Kilombero Cluster

Districts	2015/16	2016/17	2017/18	2018/19	2019/20
Morogoro	489	733	1,147	1,530	9,595
Mvomero	1,855	2,197	2,920	3,565	13,442
Kilosa	8,141	9,842	10,976	14,628	24,785
Mlimba	3,172	3,636	3,717	4,029	3,941
Ifakara	1,519	1,662	1,855	1,783	12,052
Ulanga	5,215	7,139	8,208	8,795	22,692
Malinyi	1,013	1,810	2,964	4,054	2,130
Total	**21,404**	**27,019**	**31,787**	**38,384**	**88,637**

Source of data: Districts' Offices

Smallholder farmers produce rice for both food and incomes. Commercial farms produce for markets. The data collected from the LGAs in the cluster indicate a growing trend of rice marketing (Table 3). Marketed volumes of rice trend above production. This may be due to carried over stocks.

Table 3: Rice marketing in Kilombero Cluster

Year	2015/16	2016/17	2017/18	2018/19	2019/20
Morogoro	374	560	873	1,152	1,195
Mvomero	11,670	14,953	6,550	29,981	123,833
Kilosa	8,799	10,649	12,037	16,055	20,424
Mlimba	1,903	2,182	2,471	2,392	2,853

[5] URT 2019. National Food Balance Sheet, 2014-2017. National Bureau of Statistics (NBS).
[6] URT 2019. National Rice Development Strategy Phase II (NRDS II), 2019-2030.

Ifakara	911	997	1,113	1,070	1,143
Ulanga	2,765	4,547	5,352	5,491	5,528
Malinyi	332	1,130	2,263	3,202	3,906
Total	**26,754**	**35,018**	**30,659**	**59,343**	**158,882**

Source of data: Districts' Offices

The profitability potential indicates the possible levels of returns on investment. Cross-sectional studies in different rice growing areas in the country including the Kilombero cluster have established profitability of rice production in terms of costs and benefits analysis. AWF (2017[7]) estimated gross profit margins of rice production in some villages that are major producers of rice in Kilombero. The analysis categorized the villages into growing rice conventionally through broadcasting and those transplanting. Marketing periods were split into during harvesting and deferred sales after 4-6 months. At peak harvest, the average gross profits per hectare were TZS -22,213 and 873,220 with conventional broadcasting practice and transplanting, respectively. Respectively, deferred sales after 4-6 months, earned farmers the average profits per hectare of TZS 199,250 and 1,885,070. Thus, rice production is profitable with good agronomic practices and marketing system involving strategic storage decisions. Thus, with improved technology and profitable market access, rice production has lucrative returns on investment.

Furthermore, the rice value chain has a diverse industrial potential with a wider spectrum of value-added products (Figure 5). This potential creates dynamic inter-sectoral industrial linkages that offer wider range of investment and business opportunities.

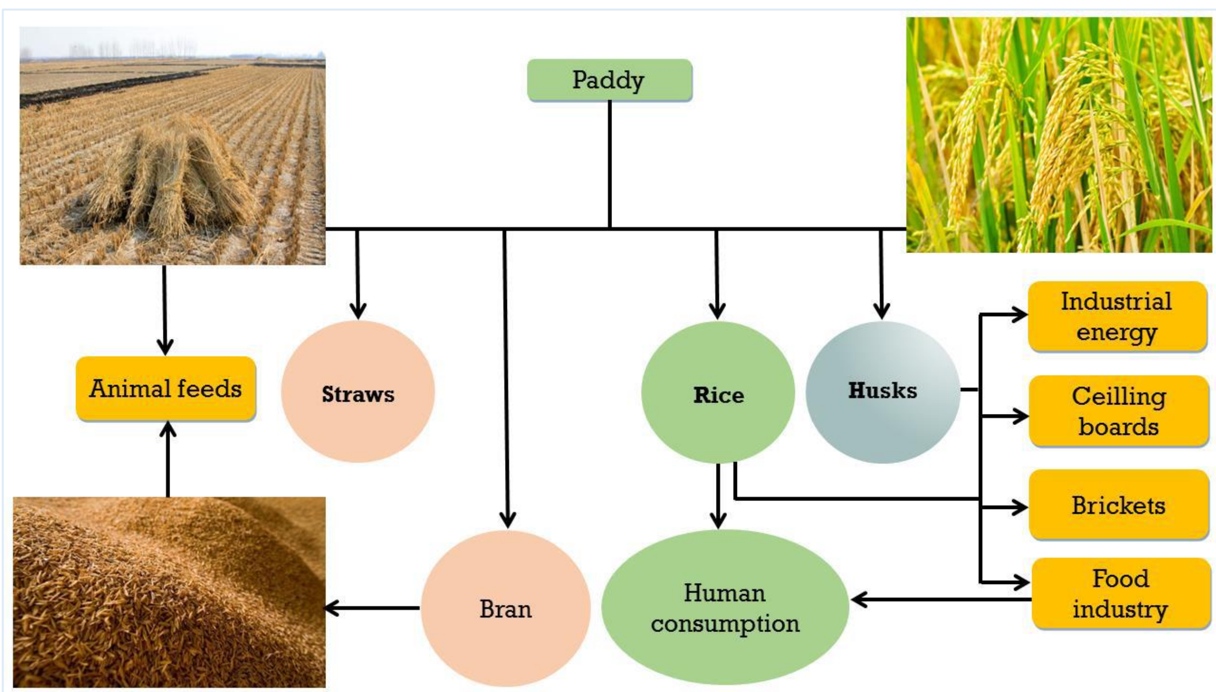

Figure 5: Rice value chain dynamics and inter-sectoral linkages

[7] AWF (2017). Value Chain Analysis for Cocoa and Rice in Selected Villages in Kilombero District. African Wildlife Foundation (AWF). 39 pp.

2.3 Rice Value Chain Map

The value chain map presents the functional structure of the value chain. The value chain map presents the actors, supporting services providers and other important overlays. Figure 6 presents a generic value chain of rice in Kilombero cluster. The rice value chain constitutes a range of functions from input supply to consumption. Rice production is dominated by smallholder farmers with rainfed system accounting for around three quarters of the rice produced in the country. Smallholder irrigation accounts for approximately a quarter of all production with large irrigation farmers accounting for the remaining proportion (~6%).

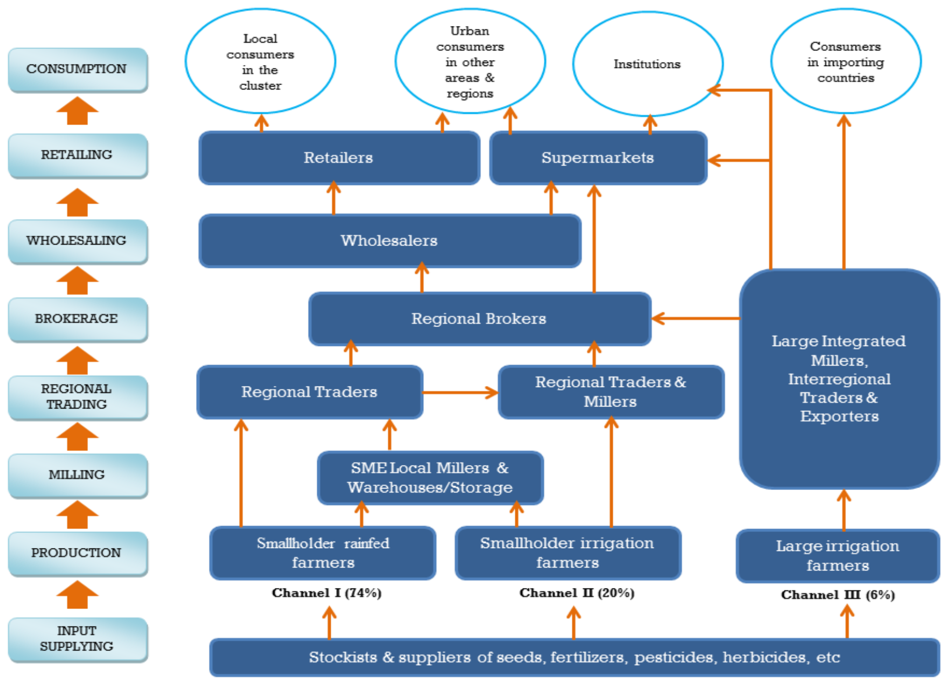

Figure 6: The value chain of rice in Kilombero cluster

Milling is the major value addition activity mainly through small to medium scale mills – and a few integrated industrial mills. The largest integrated rice mill (MW Rice Millers Ltd) in Tanzania is located in Morogoro. Medium-scale and large processors are off-takers sourcing from farmer and trader suppliers.

Furthermore, the R&D is critical to inform the science, technology and innovation needed in the value chain upgrading and development. Circular economy that involve a range of value-optimizing activities in the product cycle such recycling, reuse, and remanufacturing. The circular economy opportunities in the rice value chain as part of green growth are not yet exploited. Rice husk is the major by-product which is mostly wasted and irresponsibly disposed through burning it in the open leading to emission. Rice husk has an industrial potential for use such as in green concrete, ceramic products, ceiling and chip boards, manufacturing of adsorbents, briquetting and gasification. Silicon for use in electronic industry can be extracted from rice husk.

2.4 Major Constraints, Opportunities and Recommendations for Rice Value Chain

Production related the major constraints and business challenges, investment opportunities and recommendation actions for the rice value chain development are summarized in Table 4. The post-production investment constraints and opportunities are presented in Table 5. Furthermore, the best-bet business model for development and upgrading of the rice value chain is presented in Annex 1.

Table 4: Production Investment Constraints and Opportunities for Rice Value Chain

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Poor seed system • Limited use of productivity-enhancing agricultural technologies • Low adoption of CSA and nature-based green technologies and practices • Climate change and variability • Limited access to agricultural finance including credit and insurance
Priority Actions and Investment Areas	• Seed system including germplasm development • Improved weather forecast and climate information • Fertilizer and agro-chemical manufacturing • Irrigation • Climate Smart Agriculture (CSA) e.g., SRI • Limited use of precision and digital agriculture • Agricultural financing (incl. credit and insurance)
Business and Investment Opportunities	• Availability of productive resources (incl. land, water and labour) • Supportive policies and political will (e.g., National Rice Development Strategy Phase II) • Natural gas and phosphate deposits for fertilizer manufacturing • Enabling tax and regulatory reforms in agriculture (Blueprint)
Potential Investors	• Farmer cooperatives (e.g., AMCOS) • Medium and large-scale farmers • Public agencies and State-Owned Enterprises (SOEs) • Private companies • Fertilizer and agro-chemical companies • Microfinance and banks
Recommended Actions	• Constructing new irrigations schemes and rehabilitate existing irrigation infrastructures • Provide more extension services • Effective transfer of technologies • Promote precision agriculture and digitalization Improved governance of the value chain including implementation of regulatory reforms for improved business environment and investment climate (blueprint)

Table 5: Post-production Investment Constraints and Opportunities for Rice Value Chain

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Post-harvest losses • Poor post-harvest management (leading to poor grain quality) • Limited scope of value addition (only milling) • Inadequate modern storage facilities (warehouses) • High carbon footprints in handling rice husk (mostly burnt in the open) • Underdeveloped circular economy • Limited predictability and coherence of policies on export grain trade • Lack of commercial grain standards • Limited agricultural finance (especially for agri-SMEs)
Priority Actions and Investment Areas	• Modern grain storage systems • Agro-processing • Competitive grain export trade
Business and Investment Opportunities	• Growing domestic and regional demand for rice (urbanization, and population and income growth) • Existence of PPP framework • Supportive policies and political will • Promising competitive trading platform (TMX) • Enabling tax and regulatory reforms in agriculture
Potential Investors	• Farmer cooperatives (e.g., AMCOS) • Warehouse operators • Grain millers • Grain exporters • Public Agencies and SOEs • Investors under PPP arrangements
Recommended Actions	• Reduce post-harvest losses • Increased access to agricultural finance especially for agri-SMEs • Promote circular economy • Increased access to tailored agricultural finance (incl. credit and insurance)

PART THREE

EDIBLE OIL VALUE CHAINS DEVELOPMENT AND UPGRADING

3.1 Edible Oil Crops Production

Tanzania produces about 290,000 tons of edible oil per year while the demand is estimated at 650,000 tons – hence the domestic supply gap is about 360,000 tons (Reuben and Meliyo 2022[8]). In 2019/20, production volumes of sunflower, sesame and oil palm were 503,032; 128,588 and 24,640; respectively (URT 2021[9]). In the Kilombero Cluster, the production volumes of sunflower, sesame and oil palm in 2019/20 were estimated at 13,035; 6,523 and 237 tons, respectively.

3.2 Edible oil Demand, Trade and Profitability

In order to fill the demand gap, Tanzania has been importing edible oil worth around US$ 200 million annually. The CET 30 and 35% on crude and refined edible oil mainly palm oil helped invigorated domestic edible oil production particularly sunflower production and processing. In 2022, the government resorted to zero import tariff to curb the edible oil shortage following Russia-Ukraine war. It is expected that the government will reimpose the removed CETs once the global shortage of edible oil recedes. Arguably, the investment potential in the edible oil sector is a lasting one as edible oil imports accounts for a significant share (34%) of imports in Africa. The regional export potential is significant with edible oil imports in the EAC was estimated at around $1 billion back in 2017[10]. The demand for edible oil is projected to reach 700,000 metric tons by 2030.

The sunflower value chain is interlinked with other sectors as shown in Figure 7. Sunflower cake is used in the feed industry. Besides edible oil, sunflower is used to produce many products, including oil, soap, and cosmetics.

[8] Reuben, F.M. and Meliyo, J.L. 2022. Unlocking Opportunities in Edible Oil Crop Production and Market Dynamics to Accelerate Agricultural Investment in Kagera Region, Tanzania. International Journal of Environment, Agriculture and Biotechnology, 7(3).
[9] URT 2021. National Sample Census of Agriculture 2019/2020. Main Report.
[10] https://www.ugandainvest.go.ug/wp-content/uploads/2020/01/Edible-Oil.pdf

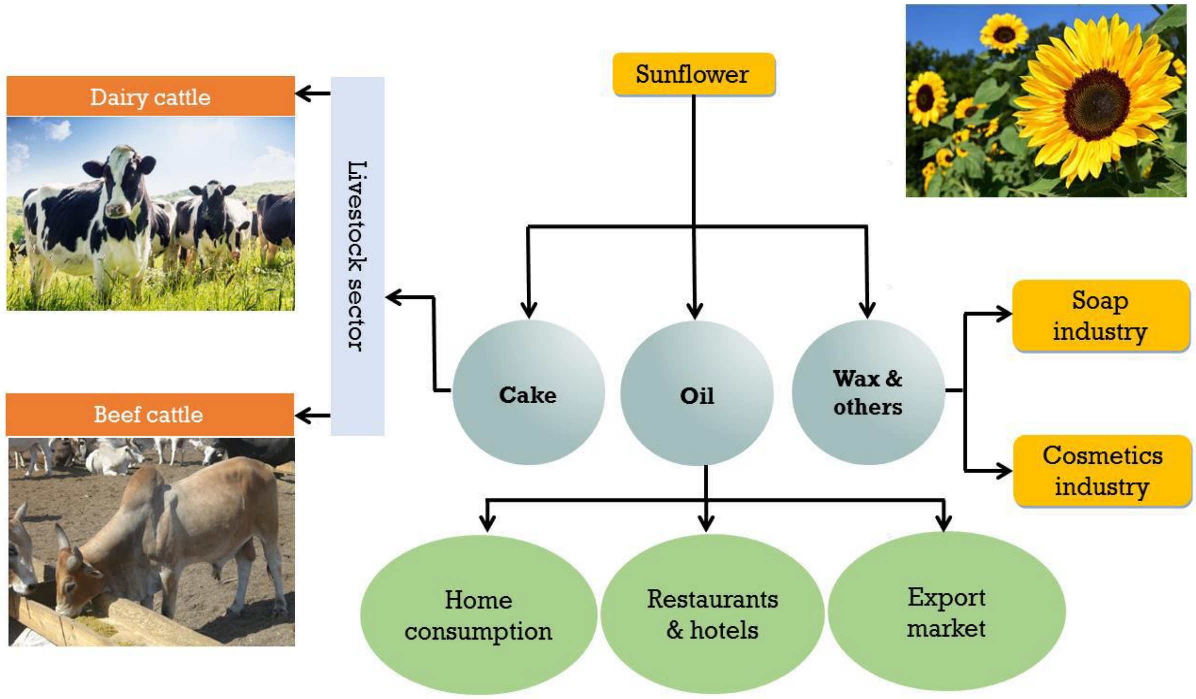

Figure 7: Sunflower value chain dynamics and inter-sectoral linkages

Though primarily grown for the oil in its seeds, the sesame has stern industrial linkages with other sectors including the food, soap, cosmetics, lubricants, and medicine industries (Figure 8). Sesame seeds contain lignans and phytosterols, which are plant compounds that can help lower cholesterol. Phytosterols are also believed to enhance human immune response and decrease risks of certain cancers. The antibacterial activity of sesame seeds is proven to fight against staph infections and strep throat as well as common skin fungi, such as athlete's foot.

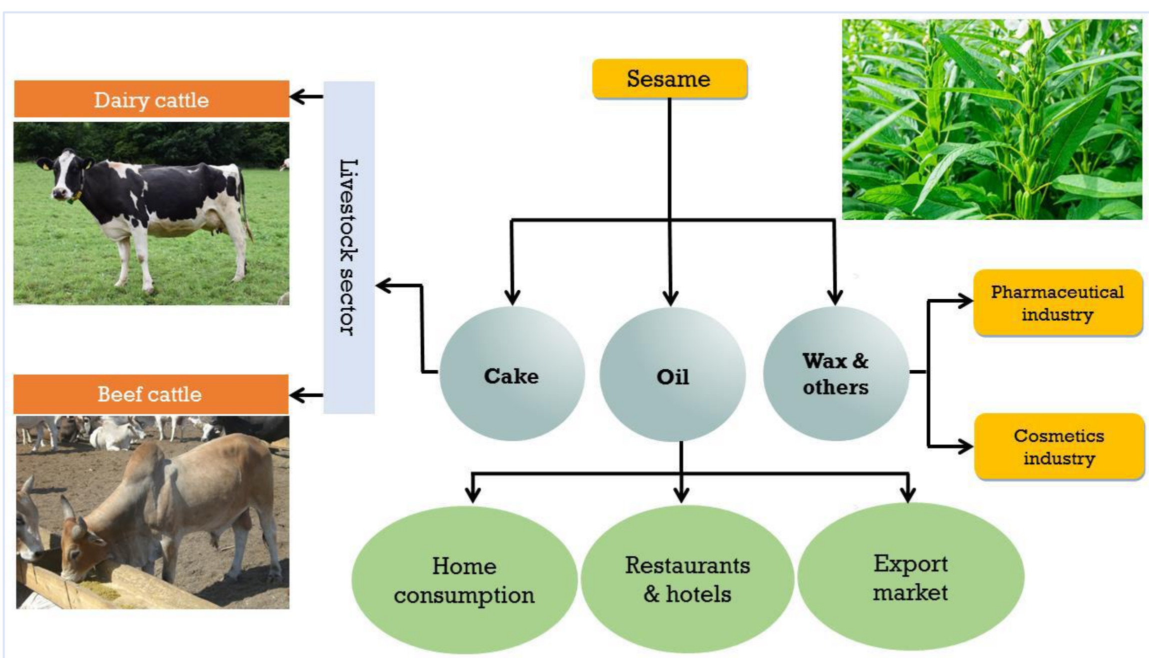

Figure 8: Sesame Value Chain Dynamics and Inter-sectoral linkages

The products of oil palm are used in different sectors and industries (Figure 9). Oil palm derived value-added products include crude palm oil (CPO), crude palm kernel oil (CPKO), food and beverage (the sap is used to make wine and alcohol) and traditional pharmaceutical products such as soap and pomades made from palm kernel oil. Others include oil palm leaves used for roof thatching and making baskets and animal pens, the kernels can be used as fuel, the oil is used to make candles, livestock feeds, and other products.

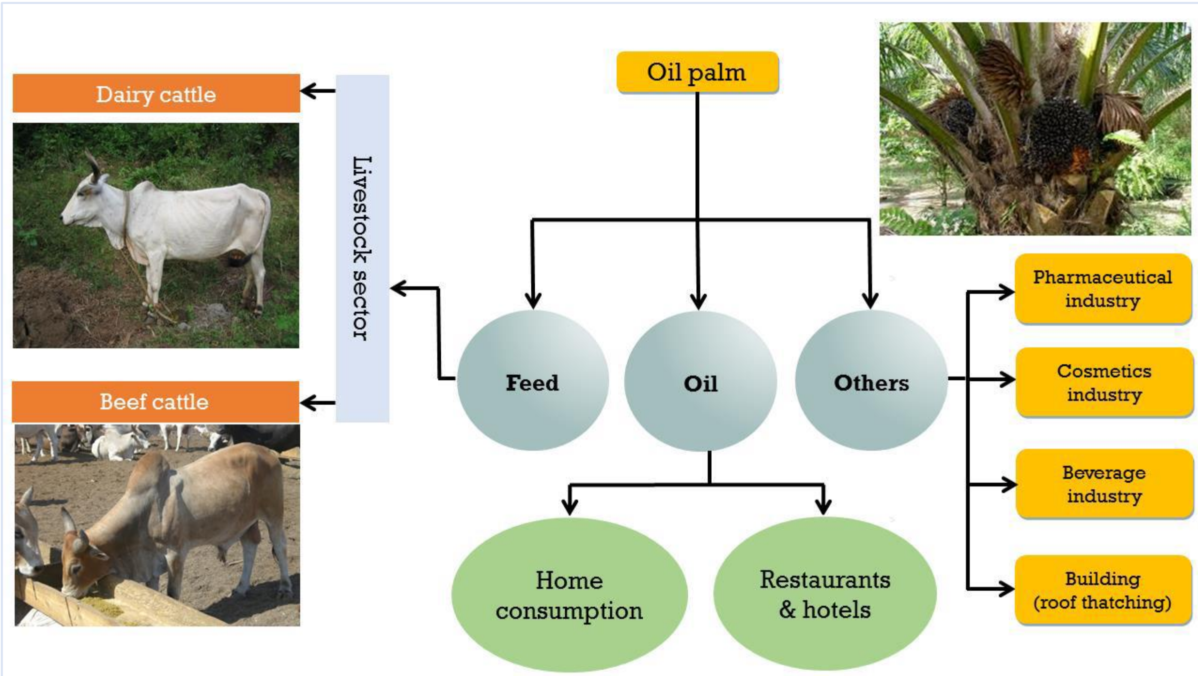

Figure 9: Oil palm value chain dynamics and inter-sectoral linkages

3.3 Edible Oil Value Chains' Maps

The value chain map for sunflower is presented in Figure 10. Smallholder farmers sell oilseeds to local traders who further sell to small-scale or medium-scale millers (processors). The small-scale and medium-scale millers sell crude oil to shops and kiosks inside. Some medium-scale processors sell their sunflower oil to institutions, such as schools and hospitals. There is also a growing network of roadside traders who buy oil from processors and sell to passing buyers. Seed cake is used as an ingredient in the animal feeds and is marketed within and outside the cluster including exporting to neighbouring countries particularly Kenya.

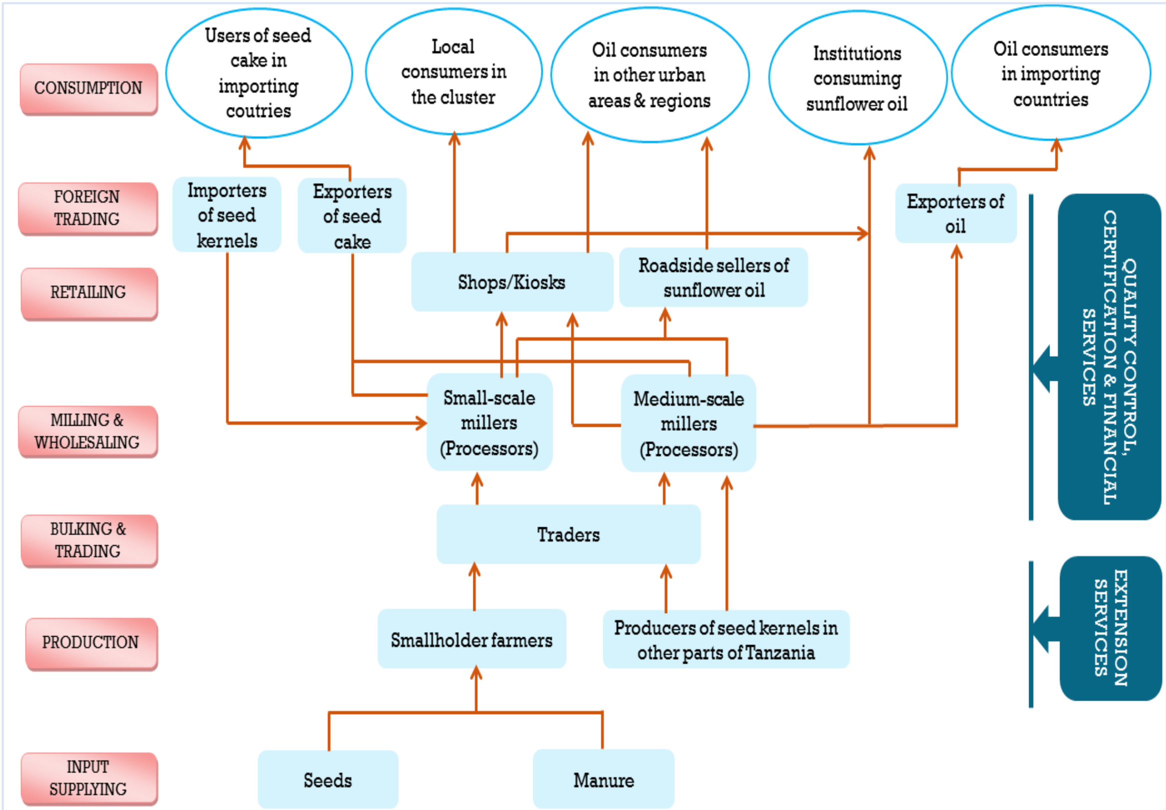

Figure 10: Sunflower value chain in the Kilombero cluster

Figure 11 presents the sesame value chain in the Kilombero cluster. The chain has three main marketing channels through which the sesame products flow to the final consumers. Sesame is either locally consumed in its raw or semi-processed form or used as an ingredient in vegetables or processed into sesame oil, seed cake, sesame butter, sesame paste, sesame flavoured cake, sesame balls, and sesame-flavoured bread, and other cookies. Given its high export demand, only a small volume is consumed locally.

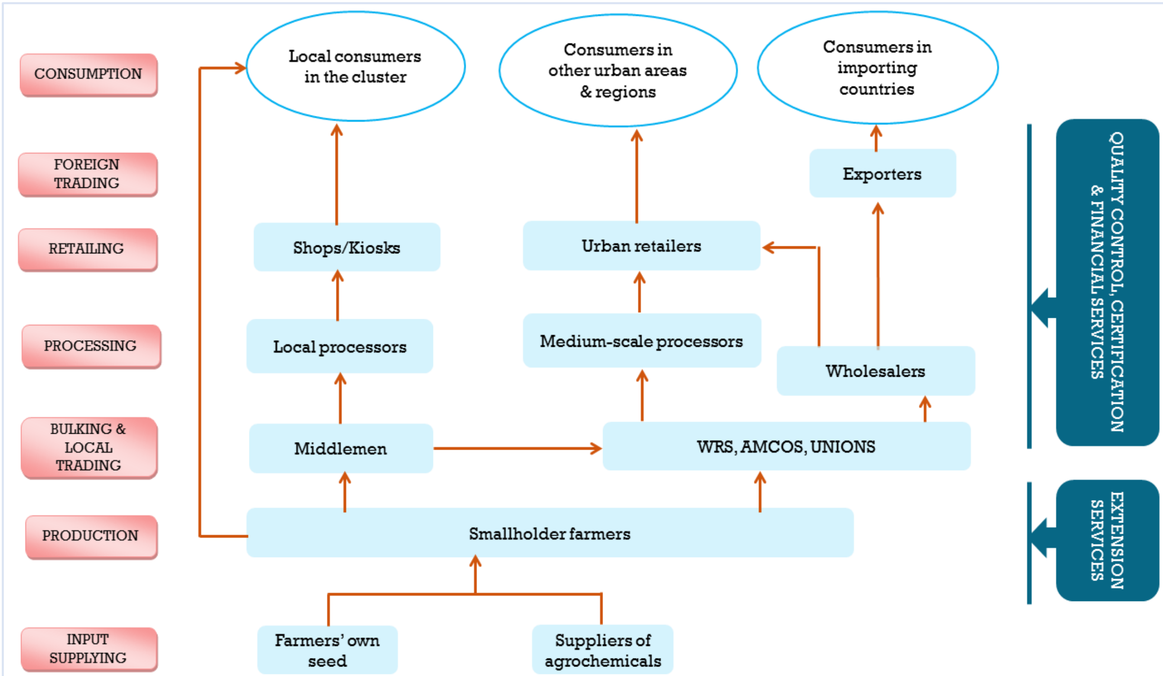

Figure 11: Sesame Value Chain in Kilombero Cluster

Furthermore, the oil palm value chain is presented in Figure 12. The oil palm value chain is predominantly smallholder. Farmers sell to middle Fresh Fruit Branches (FFB) to the FFB processors directly and/or through the middlemen. Processed Crude Palm Oil (CPO) is transported to traders and finally to domestic consumers and consumers in neighbouring countries.

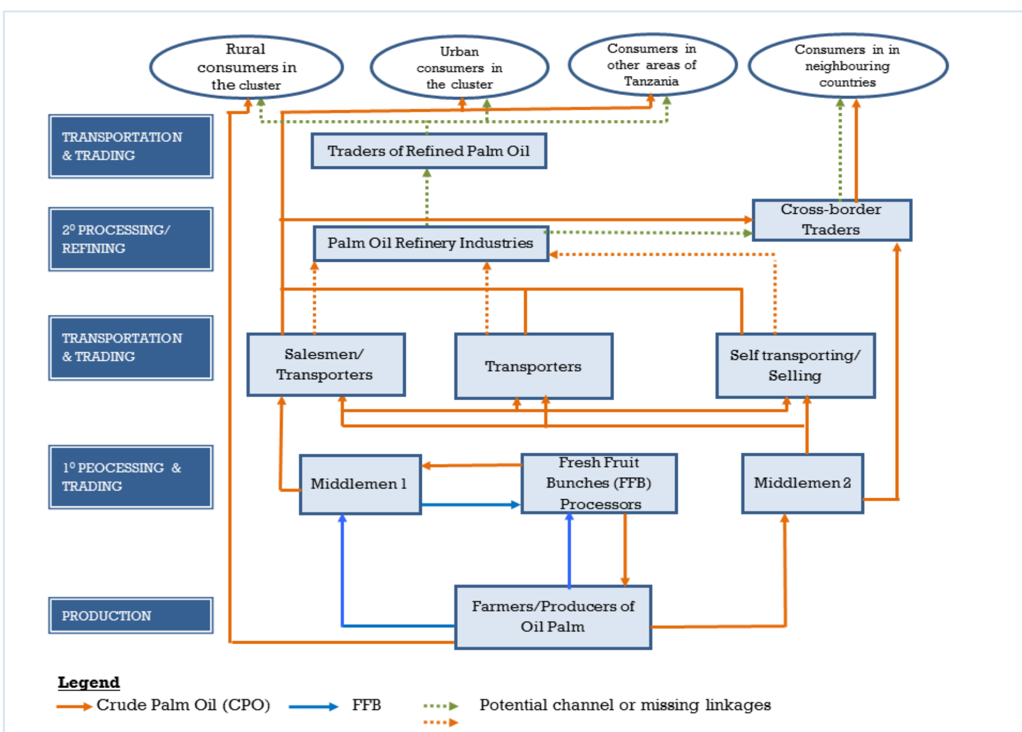

Figure 12: Oil palm value chain in the Kilombero Cluster

3.4 Major Constraints, Opportunities and Recommendations for Edible Oil Crops

Production related investment constraints and opportunities in the edible oil value chains are presented in Table 6. This is followed by the post-production investment constraints and opportunities in Table 7. Furthermore, the best-bet business model for development and upgrading of the edible value chains is presented in Annex 2.

Table 6: Production Investment Constraints and Opportunities for Edible Oil Value Chains

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Low productivity • Expensive hybrid seeds • Unsustainable sesame production (slash-and-burn practice) • Limited use of productivity-enhancing technologies (low-input farming system) • Limited access to capital finance
Priority Action and Investment Areas	• Promote the use of productivity-enhancing technologies (oil crop is not necessarily low-input) • Development of the seed system including germplasm improvements for high-yield and high-oil content • Promote productivity-enhancing technologies (incl. sustainable intensification)
Business and Investment Opportunities	• Availability of productive resources (land, labour) • High demand of edible oil in domestic and regional markets • Existence of R&D institutions • Supportive policies and political will including the drive for edible oil self-sufficiency and protection of domestic edible oil sector • Regulatory reforms for enabling business environment and investment climate
Potential Stakeholders and Investors	• Smallholder farmers • Farmer cooperatives • Medium and large-scale farmers • MDAs responsible for agriculture • Seed and other inputs companies • Microfinance and banks
Recommended Actions	• Promote green technologies (incl. sustainable intensification for sesame production • Promote smallholders tailored financing • Scale-up adoption of GG technologies and practices

Table 7: Post-production Investment Constraints and Opportunities for Edible Oil Value Chains

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Poor storage technologies and facilities • Poor oilseeds with less oil content • VAT on seedcake through despite being an intermediate input in feed which is VAT-exempted • Poor processing technologies
Priority Actions and Investment Areas	• Improving storage technologies and facilities • Development and investment in the seed system • Improved governance • Processing technology development
Business and Investment Opportunities	• High demand for edible oil • Supportive policies and political will including protection of the domestic edible oil sector • Promising competitive trading platform (TMX) • Enabling tax and regulatory reforms in agriculture
Potential Stakeholders and Investors	• Farmer cooperatives (AMCOS) • Farmer agribusiness groups • MDAs responsible for agriculture, industry and trade • Warehouse operators • Edible oil processors and traders
Recommended Actions	• Promote the use of productivity-enhancing technologies • Promote farmers' access to markets • Advocacy for enabling business environment and investment climate • Protect the domestic edible oil sector palm oil imports

PART FOUR

SPICES VALUE CHAINS DEVELOPMENT AND UPGRADING

4.1 Spices Production

Production of spices as other non-traditional horticultural crops has been growing. Between 2014/15 and 2019/20, production spices in Tanzania has increased from 8,609 to 123,508 metric tons (URT 2021[11]). Mororogo is the second spice growing region after Tanga.

The spices that are commonly grown in the Kilombero cluster include cardamom, cinnamon, black pepper, clove, ginger, and turmeric. Spices are produced in the highland areas of Mvomero and Morogoro districts where intensive horticulture is also practiced. Due to intensification and land fragmentation, spices are grown on smaller landholdings and intercropped with other crops.

Given smaller volumes produced, production statistics of many assorted spices are not fully accounted for officially. However, some spices produced in significant amount such as closes and cinnamon are officially recorded in the district statistics. For example, in 2020, about 17,335 and 10,545 tons of cinnamon and cloves were produced in the Kilombero cluster.

4.2 Demand, Trade and Profitability of Spices

Reliable data on consumption of spices are not available. Spices as condiments are not consumed in bulk. Between 2014/15 and 2018/19, the average annual export share of domestic spices production was about 2% (URT 2021) –meaning that 80% of domestic production was domestically consumed. One of the objectives of the national horticulture development strategy is to promote consumption of nutritional and medicinal indigenous spices.

Between 2014/15 and 2018/19, the exported volume of spices increased by 109 tons from 369 to 478 (URT 2021). Spices export trade is increasingly contributing to foreign exchange earnings in Tanzania. For example, between 2018 and 2020, export value of spices increased from US$ 1.9 million in 2018 to US$ 40.4 million in 2020 (MARKUP 2021[12]). Tanzania spices exports are dominated by cloves – for example in 2020, cloves accounted for 87% of the total export value.

Other major spices in terms of export significance include cardamoms, pepper and ginger. In 2020, the sales of cloves, ginger and cinnamon in Morogoro region amounted to TZS 19.5 billion, 1.9 billion and 93.6 million, respectively. The inter-sectoral linkages of the spices with other sectors is as shown in Figure 13.

[11] URT 2021. National Horticulture Development Strategy and Action Plan (2021-2031). Ministry of Agriculture. Dodoma.
[12] MARKUP 2021. Spices Export Procedures Guide for SMEs in Tanzania.

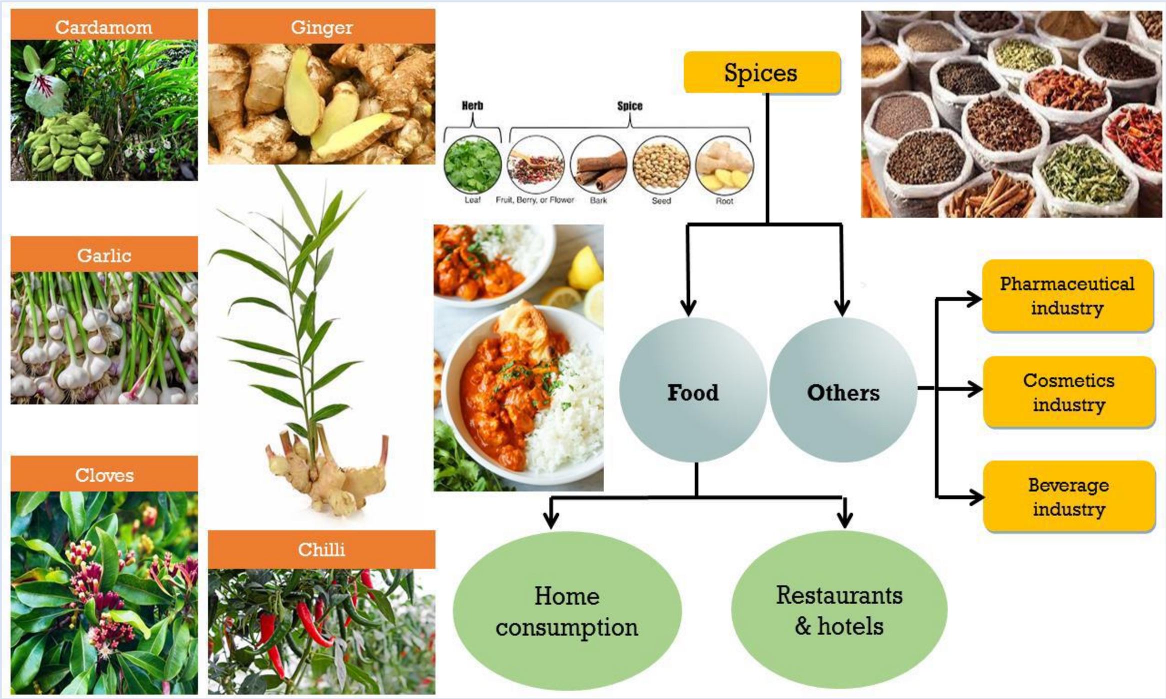

Figure 13: Spices value chain dynamics and inter-sectoral linkages

4.3 Spices Value Chains' Map

The spices that flourish in Kilombero Cluster include cardamom, cinnamon, black pepper, clove, ginger and turmeric. Spices are produced in high land areas (Mvomero and Morogoro) which are already under intensive farming frontiers producing other high value crops including horticultural crops. Therefore, spices areas are small and mostly mixed with other crops. The value chain map of the species is presented in Figure 14.

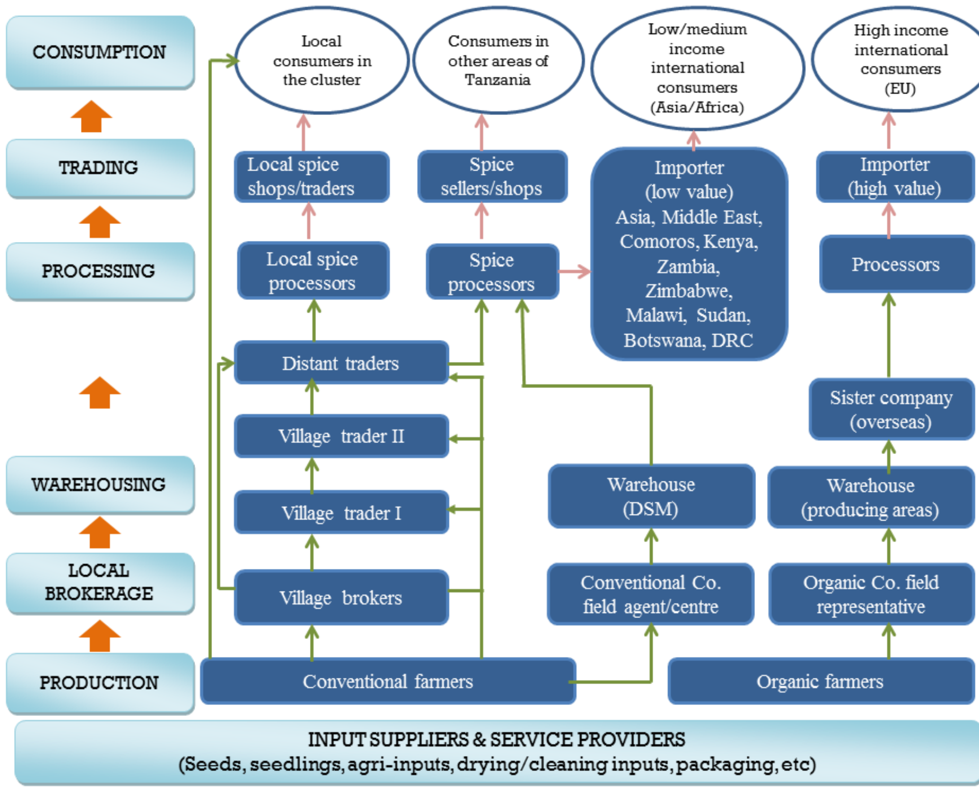

Figure 14: Spices Value Chain in Kilombero cluster

4.4 Major Constraints, Opportunities and Recommendations of Spices Value Chains

Production related the major constraints and business challenges, investment opportunities and recommendation actions for the spices value chains development are summarized in Tables 8. The post-production investment constraints and opportunities are presented in Table 9. Furthermore, the best-bet business model for development and upgrading the spices value chains is presented in Annex 3.

Table 8: Production Investment Constraints and Opportunities for Spices Value Chain

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Underdeveloped R&D in spices including germplasm development • Inadequate Good Agronomic Practices (GAPs) including CSA and Conservation Agriculture, agro-forestry • Limited availability of the spices planting material • Limited extension services for production of spices • Aflatoxin contamination
Priority Action and Investment Areas	• Promote R&D in spices production • Promote GAPs, CSA, CA and agro-forestry • Increase availability of spices seeds and planting material • Improved extension services tailored to spices production • Promotion of aflatoxin control technologies and practices
Business and Investment Opportunities	• Supply of seeds and planting material • Backward linkages to support farmers on GAPs for improved quality of spices

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Potential Stakeholders and Investors	• Farmer cooperatives (e.g., AMCOS) • Medium and large-scale farmers • MDAs responsible for agriculture and agro-forestry • Private companies • Microfinance and banks
Recommended Actions	• Promote tree-based spices for both climate change mitigation and adaptation • Strengthen R&D in spices • Build the capacity of the National Plant Genetic Resources Centre (NPGRC) to conserve propagated spices • Strengthen extension system for spices production • Promote pre-harvest aflatoxin control technologies and practices

Table 9: Post-production Investment Constraints and Opportunities for Spices Value Chains

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Limited market access by smallholder farmers • Limited value addition including processing, packaging, pelleting, labelling and branding • High post-harvest losses due to poor handling • Limited capacity and lack of food safety standards guidelines for SMEs and enforcement (incl. pesticide residues and microbial contaminants) • Lack of certification and traceability and compliance by spices value chains actors • Inadequate supportive governance related with taxation including local governments' cess • Limited finance and investment • Post-harvest aflatoxin contamination
Priority Actions and Investment Areas	• Improve farmers' market access • Promote value addition • Development of food safety standards management for spices including HACCP • Promote certification and traceability schemes in the spices sector • Promote financing • Promote post-harvest aflatoxin control technologies and practices in the spices value chains
Business and Investment Opportunities	• Marketing of spices • Value addition through agro-processing • Improve governance of the spice value chains including implementation of the blueprint of regulatory reforms for improved business environment and investment climate • Tailored financing of agri-SMEs
Potential Stakeholders and Investors	• Farmer cooperatives (e.g., AMCOS) • Medium and large-scale farmers • MDAs responsible for agriculture, industrialization and trade • Private companies • Microfinance and banks
Recommended Actions	• Promote market orientation of smallholder spices producers to shift from 'grow and sell' to 'grow to sell' • Promote smallholders' access to markets • Promote value addition through agro-processing

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
	• Build capacity of farmers and agri-SMEs on food safety standards management and compliance including HACCP framework • Embark on advocacy for improved and responsible governance of the spices value chains • Promote tailored financing

PART FIVE

LIVESTOCK VALUE CHAINS DEVELOPMENT AND UPGRADING

5.1 Livestock Production

Tanzania had a total of 33.5 million heads of cattle in 2019/20 of which 32.4 (97%) were indigenous (URT 2021[13]). Dairy and beef breeds are the two categories of improved cattle – that were estimated at 865,628 (74%) and 302,101 (26%) heads, respectively. Despite of its economic potential, the contribution of the livestock sector has remains low – accounting for 27% of the agricultural GDP and 7.1% of the overall GDP (URT 2022[14]).

In 2019/20, Morogoro region had a total of 1.1 million cattle – ranking around 13th position in terms of overall cattle heads and 14th in terms of improved cattle heads. Kilombero Cluster contain 2.7% of all cattle in Tanzania. The main livestock value chains selected by the stakeholders were dairy and beef. Cattle keeping practices are free range system, zero grazing, large-scale farming and ranching. Some of the ranches and large-scale farmers are NAM – Mkata; A. S. Bakhamis – Chanzuru; SAS –Kisanga; Mkata Ranch; Magairo – Mandera; MATI – Ilonga and Madoto farm.

Cattle productivity is limited in terms of both beef and milk production. The predominant zebu breed weighs between 200-350 kg of live weight. Native cows produce only 0.5 – 2 litres of milk per cow per day (URT 2022). With exception of medium and large-scale dairy farms, smallholder milk production averages around 5 – 10 litres per dairy cow per day. Low milk productivity and production is mainly due to poor genetics of the animals kept, poor feeding and management of the animals.

5.2 Demand, Trade and Profitability of Livestock

The national demand for red meat (mainly beef) was estimated at 867,302 tons in 2022 – with a supply deficit of around 124,778 metric tons (URT 2017[15]). Domestic consumption per capita of livestock products is still low. Tanzania average annual per capita consumption is estimated at 12 kg of beef and 45 litres of milk, which is below the world food organization's standard of 50 kg of beef and 200 litres of milk per annum (URT 2019[16]). Due to population growth, urbanization and income growth the consumption of animal-based protein, including meat and dairy products, is expected to grow in the future.

In estimating profitability potential of the dairy value chain, the study involving Shambani dairy processor that procures milk from smallholders was used. The case study indicates that, smallholder farmers who produce an average of 6 litres per cow, earned a profit margin of TZS 255 (USD 0.11). The vendors collecting milk from farmers and selling the milk to the Milk Collection Centres (MCCs) got a profit margin of TZS. 53 (USD 0.02). The dairy processors earned a profit of TZS. 230 (USD 0.10) on average.

[13] URT 2021. National Sample Census of Agriculture 2019/2020. Main Report.
[14] URT 2022. Livestock Sector Transformation Plan (LSTP). Ministry of Livestock and Fisheries. Dodoma.
[15] URT 2017. Tanzania Livestock Master Plan (2017/18 – 2021/22). Ministry of Livestock and Fisheries. Dodoma
[16] URT 2019. National Livestock Research Agenda, 2020-2025. Ministry of Livestock and Fisheries. Dodoma.

Dairy and beef value chains demonstrate business and investment interlinkages with other industrial sectors as shown in Figures 15 and 16.

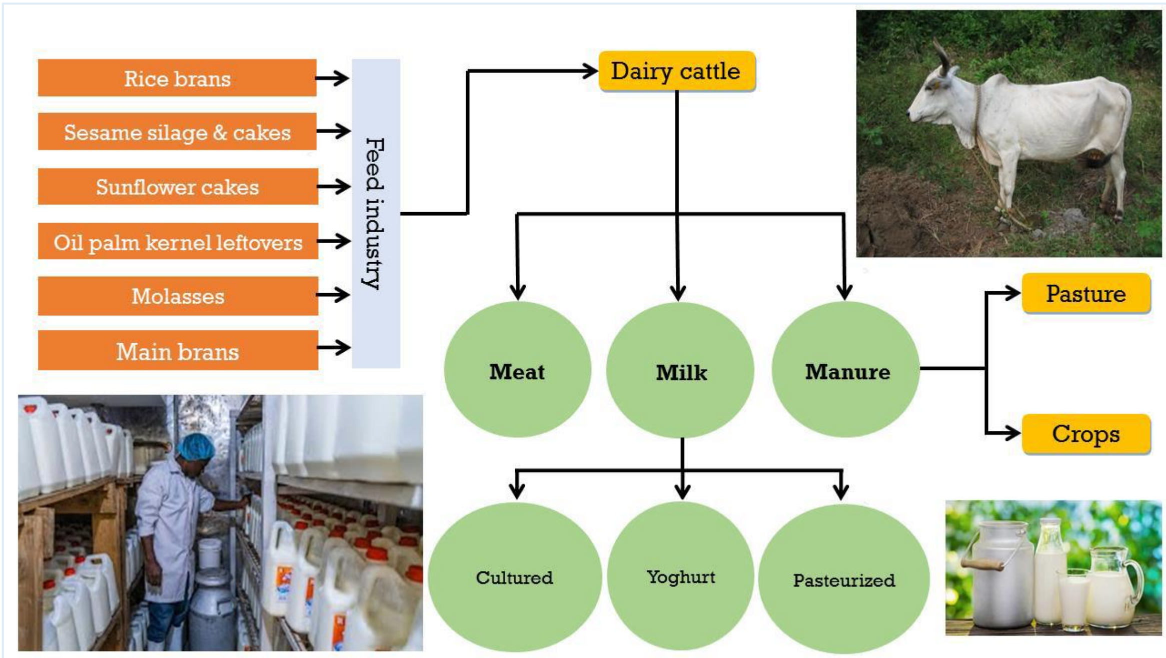

Figure 15: Dairy value chain dynamics and inter-sectoral linkages

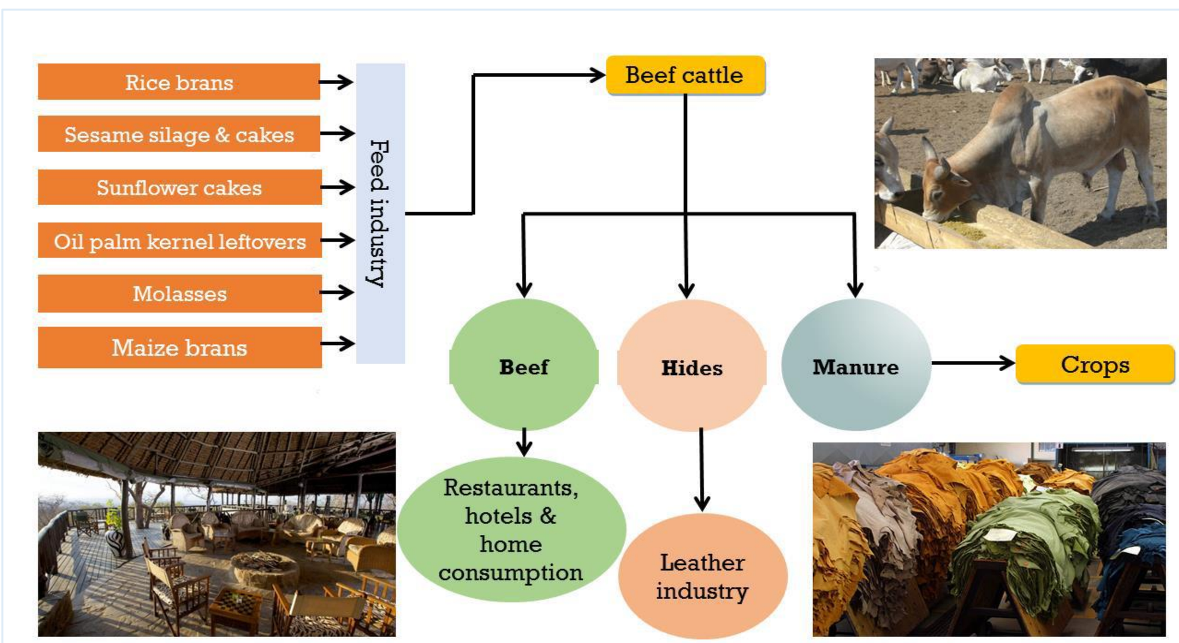

Figure 16: Beef value chain dynamics and inter-sectoral linkages

5.3 Livestock Value Chains Maps

The dairy value chain includes a number of actors and service providers pursuing different functions (Figure 17). About 70% of milk is marketed mainly at the local market and about 30% is consumed at the household level. About 3% to 5% of sold milk is channeled through formal channels. A large volume of sold milk (65% to 67%) is channeled through the informal channels (need to explain more here – which ones and why informal).

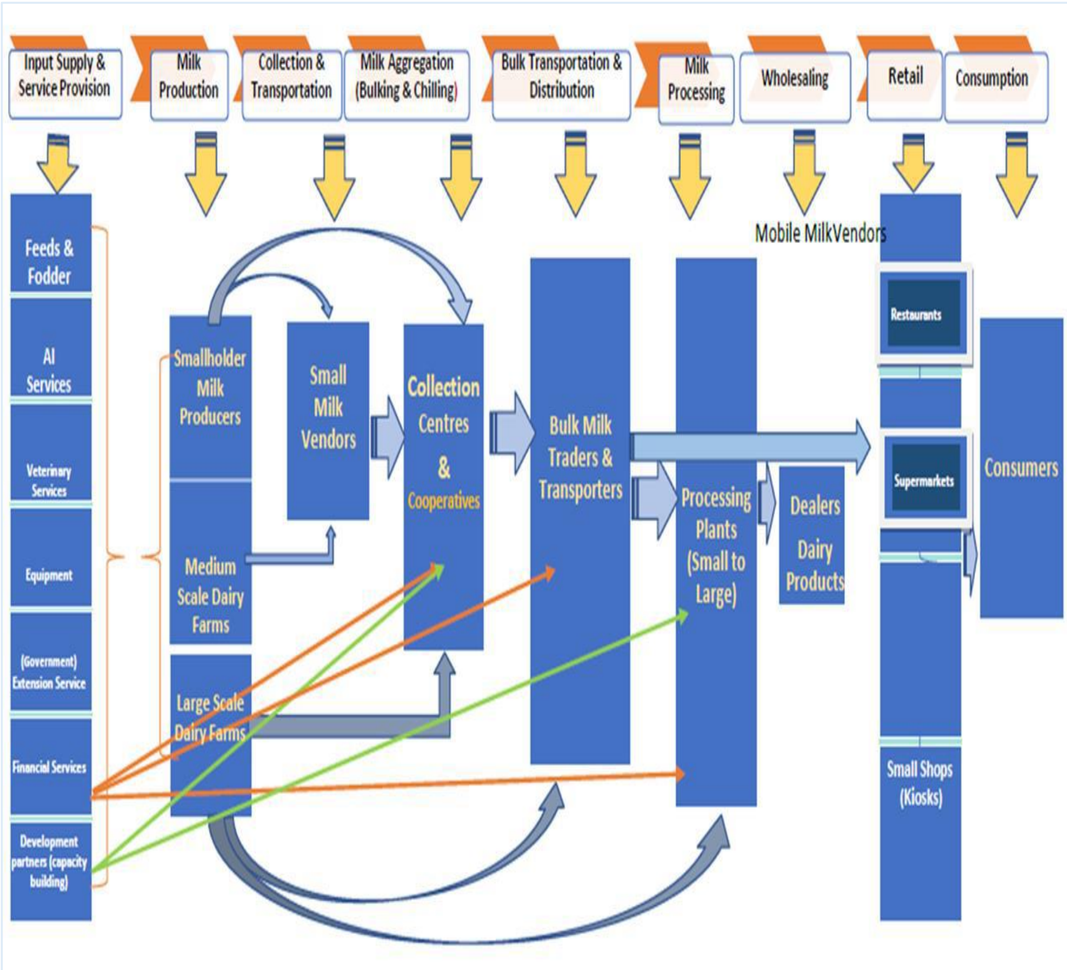

Figure 17: Dairy Value Chain in Kilombero Cluster

Furthermore, Figure 18 presents the beef value chain. There are commercial ranches and individuals that perform cattle fattening. Fattening is a new incipient activity in most *maasai bomas*. They buy male cattle at about TZS 270,000 to 300,000 depending on season, reduce their activities but they don't feed them with special food like protein. After 8 months, cattle are then sold at primary or secondary markets at double price.

About 100 to 120 cattle are slaughtered per day at Morogoro Municipal Slaughterhouse. Nguru Hills Ranch was the only operating Abattoir in Kilombero Cluster. The factory is a joint venture business of PSSF (39%), UK investor (15%) and an investor from Oman (46%). The company procures livestock from local pastoralists graze and fatten them before slaughter. The capacity is to slaughter 100 animals per day (8 hours) but now they operating at half capacity – slaughtering only 50 animals per day. Underutilization of the installed beef processing factory is mainly due to inadequate and reliable supply of animals.

The beef processed at Nguru Hills beef factory fulfils the international standards. YAPI Markez (SGR contractor) is the current buyer of the beef from the factory – buying meat at a premium price as compared to the mainstream butchers. For example, the steak/fillet cuts sell at TZS 18,000 per kilogram compared to TZS 10,000 in the mainstream butcher market. Such investment in industrial beef processing sector creates a business opportunity for local cattle producers. However, this would require improving the genetics and management to ensure that animals meeting beef processing quality requirements are produced.

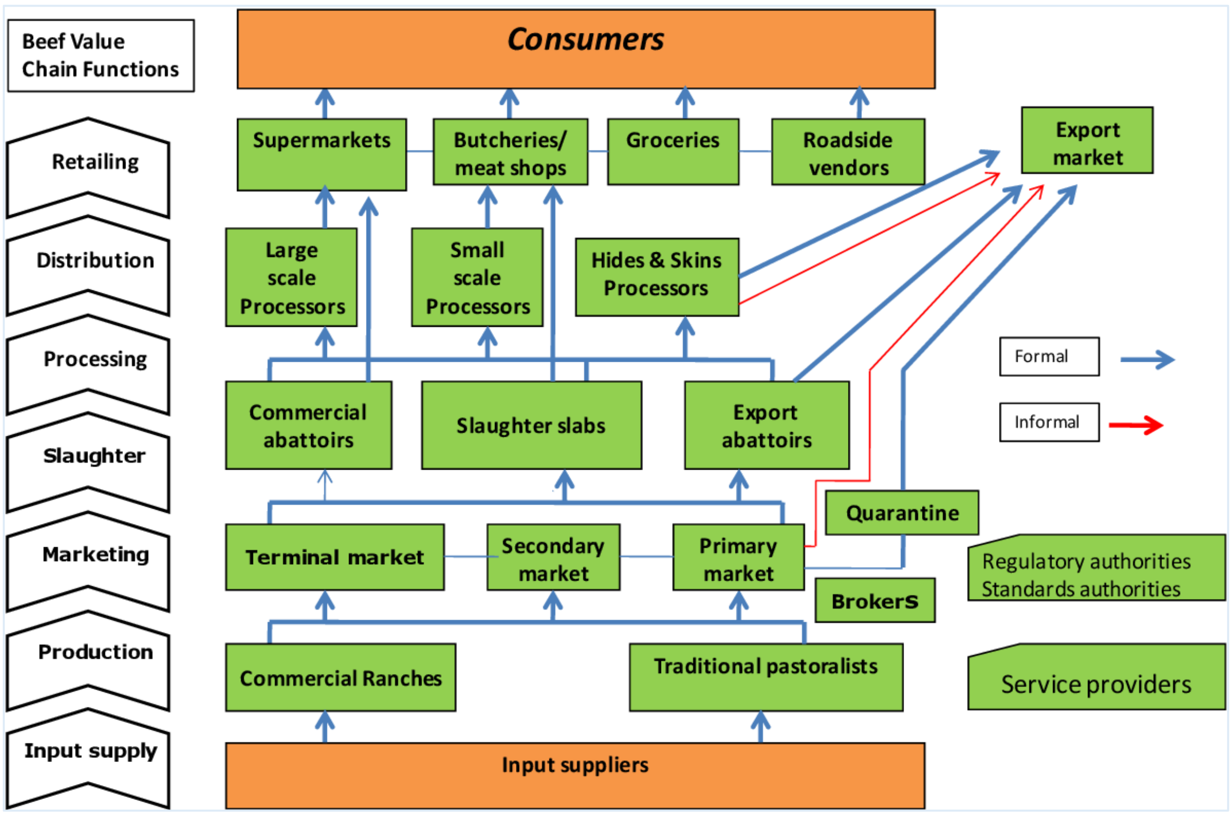

Figure 18: Beef value chain in the Kilombero Cluster

(Source: Meshack, 2015).

5.4 Major Constraints, Opportunities and Recommendations for Livestock Value Chains

Production related the major constraints and business challenges, investment opportunities and recommendation actions for the livestock value chains development are summarized in Tables 10. The post-production investment constraints and opportunities are presented in Table 11. Furthermore, the best-bet business model for development and upgrading the livestock value chains is presented in Annex 4.

Table 10: Production Investment Constraints and Opportunities for Livestock Value Chains

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Poor genetics • Underdeveloped pasture and fodder farming • Limited water supply for livestock during the dry period • Lack of pasture seeds • Limited access to AI services • Unaffordability of industrial feeds • Poor quality of feeds • Limited fattening practices • Limited agricultural finance • High carbon footprints through enteric fermentation and improper handling of manure (non-green dairy and beef sectors)
Priority Action and Investment Areas	• Promote AI services outreach • Promote pasture and fodder farming • Production of quality affordable feeds
Business and Investment Opportunities	• Enabling policy environment and political will to transform the livestock sector • Private AI services provision • Growing demand for feed • Feed stocks for fattening (incl. agricultural by products such as cereal bran, molasses, oilseed cakes, grains etc.) • Green dairy and beef cattle farming
Potential Stakeholders and Investors	• Farmer cooperatives (e.g., AMCOS) • Medium and large-scale farmers • MDAs responsible for agriculture and livestock production • State-Owned Enterprises (SOEs) • Private companies • Microfinance and banks
Recommended Actions	• Promote breeding including AI outreach • Promote pasture and fodder farming • Develop the pasture and fodder seed system • Increased public and private investments in animal watering systems (incl. rainwater harvesting, boreholes powered by solar-power etc.) • Capacity building of livestock keepers on pasture farming, feed formulation and management • Promote tailored agricultural finance products (incl. credit and insurance)

Table 11: Post-production Investment Constraints and Opportunities for Livestock Value Chain

Action Areas	**Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations**
Major Constraints and Business Challenges	• Underdeveloped milk collection system • Underdeveloped cold chain for both milk and beef • Expensive stainless steel for fabrication of cooling tanks • Limited enforcement of quality standards and safety in the dairy and beef value chains • Lack of primary processing of hides • Limited farm-level dairy processing
Priority Actions and Investment Areas	• Milk collection centres and cold chains including refrigerated trucks • Fabrication of dairy cooling tanks • Tanning of hides and derivative leather value chain • Development of farm-level dairy processing
Business and Investment Opportunities	• Policy and political will for transformation of the livestock sector • Growing demand for animal-based protein due to population growth, urbanization and raising income
Potential Stakeholders and Investors	• Farmer cooperatives (e.g., AMCOS) • Medium and large-scale farmers • MDAs responsible for agriculture, livestock, industry and trade • State-Owned Enterprises (SOEs) • Private companies • Microfinance and banks
Recommended Actions	• Extend milk collection systems • Extend the network of cold milk bulking centres including use of renewables as source of energy • Increase investments in modern slaughterhouses and abattoirs with facilities for handling hides and skins • Promote the post-slaughter beef cold chain • Increase access to tailored agricultural finance (incl. credit and insurance)

PART SIX

SUGARCANE VALUE CHAIN DEVELOPMENT AND UPGRADING

6.1 Sugarcane Production

In 2022, Tanzania produced around 3.5 million tons of sugarcane. Morogoro region which forms the Kilombero Cluster is the leading region in sugarcane production in the country. Apart from Kilombero Sugar Company Ltd (KSCL) and Mtibwa Sugar Estate Ltd (MSE), other two sugar factories are being constructed by Mkulazi Holdings Ltd in the Kilombero Cluster. Mkulazi Holdings Ltd is a joint venture company owned by the National Social Security Fund of Tanzania (NSSFT) and the Prison Corporation Sole (PCS).

Between 2016 and 2020, production of sugarcane in the Kilombero Cluster has increased from around 600,000 tons to about 1,500,000 tons. The sugarcane to sugar conversion ratio is estimated at 10-15%. Therefore, the sugarcane produced in the Kilombero Cluster in 2020 produced between 150,000 –225,000 metric tons of sugar. Tanzania produces around 380,000 metric tons of sugar per year.

Sugarcane production is an important livelihood activity that employs a large population of people in the cluster. The available information shows that KSCL, for example, supports about 14,430 to 22,380 jobs in Tanzania including 2,545 direct employments and 9,484 workers supported through the out-grower schemes. Out-growers work with KSCL and MSE through their Agricultural Marketing Cooperative Societies (AMCOS). The out-grower schemes produce about 18% of all sugar in Kilombero Cluster and the rest is produced by the estates.

6.2 Demand, Trade and Profitability of Sugarcane

Tanzania is a net importer of sugar. The annual demand for table sugar is estimated at 440,000 tons per annum. The current production domestic production of sugar is estimated at 380,000 tons – hence a deficit of 60,000 tons which is filled through imports. The government targets to produce about 750,000 tons by 2025 the level that will make the country attain self-sufficiency in sugar production.

Depending on its intended use, sugarcane is processed in a variety of ways to produce a range of value-added products. The sugar sector is linked to other industrial sectors through diversification and usage of co-products and by-products (Figure xxx).

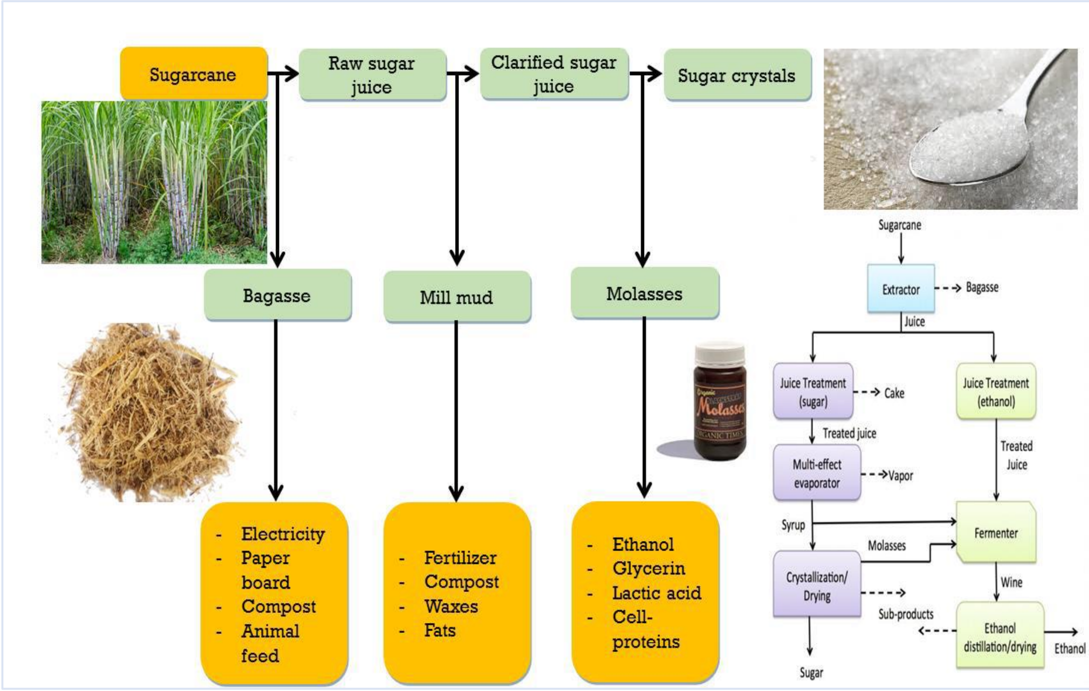

Figure 19: Sugarcane value chain dynamics and inter-sectoral linkages

6.3 Value Chain Map

The sugarcane value chain entails a range of actors and business service providers playing different roles (Figure 20).

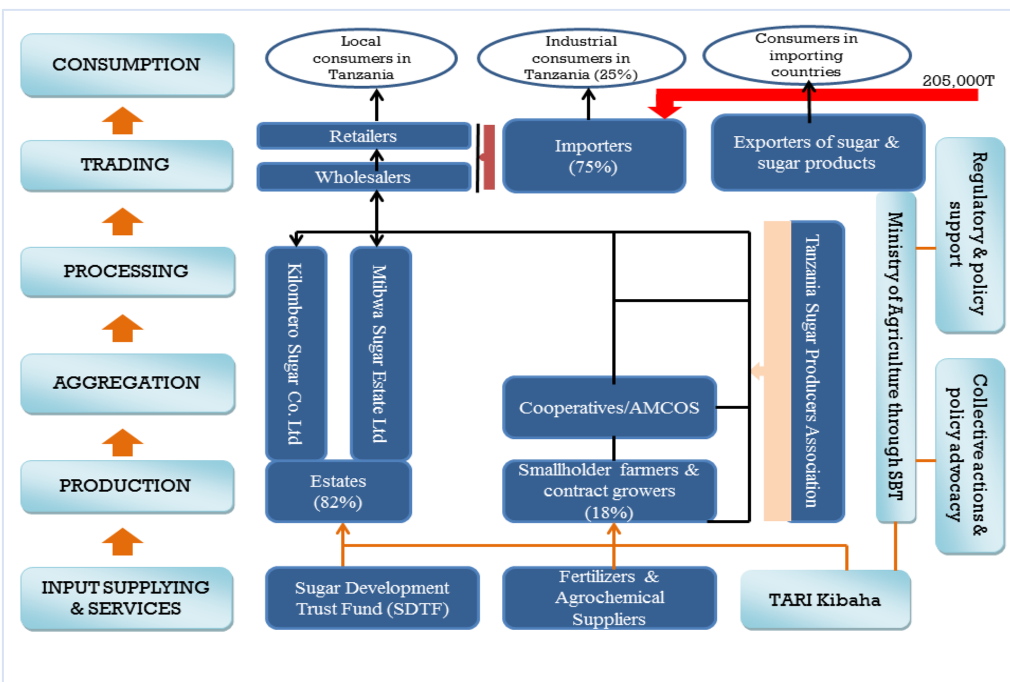

Figure 20: Sugarcane value chain in the Kilombero cluster

6.4 Major Constraints, Opportunities and Recommendations for Sugarcane Value Chain

Production related the major constraints and business challenges, investment opportunities and recommendation actions for the sugarcane value chain development are summarized in Tables 12. The post-production investment constraints and opportunities are presented in Table 13. Furthermore, the best-bet business model for development and upgrading the sugarcane value chain is presented in Annex 5.

Table 12: Post-production Investment Constraints and Opportunities for Sugarcane Value Chain

Action Areas	**Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations**
Major Constraints and Business Challenges	• Climate change and variability • Low productivity among outgrowers • High application of fertilizers and herbicides that compromise GG • Low quality cane (low sucrose) produced by smallholder out-growers • Poor farm access roads • Limited access to capital finance
Priority Action and Investment Areas	• Promote CSA such as irrigation and efficient agricultural water management • Scale-out GAPs among outgrowers • Promote sustainable intensification • Improve farm access roads network • Promote tailored agricultural finance (incl. credit and insurance)
Business and Investment Opportunities	• Availability of productive resources (land, water, labour) • Domestic sugar sector protection • Supportive policies and political will • Enabling tax and regulatory reforms • Demand for table and industrial sugar
Potential Stakeholders and Investors	• Cane growers' associations • Medium- and large-scale farmers • MDAs responsible for agriculture (incl. TSB) • PPP investors • Microfinance and banks
Recommended Actions	• Train on proper application of fertilizers and other agrochemicals • Raise awareness on GG and compliances (e.g., green harvesting)

Table 13: Post-Harvest to Marketing Investment Constraints and Opportunities

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Sugar imports that drains the country's forex • High-emission harvesting involving extensive burning
Priority Actions and Investment Areas	• Promote green harvesting to curb emissions • Promote domestic production to attain self-sufficiency and exportable surplus • Revisit uncompetitive sugar distribution business
Business and Investment Opportunities	• Unmet demand for sugar • Expansive rural electrification under REA (for medium-scale sugar mills) • Protectionist policy (favour domestic sugar production) • Supportive policies and political will • Improving transportation infrastructure (roads, railway) • Enabling tax and regulatory reforms in agriculture
Potential Stakeholders and Investors	• Cane growers' associations • Sugar factories operators (millers) • MDAs responsible for agriculture (incl. TSB) • PPP investors • Microfinance and banks
Recommended Actions	• Lobby with sugar companies to pay on the basis of sucrose level (with exception of KSCL which is already using the practice) • Raise awareness of GG compliances in the sugarcane value chains • Enhance access to finance by outgrowers • Promote investments in medium-scale mills

PART SEVEN

MAIZE VALUE CHAIN DEVELOPMENT AND UPGRADING

7.1 Maize Production

In 2019/20, Tanzania produces around 6.5 million tons of maize (URT 2021[17]). In 2021/22, maize production was estimated at 8.5 million tons (URT 2023[18]). Maize is dominant annual crop grown is Kilombero Cluster it has a planted area 1.5 times paddy which is the second grown crop. Morogoro region ranks 16th in terms of maize production – produced 212,927 tons of maize in 2019/20 (URT 2021). The data collected from the districts and aggregated at the cluster level, indicate the average annual maize production of 548,609 tons. The average maize productivity is the very low –estimated around 1 ton per hectare. Thus, compared to the potential yield of up to 5 tons per hectare, the current yield gap of maize is wider. Productivity of maize has been increasing mainly due to expansion of area under maize cultivation rather from increased productivity.

7.2 Consumption Demand, Trade and Profitability of Maize

Maize is one of the main staple food crops in Tanzania –accounting for 59% of the caloric supply for cereals (URT 2019[19]). The current maize consumption demand is estimated at xxx tons and is projected at 3.6 million tons by 2026[20]. The domestic demand for maize was estimated at 6.1 million tons in 2021/22 (FEWS NET 2022[21]). In Tanzania, maize consumption is projected to reach 3.6 million metric tons by 2026, growing at a rate of 0.6% each year. Kenya which is among the major export destinations of Tanzanian maize had a demand for maize of around 3.47 million metric tons.

In 2020, an estimated about 75,728 tons worth TZS 41.9 billion were traded in the Kilombero Cluster. Kadigi et al. (2020[22]) forecasted that Morogoro region to produce maize worth net returns on investment of about TZS 42.4 and 36.3 billion in 2022 and by 2025, respectively. The future decline in projected returns were imbedded in the declining production trend due to climate related production risk and poor agronomic practices.

The maize value chain has a diverse industrial potential with a wider spectrum of value-added products (Figure 21). This potential creates dynamic inter-sectoral industrial linkages that offer wider range of investment and business opportunities.

[17] URT 2021. National Sample Census of Agriculture 2019/2020. Main Report.
[18] URT 2023. Muhtasari wa Hotuba ya Waziri wa Kilimo. Makadirio ya Mapato na Matumizi ya Fedha ya Wizara ya Kilimo kwa mwaka 2023/2024.
[19] URT 2019. National Food Balance Sheet, 2014-2017. National Bureau of Statistics (NBS).
[20] https://www.reportlinker.com/dataset/50882f79d4bf7f1d2954dfe4ca03978cd842d00b
[21] FEWS NET 2021. East Africa, Maize Regional Supply and Market Outlook. https://fews.net/sites/default/files/documents/reports/EA_RSMO_2022.pdf
[22] Kadigi et al. 2020. Forecasting yields, prices and net returns for main cereal crops in Tanzania as probability distributions: A multivariate empirical (MVE) approach. Agricultural Systems, 180.

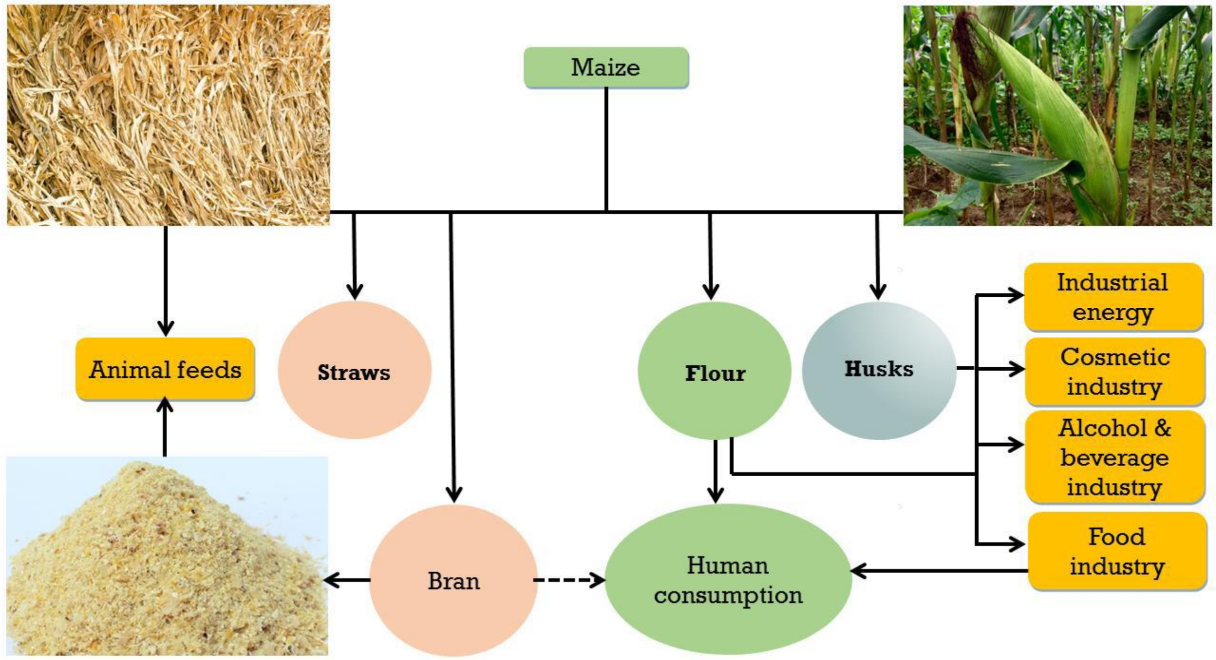

Figure 21: Maize value chain dynamics and inter-sectoral linkages

7.3 Maize Value Chain Map

The maize value chain map (Figure 22) presents pursued functions, actors and business support services providers. The main input suppliers are private seed companies and the public agency. There are farm machinery dealers in the Kilombero Cluster such as Agricom. The public extension services are provided by the government. Maize related R&D services are provided by the national and international R&D institutions including TARI, SUA, IITA, and CYMIT. Production is mainly done by smallholder famers mainly through rainfed agriculture. There are also a growing number of medium-scale farms. Farmers sell to middlemen. There are myriad of processing mills ranging from small mills, some doing packaging and fortification with nutrients and some are large-scale mills.

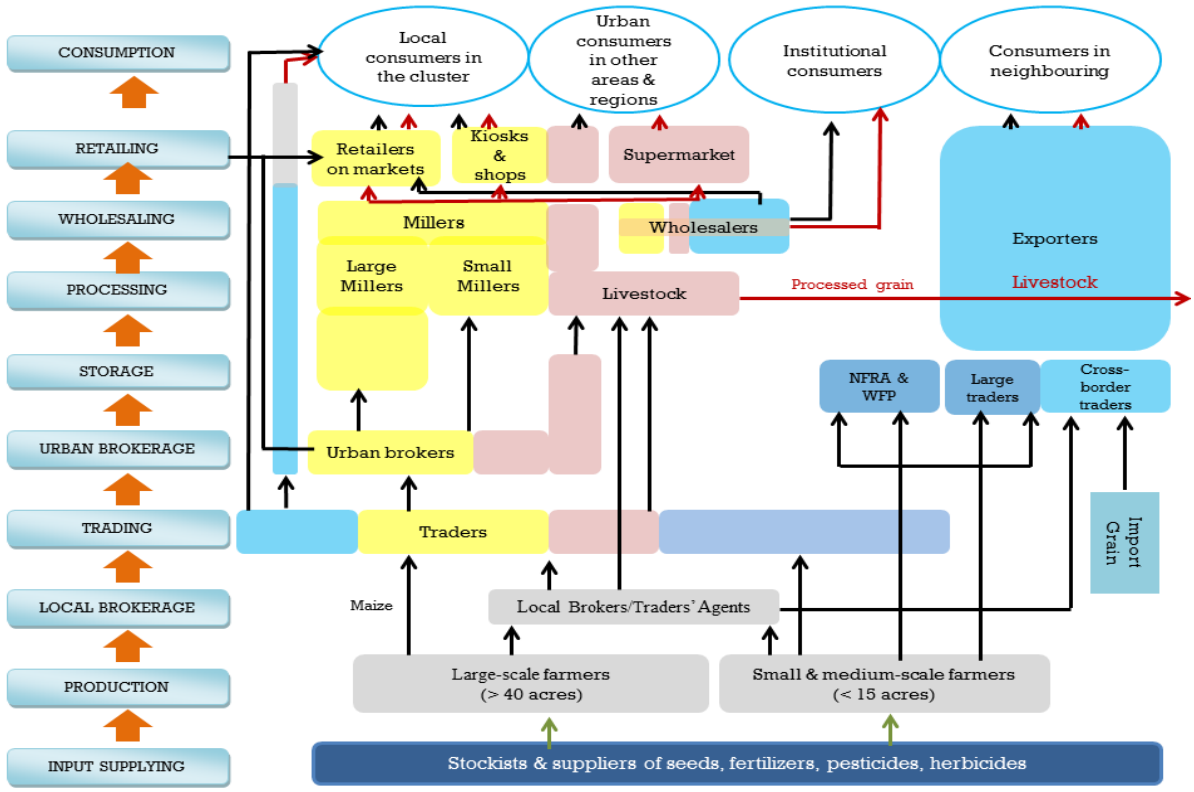

Figure 22: Maize value chain in Kilombero Cluster

7.4 Constraints, Opportunities and Recommendations for Maize Value Chain

Production related the major constraints and business challenges, investment opportunities and recommendation actions for maize value chain development are summarized in Table 14. The post-production investment constraints and opportunities are presented in Table 15. Furthermore, the best-bet business model for development and upgrading maize value chain is presented in Annex 6.

Table 14: Production Investment Constraints and Opportunities for Maize Value Chain

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Poor seed system • Limited use of productivity-enhancing agricultural technologies including irrigation • Low adoption of CSA and nature-based green technologies and practices • Climate change and variability • Limited access to agricultural finance including credit and insurance • Pre-harvest Aflatoxin contamination
Priority Action and Investment Areas	• Seed system including germplasm development • Improved weather forecast and climate information • Fertilizer and agro-chemical manufacturing • Irrigation (not common in maize production) • Climate Smart Agriculture (CSA) • Limited use of precision and digital agriculture • Agricultural financing (incl. credit and insurance)

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Business and Investment Opportunities	• Availability of productive resources (incl. land, water and labour) • Supportive policies and political will • Public investment in aflatoxin control through the TANIPAC project under the Ministry of Agriculture • Natural gas and phosphate deposits for fertilizer manufacturing • Enabling tax and regulatory reforms in agriculture (Blueprint)
Potential Investors	• Farmer cooperatives (e.g., AMCOS) • Medium and large-scale farmers • MDAs responsible for agriculture • State-Owned Enterprises (SOEs) • Private companies • Fertilizer and agro-chemical companies • Microfinance and banks
Recommended Actions	• Promote irrigated agriculture in maize production • Promote pre-harvest aflatoxin control technologies and practices such as the use of Aflasafe • Provide more extension services • Effective transfer of technologies • Promote precision agriculture and digitalization Improved governance of the value chain including implementation of regulatory reforms for improved business environment and investment climate (blueprint)

Table 15: Post-production Investment Constraints and Opportunities for Maize Value Chain

Action Areas	Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations
Major Constraints and Business Challenges	• Post-harvest losses • Poor post-harvest management (leading to poor grain quality) • High transportation costs due poor rural roads • Limited scope of value addition (only milling) • Inadequate modern storage facilities (warehouses) • High carbon footprints in handling rice husk (mostly burnt in the open) • Underdeveloped circular economy • Limited predictability and coherence of policies on export grain trade • Lack of commercial grain standards • Limited agricultural finance (especially for agri-SMEs) • Post-harvest aflatoxin contamination
Priority Actions and Investment Areas	• Modern grain storage systems • Agro-processing • Competitive grain export trade
Business and Investment Opportunities	• Growing domestic and regional demand for rice (urbanization, and population and income growth) • Existence of PPP framework • Supportive policies and political will • Promising competitive trading platform (TMX) • Enabling tax and regulatory reforms in agriculture
Potential Stakeholders and Investors	• Farmer cooperatives (e.g., AMCOS) • Warehouse operators • Grain millers • Grain exporters • MDAs responsible for agriculture, industry, and trade

Action Areas	**Constraints, Investment Areas, Opportunities, Stakeholders and Investors and Recommendations**
	• State-Owned Enterprises (SOEs) • Investors under PPP arrangements
Recommended Actions	• Reduce post-harvest losses • Improving rural roads • Improve trade and marketing infrastructure and systems • Improve farmers' access to profitable markets • Improve governance of the value chain (tax administration, trade movements, fighting corruption, efficient issuance of trade permits etc.) • Increased access to agricultural finance especially for agri-SMEs • Promote circular economy • Increased access to tailored agricultural finance (incl. credit and insurance) • Improve grain quality and standards including effective control of aflatoxin

ANNEXES

BEST-BET BUSINESS MODELS FOR VALUE CHAINS DEVELOPMENT AND UPGRADING

Annex 1. Best-Bet Business Model for Rice Value Chain Development and Upgrading

Pillars	Business model building blocks	Description and Actions	Responsible
Product	Value proposition	High quality and organic primary products: sorted/graded/packed rice, whole grains, brown rice, & rice bran (animal feed) As the VC develops explore opportunities in other value added products: such as, sake (polished) rice, rice bread/gluten, rice milk, rice vinegar, starch, carbohydrates, rice flakes, rice straw, refined grains, rice crispy, puffed rice, brown rice crispy, flattened/beaten rice (poha), cutlet recipe, parched rice cake, rice noodles, parboiled rice, brown rice flakes, green rice flakes, value added products of broken rice, rice husk powder, baked rice crackers, extruded rice crackers, rice cookies, etc.	
Customer interface	Target customer	Domestic markets: Institutions (e.g. schools, hospitals, etc.); tourist hotels; super markets; consumers in Kilombero cluster and other regions in Tanzania Mainland and Zanzibar. Export markets: exporters and importers of rice in neighbouring countries and EAC, SADC, other African states, Saud Arabia and explore potential consumers of quality rice products in developed countries.	Private Sector, AMCOS, SAGCOT Centre Limited (SCL), TANTRADE, MoA, Tanzania Investment Centre (TIC), Ministry of Foreign Affairs and East African Cooperation (MFAEAC), Cereals and Other Produce Board (CPB), Tanzania Bureau of Standards (TBS), and other regulatory bodies (e.g. OSHA, NEMC, Fire & Rescue Department (FRD), Weight and Measure Agency, TRA, BRELA etc.), TBC and

Pillars	Business model building blocks	Description and Actions	Responsible
			other similar media
	Distribution channel	Creating an “angle” for produced rice and rice products: for example, by indicating the business produces high quality or healthy rice and rice products or creating a promotional strategy that is unique and meaningful to the business’s ideal audiences (customers).Creating a successful marketing mix strategy (product, quality - price, distribution - place, promotion): characterizing the target market and positioning particular product or service to appeal to the target market. Directing promotional resources to the most effective outlets for rice business (television, radio, print ads, direct mail, email blasts, billboards, paid search, banner ads, display ads, online videos, web pages, and presentations) – the most efficient approach is to identify the top few outlets for the products and develop these media into powerful marketing channels to push rice business. Advertising in multiple media is recommended. This can be an effective and low-cost method of advertising. Considering about the target markets, competitors’ marketing strengths, and own business marketing strengths. This will help identifying marketing methods and tactics and making better marketing decisions. Developing a marketing communication strategy containing unique and relevant messages - that can be differentiated from the communications of other competitors. Developing a market strategy that can be precisely and easily communicated to the target customers. Creation of a competitive advantage that allows the rice business to stand out from many competitors in the industry (e.g. production and marketing of "innovative environmentally friendly or organic or fair-trade rice products - putting more emphasis on the socially conscious nature of the rice business). These products will allow the business to compete effectively and capture as many potential customers as possible. Differentiating rice and rice products business (new product development	Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, LGA, CPB, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), TBC and other similar media, Development partners (IFAD, WFP, ITC)

Pillars	Business model building blocks	Description and Actions	Responsible
		or line extension - expanding the business product line; introducing packaging and labelling variations; different sizes of package). Rice can be differentiated by varieties too.Using other common methods of differentiation: formulation, processing, delivery, brand extension or stretching, customer relationship management (CRM), product life cycle management, etc.	
	Relationship	Strengthening links (vertical and horizontal linkages) among value chain actors and different customer segments	Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, CPM
Infrastructure management	Value configuration	Advocating and lobbying for good policies. Supporting construction of new irrigation schemes and rehabilitation of existing ones as part of climate-smart solutions. This will ensure reliable sources of water availability, increase water use efficiency and productivity, allow farmers to cultivate paddy twice in a year. Providing more targeted and encompassing extension services to rice farmers, especially regarding the importance of using of improved varieties, water saving technologies and releasing adequate water for other intersectoral uses, including water for the environment (i.e. environmental flow). Promoting intensification of paddy production through the use of more productive technologies. Reducing postharvest losses which can be achieved through conducting tailor-made training in postharvest handling using simple (low cost), but appropriate environmentally-friendly technologies and practices. This will not only reduce postharvest losses but will also improve the quality of rice produced and enhance marketability.	Agricultural Council of Tanzania (ACT), TPSF-Private Sector, AMCOS, TFNC, YARA, ETG, LGA – Extension Staff, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, Financial institutions (e.g. TADB, PASS, NMB & CRDB Bank), TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, Development partners (IFAD, WFP, ITC)

Pillars	Business model building blocks	Description and Actions	Responsible
	Core competency	A thorough understanding of customer's preferences A thorough understanding and sharing of the cluster's business model for rice and its commercialisation strategy A thorough understanding and sharing of marketing communication channels by all actors Skills in the use of green and climate-smart production and processing technologies	LGA – Extension Staff, MoA, TIC, Researchers (SUA, UDSM etc), SCL, CAMARTEC, SIDO, CIAT, COSTECH)
	Partner network	Promoting collective ownership and operation of production and processing infrastructure (e.g. rice irrigation schemes, storage facilities and combine harvesters operated by farmer groups and cooperatives, such as AMCOS). Strengthening the network of cooperative arrangements with other companies in the rice value chain. This is necessary to effectively offer and commercialize value, enhance the rice supply chain and its coordination. A collective rice marketing model through AMCOS and their Apex is recommended. Supporting informal linkage models, especially in areas with weak formal rice farmer organisations: Informal market linkages in form of a cooperation or quasi-cooperation among farmers. These forms of linkage are the building blocks for formalised cooperatives. Promoting small farmer organisation induced by external agents (a combination of external actors and small farmers). Addressing sustainability issues to avoid failure or unsustainable business practices and inherent inefficiencies, especially for induced organisations supported by development actors	LGA – Cooperative Offices, Private Sector, MoA, TIC, SCL, CPB

Pillars	Business model building blocks	Description and Actions	Responsible
Financial aspects	Cost structure	Examining the costs of creating and distributing the value proposition, maintaining customer relationships, and creating revenue streams. Overcoming the costs and risks through producer coordination, market coordination, intermediation, service and finance provision, information and knowledge management, and buyer behaviour. Organizing production to overcome the costs associated with the dispersion of producers, diseconomies of scale, poor access to information, technology, and finance, inconsistent volume and quality, lack of traceability, and management of risk. Incorporating support costs as part of the overall pricing structure to align incentives along the chain and increase the possibility of success as a business. Working with organised farmers rather than individuals to increase bargaining power - induced farmer business organisations led by either NGOs and the public sector Government support for specific market opportunities Ensuring that production is either organized by the producers themselves, by the end customer companies, or by an intermediary such as an NGO, trader, wholesaler, or exporter in a range of direct or indirect market linkages. Advocating and lobbying for good policies. Supporting construction of new irrigation schemes and rehabilitation of existing ones as part of climate-smart solutions. This will ensure reliable sources of water availability, increase water use efficiency and productivity, allow farmers to cultivate paddy twice in a year. Providing more targeted and encompassing extension services to rice farmers, especially regarding the importance of using improved varieties, water-saving technologies, and releasing adequate water for other	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, CPB, Financial institutions (e.g. TADB, PASS, NMB & CRDB Bank), TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, Financial institutions (NMB, CRDB, TADB, SACCOS, VCOBA)

Pillars	Business model building blocks	Description and Actions	Responsible
		intersectoral uses, including water for the environment (i.e. environmental flow). Promoting intensification of paddy production through the use of more productive technologies. Reducing postharvest losses which can be achieved through conducting tailor-made training in postharvest handling using simple (low-cost), but appropriate environmentally-friendly technologies and practices. This will not only reduce postharvest losses but will also improve the quality of rice produced and enhance marketability.	
	Revenue model	Preparing a framework for generating financial income that identifies which revenue source to pursue, what value to offer, how to produce the value, and who pays for the value. This is an important component of a business model. Promoting good agricultural practices (including nature-based practices) would triple the yields or at least double them.	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, SCL, ASA

Annex 2. Best-Bet Business Model for Edible Oil Value Chains Development and Upgrading

Pillars	Business model building blocks	Description and Actions	Responsible
Product	Value proposition	Crude and refined oils, ingredients of food and beverage (e.g. the sap palm is used to make wine and alcohol), traditional pharmacy products (soap and pomades made from palm kernel oil), oil palm leaves used for roof thatching and making baskets and pens for small livestock, kernels used as fuel, the oil is used to make candles, livestock feeds, and other products used locally.	
Customer interface	Target customer	Domestic markets: Institutions (e.g. schools, hospitals, etc.); tourist hotels; super markets; consumers in Kilombero cluster, and other regions in Tanzania Mainland and Zanzibar. Export markets: exporters and importers of edible oils in neighbouring countries and EAC, SADC, other African states	Private Sector, AMCOS, SAGCOT Centre Limited (SCL), TANTRADE, MoA, Tanzania Investment Centre (TIC), Ministry of Foreign Affairs and East African Cooperation (MFAEAC), TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.)
	Distribution channel	Creating a niche for produced edible oils and edible oils products: for example, by indicating the business produces high quality or healthy edible oils and edible oil products or creating a promotional strategy that is unique and meaningful to the business's ideal audiences (customers). Creating a successful marketing mix strategy (product, quality - edible oils, distribution - place, promotion): characterizing the target market and positioning a particular product or service to appeal to the target market Directing promotional resources to the most effective outlets for the edible oils business (television, radio, print ads, direct mail, email blasts, billboards, paid search, banner ads, display ads, online videos, web pages, and presentations) – the most efficient approach is to identify the top few outlets for the products and develop these media into powerful marketing channels to push edible oils business. Advertising in multiple media is recommended. This can be an effective and low-cost method of advertising.	Media, Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, LGA, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), TBC and other similar media, Development partners (IFAD, WFP, ITC)

Pillars	Business model building blocks	Description and Actions	Responsible
		Considering the target markets, competitors' marketing strengths, and own business marketing strengths. This will help identify marketing methods and tactics and make better marketing decisions. Developing a marketing communication strategy containing unique and relevant messages - that can be differentiated from the communications of other competitors. Developing a market strategy that can be precisely and easily communicated to the target customers. Creation of a competitive advantage that allows the edible oils business to stand out from many competitors in the industry (e.g. production and marketing of "innovative environmentally friendly or organic or fair-trade edible oil products - putting more emphasis on the socially conscious nature of the edible oils business). These products will allow the business to compete effectively and capture as many potential customers as possible. Differentiation of edible oil products business (new product development or line extension - expanding the business product line; introducing packaging and labelling variations; different sizes of package). Edible oils can be differentiated by varieties too. Using other common methods of differentiation: formulation, processing, delivery, brand extension or stretching, customer relationship management (CRM), product life cycle management, etc.	
	Relationship	Strengthening links (vertical and horizontal linkages) among value chain actors and different customer segments	Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers
Infrastructure management	Value configuration	Addressing inherent GG issues, such as shifting cultivation - especially in sesame cultivation through awareness creation and conducting tailor-made field farmer schools (FFS) and experimentation of GG practices awareness.	Agricultural Council of Tanzania (ACT), TPSF-Private Sector, AMCOS, TFNC, YARA, ETG, LGA – Extension Staff, SCL,

Pillars	Business model building blocks	Description and Actions	Responsible
		Directing adequate efforts to influence conventional farming to that farmers change their farming practices from extensive to intensification farming. Supporting initiatives that enhance smallholders' entrepreneurship skills and instil them with a mind-set of farming as a business. Promoting the use of environmental-friendly agricultural inputs, including field manure and climate-smart seed varieties to enhance crop yields and enable farmers to exploit the existing edible oil market opportunity. Working closely with the Small Industries Development Organization (SIDO) to promote value addition through the processing of high-quality edible oils. SIDO can coordinate the manufacturing of appropriate processing machines and conduct training on how to operate the machines to increase the processing capacity of farmers. Helping farmers in the cluster to access lucrative markets for edible oils through various initiatives, including the use of more effective market ICT systems such as the TMX auction system. Generating adequate knowledge and awareness amongst value chain actors about capital markets and stock exchanges as well as the importance of using digital trade or e-commerce platforms. For smallholder farmers, this can be operationalized at the AMCOs level. Encouraging farmers to use formal marketing channels such as the WRS model which provides advance payment to farmers and enables them to meet their family financial obligations before their products are sold.	TANTRADE, MoA, TIC, MFAEAC, Researchers, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, TBC and other similar media, Development partners (IFAD, WFP, ITC)
	Core competency	A thorough understanding of customers preferences A thorough understanding and sharing of the cluster's edible oils and oil products business model and its commercialisation strategy A thorough understanding and sharing of marketing communication channels by all actors Skills in the use of green and climate-smart production and processing	LGA – Extension Staff, MoA, TIC, Researchers (SUA, UDSM, etc.), SCL, TBC, CIAT, COSTECH

Pillars	Business model building blocks	Description and Actions	Responsible
		technologies	
	Partner network	Promoting collective ownership and operation of production and processing infrastructure (e.g. storage facilities, and affordable milling owned and operated by farmer groups and or their cooperatives, such as AMCOS). Strengthening the network of cooperative arrangements with other companies in the edible oils value chain. This is necessary to effectively offer and commercialize value, and enhance the edible oils supply chain and its coordination. A collective edible oils marketing model through AMCOS and their Apex is therefore recommended. Supporting informal linkage models, especially in areas with weak formal edible oils farmer organisations: Informal market linkages in form of cooperation or quasi-cooperation among farmers. These forms of linkage are the building blocks for formalised cooperatives. Promoting small farmer organisation induced by external agents (a combination of external actors and small farmers). Addressing sustainability issues to avoid failure or unsustainable business practices and inherent inefficiencies, especially for induced organisations supported by development actors.	LGA – Cooperative Offices, Private Sector, MoA, TIC, SCL, BRELA)
Financial aspects	Cost structure	Examining the costs of creating and distributing the value proposition, maintaining customer relationships, and creating revenue streams. Overcoming the costs and risks through producer coordination, market coordination, intermediation, service and finance provision, information and knowledge management, and buyer behaviour. Organizing production to overcome the costs associated with the dispersion of producers, diseconomies of scale, poor access to information, technology, and finance, inconsistent volume and quality, lack of traceability, and management of risk. Incorporating support costs as part of the overall pricing structure to align incentives along the chain and increase the possibility of success as a	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, Financial institutions (NMB, CRDB, TADB, SACCOS, VCOBA)

Pillars	Business model building blocks	Description and Actions	Responsible
		business. Working with organised farmers rather than individuals to increase bargaining power - induced farmer business organisations led by either NGOs and the public sector Government support for specific market opportunities Ensuring that production is either organized by the producers themselves, by the end customer companies, or by an intermediary such as an NGO, trader, wholesaler, or exporter in a range of direct or indirect market linkages. Access to credit (formal and informal money lenders; cooperation or quasi-cooperation among farmers) Small farmer organization induced by external agents or a combination of external actors and small farmers. Donor support and private sector initiatives of the induced organisation, such as contract farming schemes Linking key service providers to the supply chain of for-profit businesses (rather than with donor subsidies).	
	Revenue model	Preparing a framework for generating financial income that identifies which revenue source to pursue, what value to offer, how to produce the value, and who pays for the value. This is an important component of a business model. Promoting good agricultural practices (including nature-based practices) would triple the yields or at least double them.	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, SCL, ASA

Annex 3. Best-Bet Business Model for Spices Value Chains Development and Upgrading

Pillars	Business model building blocks	Description and Actions	Responsible
Product	Value proposition	Spices for cooking and ingredients in the food, pharmaceutical, cosmetics, and beverage industries	
Customer interface	Target customer	Domestic markets: Institutions (e.g. schools, hospitals, etc.); tourist hotels; super markets; consumers in Kilombero cluster, and other regions in Tanzania Mainland and Zanzibar. Export markets: exporters and importers in neighbouring countries and EAC, SADC, other African states, US, Germany, Netherlands, UK, and Saudi Arabia	Private Sector, AMCOS, Tanzania Spices Association (TSA), SAGCOT Centre Limited (SCL), TANTRADE, MoA, Tanzania Investment Centre (TIC), Ministry of Foreign Affairs and East African Cooperation (MFAEAC), CPB
	Distribution channel	Identifying more niche markets for spices and ensuring customers that the business produces high-quality or healthy products. This requires the creation of a promotional strategy that is unique and meaningful to the business's ideal customers. Creating a successful marketing mix strategy (product, quality - spices, distribution - place, promotion): characterizing the target market and positioning a particular product or service to appeal to the target market Directing promotional resources to the most effective outlets for the spices business (television, radio, print ads, direct mail, email blasts, billboards, paid search, banner ads, display ads, online videos, web pages, and presentations) – the most efficient approach is to identify the top few outlets for the products and develop these media into powerful marketing channels to push spices business. Advertising in multiple media is recommended. This can be an effective and low-cost method of advertising. Considering the target markets, competitors' marketing strengths, and own business marketing strengths. This will help identify marketing methods and tactics and making better marketing decisions. Developing a marketing communication strategy containing unique and relevant messages - that can be differentiated from the	Private Sector, AMCOS, Tanzania Spices Association (TSA), SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, LGA, CPB, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), TBC and other similar media, Development partners (IFAD, WFP, ITC)

Pillars	Business model building blocks	Description and Actions	Responsible
		communications of other competitors. Developing a market strategy that can be precisely and easily communicated to the target customers. Creation of a competitive advantage that allows the spices business to stand out from many competitors in the industry (e.g. production and marketing of "innovative environmentally friendly or organic or fair-trade spices products - putting more emphasis on the socially conscious nature of the spices business). These products will allow the business to compete effectively and capture as many potential customers as possible. Differentiation of spices and spices products business (new product development or line extension - expanding the business product line; introducing packaging and labelling variations; different sizes of package). Spices can be differentiated by varieties too. Using other common methods of differentiation: formulation, processing, delivery, brand extension or stretching, customer relationship management (CRM), product life cycle management, etc.	
	Relationship	Strengthening links (vertical and horizontal linkages) among value chain actors and different customer segments	Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers
Infrastructure management	Value configuration	Promoting the use of climate-smart solutions in the production of spices. This will ensure reliable sources of water availability, and increase water use efficiency and productivity of spices. Providing more targeted and encompassing extension services to spices farmers, especially regarding the importance of producing quality spices. With the rising consciousness of consumers on the safety of food, and the demand for high quality and safe food these supermarkets can sell a “green” spices supply line under their own brand with their own “Quality Spices” logo. This should go hand in hand with the promotion of producing certified spice products, such as Fairtrade and organics.	Agricultural Council of Tanzania (ACT), TPSF-Private Sector, AMCOS, TSA, TFNC, YARA, ETG, LGA – Extension Staff, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, CPB, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, TBC and other similar media, Development partners (IFAD, WFP, ITC)

Pillars	Business model building blocks	Description and Actions	Responsible
		Enhancing post-harvest management of spices. This is crucial in minimizing losses and upholding quality and safety along the value chain. It can be achieved through conducting tailor-made training in postharvest handling using simple (low-cost), but appropriate and environmentally-friendly technologies and practices. This will also improve the quality of spices produced and enhance marketability. Harvesting spices at a right time. The main obstacle to correct harvesting is the crop being picked immature. This is usually due to fear of theft or the farmer requiring money urgently. However, every effort should be made to wait until the spices are fully mature. The crop should be cleaned before processing. The first stage is to remove dust and dirt using a winnowing basket. This can be made locally from bamboo, palm or other leaves. Small machines are available for cleaning but they are rarely cost effective. Drying is by far the most important stage in the process to ensure good quality spices. Inadequately dried produce will lead to mould growth. The sale value of mouldy spices can be less than 50% of the normal value. Promoting a dualistic farm model where smallholder producers work closely with big buyers who typically seek out large-scale supplies from areas favoured by agribusiness. A typical example is operators of supermarkets engaged in marketing spices. These lines can also represent an innovation in the purchasing system within the value chain context, where horticultural companies carry out integrated management of the entire supply chain, with full traceability. Other retailers would follow suit making the co-operators of the company's quality line become larger-scale, rather than small-scale. Promoting and integrating the local supply of spices into the tourist trade as a support to local communities – this could be coupled with the encouragement of environmentally sound production.	

Pillars	Business model building blocks	Description and Actions	Responsible
	Core competency	A thorough understanding of customer's preferences A thorough understanding and sharing of the cluster's spices business model and its commercialisation strategy A thorough understanding and sharing of marketing communication channels by all actors Skills in the use of green and climate-smart production and processing technologies	LGA – Extension Staff, MoA, TIC, Researchers (SUA, UDSM, etc.), SCL, TBC and other similar media, CIAT, COSTECH
	Partner network	Promoting collective ownership and operation of production and processing infrastructure (e.g. storage facilities and spices cleaning machines by farmer groups and or cooperatives, such as AMCOS).Strengthening the network of cooperative arrangements with other companies in the spices value chain. This is necessary to effectively offer and commercialize value, and enhance the spices supply chain and its coordination. A collective spices marketing model through AMCOS and their Apex is recommended.Supporting informal linkage models, especially in areas with weak formal spices farmer organisations: Informal market linkages in form of cooperation or quasi-cooperation among farmers. These forms of linkage are the building blocks for formalised cooperatives.Promoting small farmer organisation induced by external agents (a combination of external actors and small farmers).Addressing sustainability issues to avoid failure or unsustainable business practices and inherent inefficiencies, especially for induced organisations supported by development actors	LGA – Cooperative Offices, Private Sector, MoA, TIC, SCL, TSA, AMCOS, CPB
Financial aspects	Cost structure	Examining the costs of creating and distributing the value proposition, maintaining customer relationships, and creating revenue streams. Overcoming the costs and risks through producer coordination, market coordination, intermediation, service and finance provision, information and knowledge management, and buyer behaviour. Organizing production to overcome the costs associated with the dispersion of producers, diseconomies of scale, poor access to information, technology, and finance, inconsistent volume and quality,	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, SCL, ASA, TSA, CPB, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, Financial institutions (NMB, CRDB, TADB, SACCOS, VCOBA)

Pillars	Business model building blocks	Description and Actions	Responsible
		lack of traceability, and management of risk. Incorporating support costs as part of the overall pricing structure to align incentives along the chain and increase the possibility of success as a business. Working with organised farmers rather than individuals to increase bargaining power - induced farmer business organisations led by either NGOs and the public sector Government support for specific market opportunities Ensuring that production is either organized by the producers themselves, by the end customer companies, or by an intermediary such as an NGO, trader, wholesaler, or exporter in a range of direct or indirect market linkages. Access to credit (formal and informal money lenders; cooperation or quasi-cooperation among farmers) Promote small farmer organization induced by external agents or a combination of external actors and small farmers. Donor support and private sector initiatives of the induced organisation, such as contract farming schemes Linking key service providers to the supply chain of for-profit businesses (rather than with donor subsidies).	
	Revenue model	Preparing a framework for generating financial income that identifies which revenue source to pursue, what value to offer, how to produce the value, and who pays for the value. This is an important component of a business model.Promoting good agricultural practices (including nature-based practices) would triple the yields or at least double them.	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, SCL, ASA

Annex 4. Best-Bet Business Model for Livestock Value Chains Development and Upgrading

Pillars	Business model building blocks	Description and Actions	Responsible
Product	Value proposition	Milk, cream, yoghurt, butter, fermented and frozen milk, and cheese, beef and hides Exploring other dairy products (e.g. custard & casein) and beef cattle products and by-products (e.g. methane gas and fertilizer from manure; footwear, clothing, saddles, textiles, glue, paint & plaster binder from hide & hair; sausage casings & surgical sutures from intestines; explosives, chewing gum, make-up, paints, solvents, industrial oils & lubricants, show crème, ceramics, hand soap, rubber products, herbicides, shaving cream, biodegradable detergents, protein hair conditioner & shampoo, tires & chicken feed from fats & acids; combs & toothbrushes, bone meal fertilizer, buttons, piano keys, bandage strips, glycerine, bone charcoal pencil, dice, steel ball bearings, shampoo & conditioner, syringes, adhesive tape, wallpaper & wallpaper paste from bones, horns & hooves.	
Customer interface	Target customer	Domestic markets: Institutions (e.g. schools, hospitals, etc.); tourist hotels; super markets; consumers in Kilombero cluster, and other regions in Tanzania Mainland and Zanzibar. Export markets: exporters and importers of dairy and beef products & by-products in neighbouring countries and EAC, SADC, other African states & Saud Arabia.	Private Sector, Dairy Cooperatives, Dairy Farmers, Milk Collectors/Aggregators (Sales & Marketing groups), Transporters, Consumers, Informal milk traders (Hawkers), Veterinary Department (Tanzania Veterinary Laboratory Agency (TVLA), Processors, Research and academia (LITA, SUA, TALIRI), Tanzania Milk Processors Association (TAMPA), Tanzania Milk Producers Association (TAMPRODA), Tanzania Dairy and Beef Products Association (TDBPA), SAGCOT Centre Limited (SCL), TANTRADE, Ministry of Livestock & Fisheries (MLF), Tanzania Investment Centre (TIC), Ministry of Foreign Affairs and East African

Pillars	Business model building blocks	Description and Actions	Responsible
			Cooperation (MFAEAC), Tanzania Dairy Board (TDB), National Ranching Company Limited (NARCO) - Dakawa & Mkata, Tanzania Bureau of Standards (TBS), Non-Governmental Organization (NGOs) TAMPA, TAMPRODA, CCWT, TAFMA, Tanzania Veterinary Association (TVA), ABEA, ILIRI, LAT, LITA, PAID, PAT, TABROFA, TALEPA, TALFA, TALIMETA, TAMEPA, TAVEPA, TAWESO, TCCS, TCPA, TPBA, TTA, VCT, WVF, TBC and other similar media
	Distribution channel	Identifying more niche markets for dairy and beef products and ensuring customers that the business produces high-quality or healthy products. This requires the creation of a promotional strategy that is unique and meaningful to the business's ideal customers. Creating a successful marketing mix strategy (product, quality - dairy and beef products, distribution - place, promotion): characterizing the target market and positioning a particular product or service to appeal to the target market Directing promotional resources to the most effective outlets for the dairy and beef products business (television, radio, print ads, direct mail, email blasts, billboards, paid search, banner ads, display ads, online videos, web pages, and presentations) – the most efficient approach is to identify the top few outlets for the products and develop these media into powerful marketing channels to push dairy and beef products business. Advertising in multiple media is recommended. This can be an effective and low-cost method of advertising. Considering the target markets, competitors' marketing strengths, and own business marketing strengths. This will help identify marketing methods and tactics and make better marketing decisions.	Private Sector, Dairy Cooperatives, Dairy Farmers, Milk Collectors/Aggregators (Sales & Marketing groups), Transporters, Consumers, Informal milk traders (Hawkers), Veterinary Department (TVLA), Processors, Research and academia (LITA, SUA, TALIRI), TAMPA, TAMPRODA, TDBPA, SCL,TANTRADE, MLF, TIC, MFAEAC, Researchers, LGA, NARCO, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), Public Health Department (PHD), ABEA, ILIRI, LAT, LITA, PAID, PAT, TABROFA, TALEPA, TALFA, TALIMETA, TAMEPA, TAVEPA, TAWESO, TCCS, TCPA, TPBA, TTA, VCT, WVF, TBC and other similar media

Pillars	Business model building blocks	Description and Actions	Responsible
		Developing a marketing communication strategy containing unique and relevant messages - that can be differentiated from the communications of other competitors. Developing a market strategy that can be precisely and easily communicated to the target customers. Creation of a competitive advantage that allows the dairy and beef products business to stand out from many competitors in the industry (e.g. production and marketing of "innovative environmentally friendly or organic or fair-trade dairy and beef products - putting more emphasis on the socially conscious nature of the dairy and beef products business). These products will allow the business to compete effectively and capture as many potential customers as possible. Differentiating of dairy and beef products business (new product development or line extension - expanding the business product line; introducing packaging and labelling variations; different sizes of package). Dairy and beef products can be differentiated by varieties too. Using other common methods of differentiation: formulation, processing, delivery, brand extension or stretching, customer relationship management (CRM), product life cycle management, etc.	
	Relationship	Strengthening links (vertical and horizontal linkages) among value chain actors and different customer segments in the dairy and beef cattle value chain	Private Sector, AMCOS, SCL, TANTRADE, MLF, TIC, MFAEAC, Researchers
Infrastructure management	Value configuration	Policy advocacy and lobbying for support and development of business models of dairy and beef products, including support for the introduction of simple but more robust technologies and training of farmers on how to use them. This will depend on the type of partner network existing in the cluster and the nature of the dairy and beef products (perishable, differentiated or branded product, or bulk commodity), and the nature of the end buyer (branded retailer,	Agricultural Council of Tanzania (ACT), TPSF-Private Sector, Dairy Cooperatives, Dairy Farmers, Milk Collectors/Aggregators (Sales & Marketing groups), Transporters, Consumers, Informal milk traders (Hawkers), Veterinary Department

Pillars	Business model building blocks	Description and Actions	Responsible
		wholesaler, etc.). These will in turn determine the nature of economic dependency between value chain actors. Developing a livestock business model that affords opportunity in terms of small farmer inclusion and equity and that does not exclude efficient farmers while promoting business efficiencies - a business model that is inclusive of small-scale beef and dairy producers that can be made beyond efforts to promote corporate social responsibility (CSR), based primarily on securing supply and reducing costs. There are potential efficiency gains in developing locally adapted livestock business models that build on the comparative advantage of smallholders, in terms of pasture land, dairy, and beef products, range management, quality, and innovation. The cost structure, the value proposition, and the integrity and safety of the livestock products, especially when managing supply from large numbers of small producers are important to consider. Securing a consistent supply of dairy and beef supply is especially critical in supply-constrained and volatile conditions. Suppliers will need to ensure that they can meet their obligations to retailer or processor customers in the face of considerable uncertainty. A diversified supplier base, including small-scale producers, can contribute to improved security of supply. Promoting the use of appropriate and environmental-friendly solid waste disposal technology and methods. Encouraging and supporting groups of dairy cattle farmers to invest in environmental-friendly water harvesting infrastructure (e.g. solar powered wells for animal watering, especially in the dry season). Promoting and supporting the rearing of manageable sizes and productive herds of cross-breed cows to increase milk production, productivity, and income. Promoting the use of Artificial Insemination (AI) for cross-breeding dairy cattle.	(TVLA), Processors, Research and academia (LITA, SUA, TALIRI), TAMPA, TAMPRODA, TDBPA, LGA – Extension Staff, SCL,TANTRADE, MLF, TIC, MFAEAC, Researchers, TDB, NARCO, National Artificial Insemination Centre (NAIC), TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), PHD, NGOs, TAMPA, TAMPRODA, CCWT, TAFMA, Tanzania Veterinary Association (TVA), ABEA, ILIRI, LAT, LITA, PAID, PAT, TABROFA, TALEPA, TALFA, TALIMETA, TAMEPA, TAVEPA, TAWESO, TCCS, TCPA, TPBA, TTA, VCT, WVF, CAMARTEC, SIDO

Pillars	Business model building blocks	Description and Actions	Responsible
		Supporting investment in the production and marketing of animal feeds, promoting and supporting the cultivation of improved fodder crops and pasture as well as the sustainable management of grazing lands using nature-based and climate-smart solutions. Training farmers, promoting the use of processed feeds, and helping them to recognize the importance of these feeds on milk production and productivity of dairy cattle. Promoting the establishment of milk shops or places where fresh milk and other milk products are sold (just like butcheries in the case of the beef cattle sub-sector) and the use of solar deep freezers. Supporting both dairy farmers and aggregators with proper equipment to enable them to test for the quality of milk (lactogen) at their collection centres. Supporting the introduction and use of simple technologies for butter churning and making ghee. Promoting the use of high tech to produce dairy products like Ultra Heat Treatment or Ultra High Temperature (UHT) milk or other dairy products with long shelf-life. Conducting awareness campaigns to address issues of food safety and quality of dairy products. Developing basic infrastructure and facilities like dips to control external parasites, such as ticks, and diseases like tick-borne diseases. Promoting beef cattle fattening schemes. Working closely with law enforcers in the dairy sub-sector to enhance the enforcement of existing regulations and procedures, especially those related to milk quality testing and compliance with food safety	

Pillars	Business model building blocks	Description and Actions	Responsible
		standards and requirements.	
	Core competency	A thorough understanding of customer's preferences A thorough understanding and sharing of the cluster's livestock products business model and its commercialisation strategy A thorough understanding and sharing of marketing communication channels by all actors Skills in the use of green and climate-smart production and processing technologies	LGA – Extension Staff, LITA, MLF, TIC, Researchers (SUA, UDSM, etc.), SC, TBC and other similar media, CIAT, COSTECH
	Partner network	Promoting a collaborative partner network. This is much more important with perishable commodities such as fresh dairy and meat, which require traceability and have higher food safety risk profiles. Livestock producers, processors, and retailers can hardly compete as individual entities. They have to collaborate as a strategic value chain and compete with other value chains in the marketplace. Encouraging co-investment and knowledge sharing between producers, suppliers, processors, and retailers - this should be built around a small number of preferred suppliers. An adapted business model is recommended whereby small-scale farmers can cooperate to compete as one single supplier, and where their customers are responding to the realities of smallholder production. Addressing the issues of lack of inclusiveness and poor acknowledgment of rural economic realities of the conventional business models and other unintended and accidental business outcomes. For example, private standards that buyers have deemed necessary and efficient solutions can compound the exclusion of small milk and beef cattle suppliers given that the costs of such systems are a function of production volume. Put simply, high volume makes standards feasible because the cost per unit of product is low. For many smallholders, however, volumes are low and the unit cost for	LGA – Cooperative Offices, Private Sector, MLF, TIC, SCL, TSA, Dairy Cooperatives, Dairy Farmers, Milk Collectors/Aggregators (Sales & Marketing groups), Transporters, Consumers, Informal milk traders (Hawkers), Veterinary Department (TVLA), Processors, Research and academia (LITA, SUA, TALIRI), TDB, TAMPA, TAMPRODA, TDBPA, ABEA, ILIRI, LAT, LITA, PAID, PAT, TABROFA, TALEPA, TALFA, TALIMETA, TAMEPA, TAVEPA, TAWESO, TCCS, TCPA, TPBA, TTA, VCT, WVF

Pillars	Business model building blocks	Description and Actions	Responsible
		standards is high. This mix can lead to situations where it is financially impossible for smallholders to cover the cost of implementing and maintaining such standards. Strengthening the network of cooperative arrangements with other companies in the dairy and beef products value chain. This is necessary to effectively offer and commercialize value, and enhance the dairy and beef products supply chain and its coordination. A collective dairy and beef products marketing model through their cooperatives and Apex is recommended. Supporting informal linkage models, especially in areas with weak formal dairy and beef products farmer organisations: Informal market linkages in form of cooperation or quasi-cooperation among farmers. These forms of linkage are the building blocks for formalized cooperatives. Promoting small farmer organisation induced by external agents (a combination of external actors and small farmers). Addressing sustainability issues to avoid failure or unsustainable business practices and inherent inefficiencies, especially for induced organisations supported by development actors.	
Financial aspects	Cost structure	Examining the costs of creating and distributing the value proposition, maintaining customer relationships, and creating revenue streams. Lobbying and advocacy campaigns with policymakers to review the taxation policies and impose tax relief and exemption for the importation of fabrication materials to develop the dairy sub-sector in the cluster and in the country as a whole. Coalitions allow farmer groups to share advocacy costs, especially when otherwise a group would not be able to engage the government for lack of financial resources. With the help of SAGCOT Centre Limited (SCL), encourage and	ACT, LGA - Extension Staff, Dairy Cooperatives, Dairy Farmers, Milk Collectors/Aggregators (Sales & Marketing groups), Transporters, Consumers, Informal milk traders (Hawkers), Veterinary Department (TVLA), Processors, Research and academia (LITA, SUA, TALIRI), Private Sector, TRA, ABEA, ILIRI, LAT, LITA, PAID, PAT, TABROFA, TALEPA, TALFA, TALIMETA, TAMEPA, TAVEPA, TAWESO, TCCS, TCPA,

Pillars	Business model building blocks	Description and Actions	Responsible
		promote local and foreign investment in the dairy cattle industry within the Cluster Overcoming the costs and risks through producer coordination, market coordination, intermediation, service and finance provision, information and knowledge management, and buyer behaviour. Organizing production to overcome the costs associated with the dispersion of producers, diseconomies of scale, poor access to information, technology, and finance, inconsistent volume and quality, lack of traceability, and management of risk. Incorporating support costs as part of the overall pricing structure to align incentives along the chain and increase the possibility of success as a business. Working with organised farmers rather than individuals to increase bargaining power - induced farmer business organisations led by either NGOs or the public sector. Government support for specific market opportunities. Ensuring that production is either organized by the producers themselves, by the end customer companies, or by an intermediary such as an NGO, trader, wholesaler, or exporter in a range of direct or indirect market linkages. Access to credit (formal and informal money lenders; cooperation or quasi-cooperation among farmers) Small farmer organization induced by external agents or a combination of external actors and small farmers. Linking fabricators and individual suppliers to financial institutions and access to soft loans/grants.	TPBA, TTA, VCT, WVF MLF, TIC, SCL, ASA, TSA, TDB, NAIC, TBS and other Regulatory Bodies (OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), PHD, TAMPA, TAMPRODA, TDBPA, CAMARTEC, SIDO, Financial institutions (NMB, CRDB, TADB, SACCOS, VCOBA)

Pillars	Business model building blocks	Description and Actions	Responsible
		Donor support and private sector initiatives of the induced organisation, such as contract farming schemes Linking key service providers to the supply chain of for-profit businesses (rather than with donor subsidies).	
	Revenue model	Preparing a framework for generating financial income that identifies which revenue source to pursue, what value to offer, how to produce the value, and who pays for the value. This is an important component of a business model. Promoting good agricultural practices (including nature-based practices) would triple the yields or at least double them.	LGA - Extension Staff, Dairy Cooperatives, Dairy Farmers, Milk Collectors/Aggregators (Sales & Marketing groups), Transporters, Consumers, Informal milk traders (Hawkers), Veterinary Department (TVLA), Processors, Research and academia (LITA, SUA, TALIRI),, Private Sector, TRA, MLF, TIC, SCL, ASA, TSA, TDB, NAIC, TBS and other Regulatory Bodies (OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), PHD, TAMPA, TAMPRODA, TDBPA, ABEA, ILIRI, LAT, LITA, PAID, PAT, TABROFA, TALEPA, TALFA, TALIMETA, TAMEPA, TAVEPA, TAWESO, TCCS, TCPA, TPBA, TTA, VCT, WVF

Annex 5. Best-Bet Business Model for Sugarcane Value Chain Development and Upgrading

Pillars	Business model building blocks	Description and Actions	Responsible
Product	Value proposition	Sugar crystals, sugar, molasses, mill mud, & bagasse. Other potential products & by-products: paper board, compost, electricity & animal feeds from bagasse; fertilizer, compost, waxes & fats from mill mud; ethanol, glycerine, lactic acid & cell-proteins from molasses; and wine from ethanol or treated juice & sugar syrup.	
Customer interface	Target customer	Domestic markets: Institutions (e.g. schools, hospitals, etc.); tourist hotels; super markets; consumers in Kilombero cluster and other regions in Tanzania Mainland and in Zanzibar. Export markets: exporters and importers of sugar in neighbouring countries and EAC, SADC, other African states	Tanzania Sugar Board (TSB), Private Sector, AMCOS, SAGCOT Centre Limited (SCL), TANTRADE, MoA, Tanzania Investment Centre (TIC), Ministry of Foreign Affairs and East African Cooperation (MFAEAC), Tanzania Sugar Producers Association (TSPA)

Pillars	Business model building blocks	Description and Actions	Responsible
	Distribution channel	Producing more sugar to meet the domestic demand (of about 470,000) and selling the surplus to EAC, SADC, and other African countries. According to the Tanzania Sugar Board (TSB), sugar output is expected to increase by around 33% by 2025 following the expansion of existing sugar processing factories and the approval of new facilities. This provides an opportunity for sugarcane producers in the cluster to expand their production and earn more money. Ensuring customers that the business produces high-quality or healthy sugar products. This requires the creation of a promotional strategy that is unique and meaningful to the business's ideal customers. Creating a successful marketing mix strategy (product, quality - sugar, distribution - place, promotion): characterizing the target market and positioning a particular product or service to appeal to the target market. Creation of a competitive advantage that allows the sugar business to stand out from many competitors in the industry (e.g. production and marketing of "innovative environmentally friendly or organic or fair-trade sugar products - putting more emphasis on the socially conscious nature of the sugar business). These sugar products will allow the business to compete effectively and capture as many potential customers as possible. Differentiation of sugar and sugar products business (new product development or line extension - expanding the business product line; introducing packaging and labelling variations; different sizes of package). Sugar can be differentiated by varieties too by using the common methods of differentiation: formulation, processing, delivery, brand extension or stretching, customer relationship management (CRM), product life cycle management, etc.	Private Sector, AMCOS, SCL,TANTRADE, MoA, TIC, MFAEAC, Researchers, LGA, TSPA, TBC and other similar media
	Relationship	Strengthening links (vertical and horizontal linkages) among value chain actors and different customer segments	Private Sector, TSPA , AMCOS, SCL,TANTRADE, MoA, TIC, MFAEAC, Researchers

Pillars	Business model building blocks	Description and Actions	Responsible
Infrastructure management	Value configuration	Supporting dialogue, advocacy, and lobbying for a policy, legal and institutional framework that provides greater efficiency, accountability, and transparency, as well as greater security for all participating stakeholders in the sugar value chain. Ensuring that unsustainable expansion and governance issues in the outgrowers' schemes do not occur and create new risks. Ensuring that there are no pressures on food security as a result of a decline in land for food crops, and on incomes, particularly when outgrowers' cane remains un-harvested and farmers' payments are delayed. These problems have been aggravated by the importation of foreign sugar into the country. Supporting outgrowers to lobby with sugar companies to ensure that they declare the right and appropriate levels of sucrose for a fair price (note that the producer price for sugarcane is pegged on the level of sucrose). This needs establishing transparent and participatory systems for weighing outgrowers' deliveries, measuring sucrose content and calculating payments. Clarifying risk-sharing and liability regarding payment delays, force majeure events, factory disruptions, and the failure to harvest growers' cane. Providing enough guidance to help outgrowers raise sucrose levels and to oversee harvesting and crop management. Integrating the use of sugarcane, its co-products, and by-products to make a variety of value-added products to get the most out of the produced sugarcane. Sugarcane is currently grown for food (sugar), fibre (cellulose), fuel (bagasse), and fodder (green tops, garbage, molasses, and other by-products) harvest. Raising awareness on GG issues and promoting compliance with required standards, including the right application of fertilizers and other agrochemicals.	TSPA , Agricultural Council of Tanzania (ACT), TPSF-Private Sector, AMCOS, TFNC, YARA, ETG, LGA – Extension Staff, SCL,TANTRADE, MoA, TIC, MFAEAC, Researchers, CAMARTEC, SIDO, TBC and other similar media

Pillars	Business model building blocks	Description and Actions	Responsible
		Promoting practices that save water for other intersectoral uses, including water for the environment. Addressing leadership problems and poor returns for block farms which were introduced to offer a more collective and systematic system for small outgrowers, but there have been leadership problems and poor returns for participants.	
	Core competency	A thorough understanding of customer's preferences A thorough understanding and sharing of the cluster's sugarcane (sugar) business model and its commercialisation strategy A thorough understanding and sharing of marketing communication channels by all actors Skills in the use of green and climate-smart production and processing technologies	LGA – Extension Staff, MoA, TIC, Researchers (SUA, UDSM, etc.), SCL, TSPA, TBC and other similar media, CIAT, COSTECH
	Partner network	Promoting collective ownership of sugarcane choppers so that farmers move away from harvesting sugarcane by setting fire and exploring the possibility of utilising local expertise to fabricate green sugarcane choppers for outgrowers. Promoting inclusive out-grower schemes and establishment of smallholder farmers' organisation induced by external agents (a combination of external actors and small farmers) - interventions led by development organisations and supported by donors). Strengthening the network of cooperative arrangements with sugar-producing companies and other companies in the sugar value chain. This is necessary to effectively offer and commercialize the value, and enhance the sugar supply chain and its coordination. A collective sugar marketing model through farmer groups or AMCOS and their Apex is recommended. Supporting both formal and informal linkage models, especially in areas with weak formal sugar farmer organisations: Informal market linkages in form of cooperation or quasi-cooperation among farmers. These forms of linkage are the building blocks for formalised cooperatives.	LGA – Cooperative Offices, Private Sector, MoA, TIC, SCL, TSPA

Pillars	Business model building blocks	Description and Actions	Responsible
		Promoting small farmer organisation induced by sugar companies or external agents (a combination of external actors and small farmers). Addressing sustainability issues to avoid failure or unsustainable business practices and inherent inefficiencies, especially for induced organisations supported by development actors.	
Financial aspects	Cost structure	Supporting advocacy and lobbying for conducive production and marketing environment and policies that protect local sugar production. Examining the costs of creating and distributing the value proposition, maintaining customer relationships, and creating revenue streams. Overcoming the costs and risks through producer coordination, market coordination, intermediation, service and finance provision, information and knowledge management, and buyer behaviour. Organizing production to overcome the costs associated with the dispersion of producers, diseconomies of scale, poor access to information, technology, and finance, inconsistent volume and quality, lack of traceability, and management of risk. Incorporating support costs as part of the overall pricing structure to align incentives along the chain and increase the possibility of success as a business. Working with organised farmers rather than individuals to increase bargaining power - induced farmer business organisations led by either NGOs or the public sector. Soliciting government support for specific market opportunities. Ensuring that production is either organized by the producers themselves, by the end customer companies, or by an intermediary such as an NGO, trader, wholesaler, or exporter in a range of direct or indirect market linkages.	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, TSPA, CAMARTEC, SIDO, Financial institutions (NMB, CRDB, TADB, SACCOS, VCOBA)

Pillars	Business model building blocks	Description and Actions	Responsible
		Enabling small-scale players to access credits (formal and informal money lenders; cooperation or quasi-cooperation among farmers). Promoting small farmer organization induced by external agents or a combination of external actors and small farmers, including donor support and private sector initiatives of the induced organisation, such as contract farming schemes. Linking key service providers to the supply chain of for-profit businesses (rather than with donor subsidies).	
	Revenue model	Preparing a framework for generating financial income that identifies which revenue source to pursue, what value to offer, how to produce the value, and who pays for the value. This is an important component of a business model. Promoting good agricultural practices (including nature-based practices) would triple the yields or at least double them.	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, SCL, ASA

Annex 6. Best-Bet Business Model for Maize Value Chain Development and Upgrading

Pillars	Business model building blocks	Description and Actions	Responsible
Product	Value proposition	Maize grain, flour, maize bran Other value-added products: starch (for production of adhesives and coatings), whiskey and cornmeal beer, cosmetics (biofuels such as ethanol), grits, tortillas, snacks, bakery products, breakfast cereals, breakfast pastries, corn syrup (an ingredient of ice creams, salads dressings, sauces), hard candies, corn-based plastics (used to make note pad holder, screwdriver handles, letter opener, travel mugs, ice scrapers, pens, rulers, etc.).	
Customer interface	Target customer	Domestic markets: Institutions (e.g. schools, hospitals, etc.); tourist hotels; super markets; consumers in Kilombero cluster and other regions in Tanzania Mainland and Zanzibar. Export markets: exporters and importers of maize in neighbouring countries and EAC, SADC, other African states	Private Sector, AMCOS, SAGCOT Centre Limited (SCL), TANTRADE, MoA, Tanzania Investment Centre (TIC), Ministry of Foreign Affairs and East African Cooperation (MFAEAC), CPB, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), TBC and other similar media

Pillars	Business model building blocks	Description and Actions	Responsible
	Distribution channel	Creating a successful marketing mix strategy (product, quality - maize, distribution - place, promotion): characterizing the target market and positioning a particular product or service to appeal to the target market Directing promotional resources to the most effective outlets for maize business (television, radio, print ads, direct mail, email blasts, billboards, paid search, banner ads, display ads, online videos, web pages, and presentations) – the most efficient approach is to identify the top few outlets for the products and develop these media into powerful marketing channels to push maize business. Advertising in multiple media is recommended. This can be an effective and low-cost method of advertising. Considering the target markets, competitors' marketing strengths, and own business marketing strengths. This will help identify marketing methods and tactics and make better marketing decisions. Developing a marketing communication strategy containing unique and relevant messages - that can be differentiated from the communications of other competitors. Developing a market strategy that can be precisely and easily communicated to the target customers. Creation of a competitive advantage that allows the maize business to stand out from many competitors in the industry (e.g. production and marketing of "innovative environmentally friendly or organic or fair-trade maize products - putting more emphasis on the socially conscious nature of the maize business). These products will allow the business to compete effectively and capture as many potential customers as possible. Differentiation of maize and maize products business (new product development or line extension - expanding the business product line; introducing packaging and labelling variations; different sizes of package). Maize can be differentiated by varieties using other common methods of differentiation such as formulation, processing, delivery, brand extension or stretching, customer relationship management (CRM), product life cycle management, etc.	Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, LGA, CPB, TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), TBC

Pillars	Business model building blocks	Description and Actions	Responsible
	Relationship	Strengthening links (vertical and horizontal linkages) among value chain actors and different customer segments	Private Sector, AMCOS, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, CPB
Infrastructure management	Value configuration	Helping farmers to lobby and advocate for conducive trade policies (e.g. when there is a grain shortage in the country the government should buy from farmers at the price which would be offered in the export market and then sell it to consumers at a subsidized price, rather than imposing export bans). Lobbying and advocacy activities should also focus on shortening the bureaucratic procedure for the issuance of export permits and export barcodes for maize and maize products, removing the unnecessary extra costs incurred by actors when getting through the roadblocks and barriers along the way from the areas of production to processing, and marketing areas. Encouraging actors to comply with the production of good quality maize and product standards. This activity should aim to upgrade the quality of maize and maize products right from the production node to processors, wholesalers, and retailers of maize products. Substantial support is needed in terms of creating awareness amongst actors, on the importance of producing quality products and complying with standards, facilitating adequate investment in GG technologies, equipment, training, and capacity building along the value chain. Providing more targeted and encompassing extension services to maize farmers, especially regarding the importance of using improved technologies, such as seed varieties, and environmentally friendly crop husbandry to avoid land degradation and pollution from chemicals. Promoting intensification of paddy production through the use of more productive technologies. Reducing postharvest losses which can be achieved through conducting tailor-made training in postharvest handling using simple (low-cost), but appropriate environmentally-friendly technologies and practices. This will not only reduce postharvest losses but will also improve the quality of maize produced and enhance marketability.	TPSF-Private Sector, AMCOS, TFNC, YARA, ETG, LGA – Extension Staff, SCL, TANTRADE, MoA, TIC, MFAEAC, Researchers, Financial institutions (e.g. TADB, PASS, NMB & CRDB Bank), TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, TBC and other similar media, Development partners (IFAD, WFP, ITC)

Pillars	Business model building blocks	Description and Actions	Responsible
	Core competency	A thorough understanding of customer's preferences A thorough understanding and sharing of the cluster's maize business model and its commercialisation strategy A thorough understanding and sharing of marketing communication channels by all actors Skills in the use of green and climate-smart production and processing technologies	LGA – Extension Staff, MoA, TIC, Researchers (SUA, UDSM, etc.), SCL, TBS, TBC and other similar media
	Partner network	Promoting collective ownership and operation of production and processing infrastructure (e.g. maize production and milling machines, and storage facilities operated by farmer groups and AMCOS). Strengthening the network of cooperative arrangements with other companies in the maize value chain. This is necessary to effectively offer and commercialize value, and enhance the maize supply chain and its coordination. A collective maize marketing model through AMCOS and their Apex is recommended. Supporting informal linkage models, especially in areas with weak formal maize farmer organisations: Informal market linkages in form of cooperation or quasi-cooperation among farmers. These forms of linkage are the building blocks for formalised cooperatives. Promoting small farmer organisation induced by external agents (a combination of external actors and small farmers). Addressing sustainability issues to avoid failure or unsustainable business practices and inherent inefficiencies, especially for induced organisations supported by development actors.	LGA – Cooperative Offices, Private Sector, MoA, TIC, SCL, CPB

Pillars	Business model building blocks	Description and Actions	Responsible
Financial aspects	Cost structure	Examining the costs of creating and distributing the value proposition, maintaining customer relationships, and creating revenue streams. Overcoming the costs and risks through producer coordination, market coordination, intermediation, service and finance provision, information and knowledge management, and buyer behaviour. Organizing production to overcome the costs associated with the dispersion of producers, diseconomies of scale, poor access to information, technology, and finance, inconsistent volume and quality, lack of traceability, and management of risk. Incorporating support costs as part of the overall pricing structure to align incentives along the chain and increase the possibility of success as a business. Working with organised farmers rather than individuals to increase bargaining power - induced farmer business organisations led by either NGOs or the public sector. Government support for specific market opportunities. Ensuring that production is either organized by the producers themselves, by the end customer companies, or by an intermediary such as an NGO, trader, wholesaler, or exporter in a range of direct or indirect market linkages. Access to credit (formal and informal money lenders; cooperation or quasi-cooperation among farmers) Small farmer organizations which are induced by external agents or a combination of external actors and small farmers. Donor support and private sector initiatives of the induced organisation, such as contract farming schemes Linking key service providers to the supply chain of for-profit businesses (rather than with donor subsidies).	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, CPM) Financial institutions (e.g. TADB, PASS, NMB & CRDB Bank), TBS, and other regulatory bodies (e.g. OSHA, NEMC, FRD, Weight and Measure Agency, TRA, BRELA etc.), CAMARTEC, SIDO, Financial institutions (NMB, CRDB, TADB, SACCOS, VCOBA)

Pillars	Business model building blocks	Description and Actions	Responsible
	Revenue model	Preparing a framework for generating financial income that identifies which revenue source to pursue, what value to offer, how to produce the value, and who pays for the value. This is an important component of a business model. Promoting good agricultural practices (including nature-based practices) would triple the yields or at least double them.	LGA - Extension Staff, AMCOS, Private Sector, TRA, MoA, TIC, SCL, ASA