The United Republic of Tanzania
Ministry of Livestock and Fisheries

Livestock and Fisheries Commodity Value Chain Briefs

Brief No. 2

DAIRY

Key Messages:

- Despite the large number of cattle (30.5 mil), Tanzania is a net importer of dairy products with an annual average import bill of TZS 7.4 billion.
- Interventions to increase access to improved breeds, enhancing access to dairy extension services, provision of affordable veterinary services and encouraging the investment in animal feeds would improve production and productivity in the dairy sector.
- Persistent marketing challenges are mostly caused by inadequate mark.

SUMMARY STATISITICS

Number of improved dairy cattle (Mil)	Annual production milk (Bil Lt)	Per capita consumption (Lt)	Number of processing companies	Annual import (Mil Tons)	Annual import bill (Mil USD)
1.3	2.6	47	82	13.2	7.8

Source: Ministry of Livestock and Fisheries, 2019, Kurwijila et al, 2012

1. INTRODUCTION

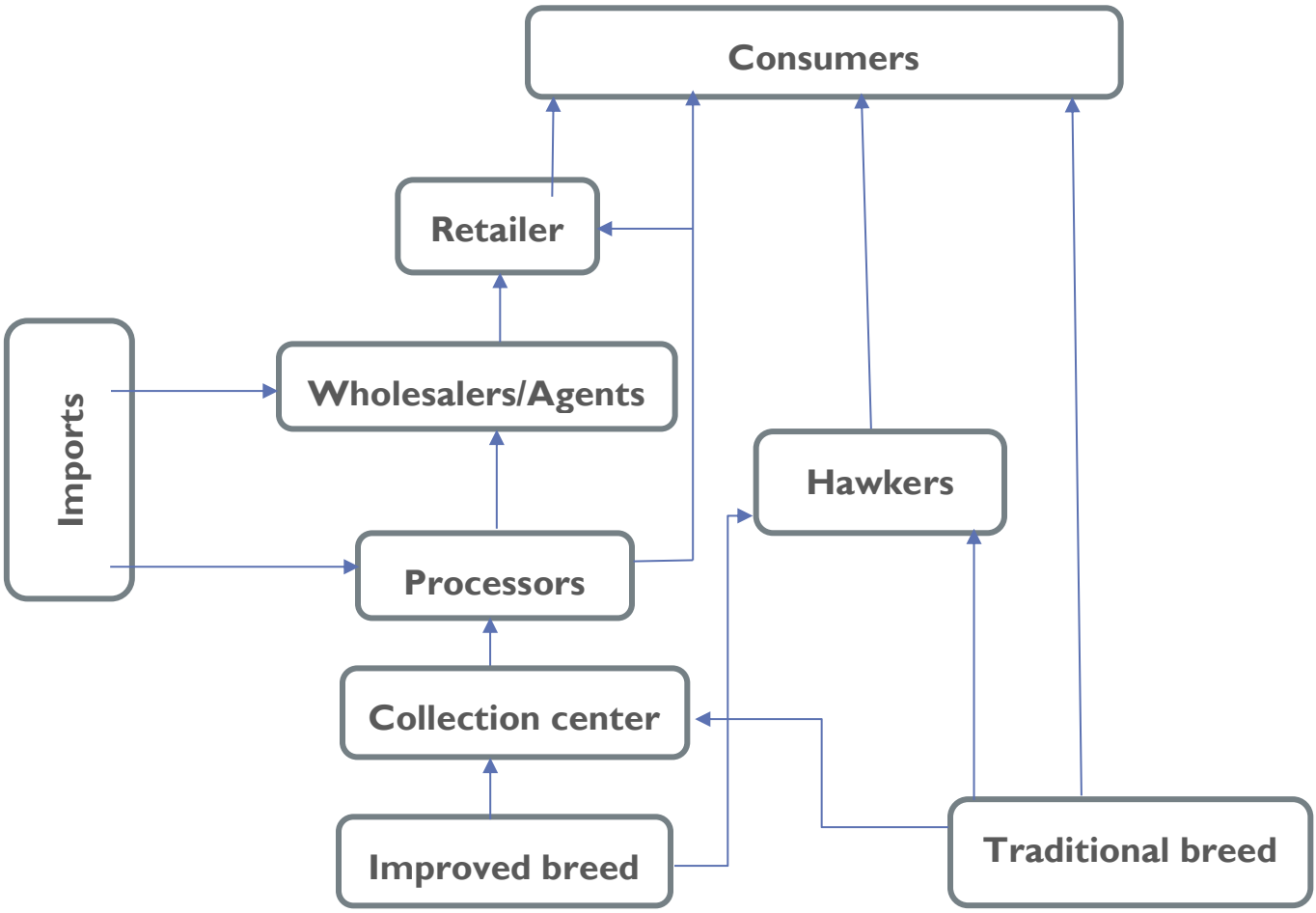
The dairy sector has been identified by the Tanzanian Government as an important growth area for the agricultural sector. The sector contributes 30% of the livestock GDP (1.2% of the national GDP) (MLF, 2011). While demand for milk and other dairy products has grown in Tanzania as a result of population and income growth, domestic production has lagged behind. Tanzania is a consistent net importer of dairy products despite the large cattle population and appropriate agro-ecological zones for dairy production. Enhancing the performance of the dairy sector in Tanzania has the potential to improve rural incomes through market linkages to expanding urban demand, improve nutrition outcomes for producers and consumers through increased milk availability that will contribute to an improved balance of trade for the agriculture sector. This commodity value chain brief seeks to provide an empirical assessment of the Tanzanian dairy sector and identify policies needed to enhance the performance of the sector.

2. THE DAIRY VALUE CHAIN: AN OVERVIEW

Figure 1 depicts the dairy value chain in Tanzania. Dairy products enter the Tanzanian market through domestic production or imports. Domestically produced milk is from either traditional or improved management systems. The type of production system, in turn, influences the dominant market channel used. In general terms, traditional dairy producers market their milk through informal market channels, often reaching end consumers in raw, unpasteurized form. Conversely, producers with improved breeds and management system typically sell through more formal channels which are linked to small and large processing facilities. These are subsequently sold to consumers through formal retail and wholesale market channels.

Variations in production systems, market channels, and consumer markets have important implications for the performance of the dairy sector in Tanzania. In the following sections, we examine the value chain in detail in order to identify necessary investments and public policies to improve the sector's performance.

Figure 1. Dairy value chain in Tanzania



Source: Author's compilation

Source: NIRAS and RLDC, 2010

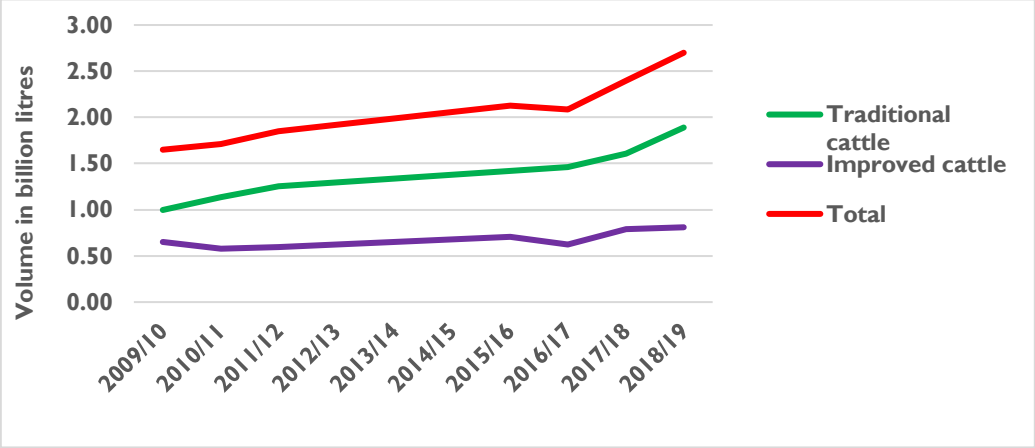
3. PRODUCTION SYSTEMS AND PRODUCTIVITY

The dairy industry is divided into three distinct production systems, namely, the subsistence farming system with home consumption, semi-subsistence system with partial link to the market via informal channels and the improved farming system utilizing the formal marketing channels. Out of the 30.5 million cattle in the country, about 3% (912,000) are improved dairy cattle mainly Tanzania Shorthorn Zebu (TSZ), Longhorn Cattle (LHC) and Boran. The remaining are indigenous cattle (MLF and ILRI, 2018).

The current annual milk production stands at 2.7 billion liters (Figure 2), of which 70% is produced by indigenous cattle and 30% is produced by improved cattle. Milk yield range from indigenous cattle is 1-2 liters whereas for improved dairy cattle is 7-10 liters per cow per day (PASS, 2013). This suggests the need for genetic improvement for milk production whilst increasing the number of improved dairy cattle. Ninety-five percent of the milk is produced during the wet season whereas only 5% is produced during the dry season (PASS, 2013). This indicates a need for improved dry season feeding.

Most of the milk in the country is produced in the Northern, Lake, Southern Highlands and Eastern zones. Arusha and Kilimanjaro regions produce about two-thirds of the milk. Other significant milk-producing regions are Tanga, Mwanza, Kagera, and Dar es Salaam (Omore, 2011). Currently 10% of milk produced annually enters the market and the remaining is consumed at home or spoiled due to lack of collection system (PASS, 2013).

Figure 2. Milk production trends in Tanzania



Source: MLF, 2018

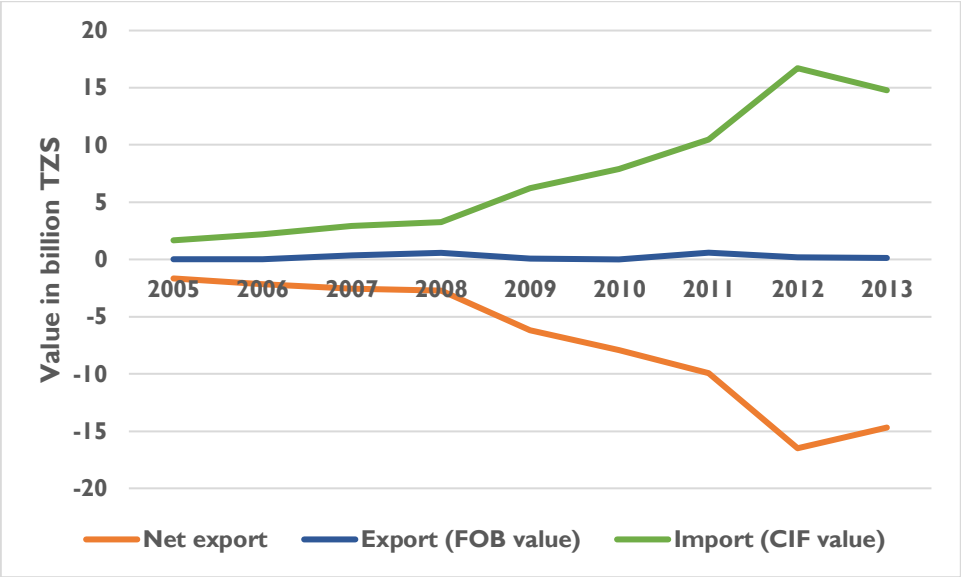
4. MARKETING, TRADE AND INVESTMENT OPPORTUNITIES

Potential for trade for dairy products from Tanzania to regional and international markets are promising. This is due to increasing population and demand for high nutritive food products as the income levels of people rise. Tanzania is yet to meet local demand for quality dairy products. A large share of the milk and other dairy products consumed in urban areas is imported. Additionally, about one third of processed milk is imported largely from outside the East African Community (Nelgen and Strutt, undated). Increasing quality and quantity of dairy products produced in the country will enable smallholder farmers to meet demand for quality dairy products and thereby reduce imports.

There is also huge potential in investing in modern dairy farming and milk processing industries in Tanzania. According to the Ministry of Livestock and Fisheries, the country has 82 milk processing plants with a processing capacity of 276.55 million liters per annum, but only 66.9 million liters are produced which is equivalent to 24.2% of the actual capacity being utilized (URT, 2019) (see Annex). This implies that there is shortage in supply to those already installed processing industries.

In terms of trade in dairy products in the regional and international market, Tanzania is a net importer of dairy products (Figure 3). This is because since 2005 the trend for export minus import is negative. This implies that, local milk production might be of low quality and the quantity to meet the demand or collection systems of the produced fresh milk is insufficient. Thus, there is a high potential for investing in dairy collection and processing.

Figure 3. Milk export and import trends in Tanzania

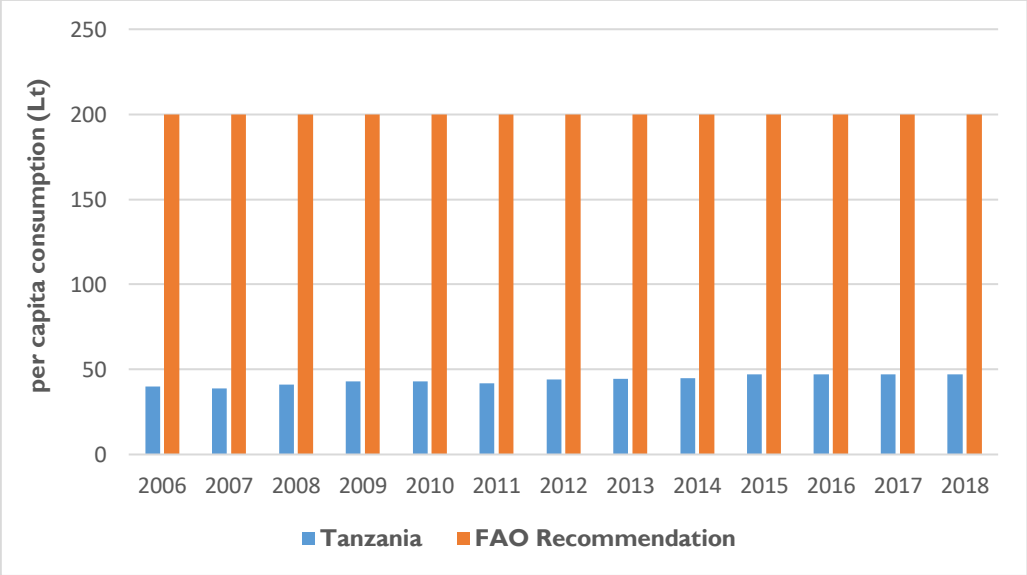


Source: TRA, 2016

5. CONSUMPTION

Per capita milk consumption in Tanzania is estimated at 47 liters per annum in the country (MLF, 2018). This is below the FAO recommended per capita consumption of 200 liters per head per annum (Figure 4) (Gerosa and Skoet, 2012). Low milk consumption has made the domestic market to be relatively narrow compared to the existing human population.

Figure 4: Trend in milk per capita consumption (liters) in Tanzania



Source: URT, (2006–2018)

6. PROCESSING

Current milk processing capacity is around 24.2% (MLF, 2018). There are 82 milk processing plants in Tanzania (MLF, 2018). However, the largest one is Azam which processes around 28.1% followed closely by Tanga Fresh which processes around 26% of total processed milk in Tanzania. This implies that, processors of milk in Tanzania are operating in oligopolistic competition.

Milk produced from traditional livestock is highly dependent on weather conditions. There is prominent seasonality in the country, meaning that, there is a significant decline in milk production during dry seasons, as the availability and quality of fodder and water deplete significantly. The total installed capacity of existing processing plants in Tanzania is 757,550 liters per day. However, the amount processed by these industries is around 154,100 liters per day (MLF, 2018). This implies that there is low performance in the collection or production of milk within the country.

7. PROFITABILITY

Profitability in the dairy industry varies across farming systems. Farmers in intensive system receive significantly higher profits than the ones in extensive systems. This is because the cost of producing one litre of milk is higher in extensive system compared to those practicing intensive system (Baltazary *et al.,* 2016). Literature also shows that in less dry areas the production costs are likely to be significantly lower compared to dry areas (Dillmann and Ijumba, 2011).

Profitability of dairy industry depends also on the delivery channels. A study by Dillmann and Ijumba, (2011) compared profitability across three dairy delivery channels (to final consumers, to institutional buyers, and to processors). The study found that final consumers were the preferred option because of higher margins (42.2%). Institutional buyers had a higher margin (22.93%) compared to processors because they required large amounts, the least preferred option was delivery of milk to processors as they had the lowest margin (Table 1).

Table 1. Cost, price and profit margins from milk producers to processors, consumers and institutions

	Producer to Processor (TZS/lt)	Producer to Consumer (TZS/lt)	Producer to Institutions (TZS/lt)
Cost of milk production	478	478	478
Cost of delivery	0	100	100
Sales price	525	1000	750
Gross profit	47	422	172
Margins (%)	8.95	42.2	22.93

Source: Dillmann and Ijumba (2011)

8. DEVELOPMENT PARTNERS SUPPORTING THE VALUE CHAIN

The Government and development partners have been working together to support the dairy industry through different inverventions.The Bill and Melinda Gates Foundation has supported the the dairy value chain through the East Africa Dairy Development (EADD) Project since 2009 to present. The Project was implemented in Tanzania, Uganda and Kenya and was implemented by the Heifer International in partnership with ILRI, TechnoServe, the World Agroforesty Centre and the African Breeders Services (ABS). The Project was designed to boost milk yields and incomes of small-scale farmers in Africa so that they can lift their communities out of hunger and poverty. The United States Agency for International Development (USAID) supported the dairy value chain through a project known as Tanzania Dairy Enteprise Initiative (TDEI). The objective of the project was to increase the income of the dairy procuders and dairy related enterprises.

Since 2015, Land O'lakes International Development Fund has been implementing a program called the Public Private Partnership for Artificial Insermination Delivery (PAID) in Tanzania and Ethiopia. The project is funded by Bill & Melinda Gates Foundation (BMGF). In Tanzania the program covers 15 regions with the main aim of addressing genetic constraints to dairy productivtiy through developing channels for timely, efficient delivery of Artifial Insermination (AI) services while inciting private sector investments that will lead to the inclusive growth of the dairy sector.

Integrated Dairy Farming for Income & Employment for Women and Youth (IEWY) is another project that is being implemented by the Netherlands Development Organization –SNV since 2017 and funded by Comic Relief. SNV is partnering with Nronga Women Dairy Cooperative Society (NWDCS), Capacity Building for Organisations (CABO) and Match Markers Associates Ltd (MMA) in implementing the project.The project is being implemented in Kilimanjaro region with 5 main objectives including; Improving production and productivity of women smallholder dairy farmers, increasing the amount of income earned by women from dairy activities, enterprise and employment creation for young

people, developing viable producer organizations with improved service delivery to their members and influencing an enabling environment for equitable and inclusive smallholder dairy development.

9. CHALLENGES

- **Low production and productivity**: Elimination of production and productivity bottlenecks can be achieved through investments in various areas, namely, interventions to increase access to improved breeds, enhancing access to dairy extension services, provision of affordable veterinary services, encouraging the investment in animal feeds and promoting improved animal husbandry practices.
- **Post-harvest losses**: Dairy products are highly perishable making it necessary to have infrastructure for effective post-harvest management such as collection centers with coolers, refrigerated trucks and storage facilities.
- **Sanitary and Phytosanitary**: The majority of smallholder farmers lack knowledge on the quality, hygienic practices of handling milk and adhering to technical specifications of dairy products needed by high value markets like supermarkets and big hotels. There is a need to strengthen training on good practices of handling milk and dairy products to farmers plus technical requirement for dairy sanitary and phytosanitary standards.
- **Low consumption of dairy products**: This limits market opportunities for farmers and processors. This challenge can be overcome by designing and implementing promotional and educational campaigns to inform consumers on nutritional benefits of dairy products.

10. POLICY ISSUES

- ***Establishment of dairy associations/cooperatives:*** Associations and cooperatives for producers, processors and traders are important in facilitating collective action in production and marketing. Most producer organizations have limited technical, financial and organizational capacity.
- ***Need to improve business environment for the dairy industry:*** Business and regulatory environment for the dairy sub-sector are unfriendly, creating disincentive to processors and investors. Dairy stakeholders are concerned that the sub-sector is overregulated. It is important to review and revise bottlenecks to create friendlier business environment for farmers, processors, traders and investors.
- ***Review of livestock policy to accommodate emerging issues:*** The livestock policy needs to consider issues like the competition of land between crops and livestock farming, land for producing animal feeds and food competition between livestock and feeding the human population.
- ***Differences in import tariff between Tanzania Mainland and Zanzibar:*** This creates loop holes for processors to import powdered milk and re-process into liquid milk creating unfair competition to processors who have established supply chains from small livestock keepers.

- ***VAT on equipment for dairy industry:*** This increases production and marketing costs. The costs are passed on to consumers making locally processed milk unfavorable compared with imported milk.

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Disclaimer: *This commodity value chain brief does not reflect the opinion of the sponsoring agencies, but of the author based on the literature review and analysis.*

1. Annex

Table1: Dairy processing plants in Tanzania

S/N	Region	Number of Industries	Name	Processing capacity (Lts/day)	Status	Currently capacity (Lts/day)	%Actual capacity
1.	Arusha	14	Northern Creameries	30,000	Not operational	-	-
			International Dairy Products	10,000	Operational	3,500	35.00
			Mountain Green Dairy	1,500	Operational	1,000	66.67
			Agape Dairy Group	500	Operational	200	40.00
			Jitume Dairy Group	300	Operational	150	50.00
			Idafaso Dairy Group	300	Operational	100	33.33
			Inuka Dairy Group	500	Operational	300	60.00
			Kijimo Dairy Cooperative	1,000	Operational	500	50.00
			Ayalabe Dairy Cooperative Society	1,500	Operational	400	26.67
			Uvingo Dairy	1,000	Operational	500	50.00
			Grand Demam	15,000	Operational	2,000	13.33
			Prince Food Technologies	2,000	Operational	400	20.00
			Hillside Dairies	1,500	Operational	400	26.67
			Nasinya Dairy Ltd	300	Operational	150	50.00
2.	Dar e Salaam	8	Bakresa Food Products	10,000	Operational	8,000	80.00
			Profate Dairy Investment	2,000	Operational	800	40.00

S/N	Region	Number of Industries	Name	Processing capacity (Lts/day)	Status	Currently capacity (Lts/day)	%Actual capacity
			Manow Dairy	1,000	Operational	300	30.00
			SADO Farm Dairy	1,000	Operational	500	50.00
			Fabian and Family Co. Dairy	1,500	Operational	500	33.33
			TAMU Milk	500	Operational	150	30.00
			Dairy Daily	500	Operational	300	60.00
			Milk Com	100,000	Operational	26,000	26.00
3.	Iringa	2	Mafinga Milk Group	600	Operational	100	16.67
			ASAS Dairy	50,000	Operational	14,000	28.00
4.	Kagera	6	Kagera Milk	3,000	Operational	400	13.33
			Kyaka Milk Plant (Mgando)	1,000	Operational	450	45.00
			Kihanga Milk	500	Operational	-	-
			Kagera Mgando	1,000	Operational	300	30.00
			Kagoma Ranch	800	Operational	200	25.00
			Delco Food Ltd	1,000	Operational	300	30.00
5.	Kilimanjaro	11	Nronga Women	2,000	Operational	800	40.00
			West Kilimanjaro	2,000	Operational	800	40.00
			Mboreni Women	1,000	Operational	300	30.00

S/N	Region	Number of Industries	Name	Processing capacity (Lts/day)	Status	Currently capacity (Lts/day)	%Actual capacity
			Marukeni	1,000	Operational	450	45.00
			Foo Dairy	1,000	Operational	200	20.00
			Ng'uni Women	1,000	Operational	350	35.00
			Kalali Women	1,000	Operational	300	30.00
			Fukeni Mini Dairies	3,000	Operational	500	16.67
			Kilimanjaro Creameries	10,000	Operational	4,000	40.00
			Neema Dairies	500	Operational	300	60.00
			Kondiki Small Scale Dairy	4,000	Operational	1,000	25.00
6.	Lindi	2	Lindi Dairy	500	Operational	200	40.00
			Narunyu Sisters Dairy	500	Operational	300	60.00
7.	Manyara	1	Nasinya Dairy Ltd	400	Operational	200	50.00
8.	Mara	9	Musoma Dairy	120,000	Operational	-	-
			Baraki Sisters	250	Operational	100	40.00
			Nyuki Dairy	3,500	Operational	1,200	34.29
			Mara Milk	16,000	Operational	-	-
			Kwetu Milk	200	Operational	100	50.00
			Bwai Milk	300	Operational	100	33.33

S/N	Region	Number of Industries	Name	Processing capacity (Lts/day)	Status	Currently capacity (Lts/day)	%Actual capacity
			Mema Milk	500	Operational	150	30.00
			Musoma Milk Group	1,200	Operational	700	58.33
			AFRI Milk	400	Operational	100	25.00
9.	Mbeya	3	Lwis Milk	300	Operational	150	
			Mbeya Maziwa	1,000	Operational	800	80.00
			Malt Uyole	1,000	Operational	200	20.00
10.	Morogoro	5	SUA	200	Operational	100	50.00
			Bakilana Dairy	500	Operational	300	60.00
			Shamo Dairy	300	Operational	100	33.33
			Twawose	500	Operational	200	40.00
			Shambani Graduates	3,000	Operational	1,500	50.00
11.	Mwanza	2	Mother Dairy-Sengerema	1,600	Operational	300	18.75
			Tukwamuane Dairy	500	Operational	200	40.00
12.	Njombe	1	Njombe Milk Factory	6,000	Operational	4,200	70.00
13.	Pwani	2	Chawakimu Cooperative	1,000	Operational	500	50.00
			Mother Dairy Ltd	3,000	Operational	2,000	66.67
14.	Rukwa	1	Motherland Dairy	5,000	Operational	800	16.00
15.	Ruvuma	2	Mother Dairy Ltd	300	Operational	200	66.67

S/N	Region	Number of Industries	Name	Processing capacity (Lts/day)	Status	Currently capacity (Lts/day)	%Actual capacity
			Ruvuma Dairies	500	Operational	300	60.00
16.	Shinyanga	2	Saweka Cooperative	200	Operational	150	75.00
			Propavet Dairies	500	Operational	200	40.00
17.	Simiyu	2	Lamadi Milk (Busega)	400	Operational	100	25.00
			Meatu Milk	1,000	Operational	200	20.00
18.	Singida	1	Singidani Dairy	500	Operational	300	60.00
19.	Songwe	1	Ushirika wa Maziwa wa Vwawa	5,000	Operational	200	4.00
20.	Tabora	2	Uhai Mazingira (Sikonge)	200	Not operational	-	-
			New /Tabora Dairies	2,000	Operational	500	25.00
21.	Tanga	4	Tanga Fresh Ltd	160,000	Operational	41,000	25.63
			Ammy Brothers Ltd	1,000	Operational	250	25.00
			Irente Farm	1,000	Operational	300	30.00
			Montensory Sister's	1,000	Operational	-	-
22.	Unguja	1	Azam Dairy	150,000	Operational	25,000	16.67
	Total	**82**		**757,550**		**154,100**	