

TANZANIA:

MANGO SECTOR VALUE CHAIN
ANALYSIS AND ROAD MAP

DECEMBER 2014



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TANZANIA

MANGO SECTOR VALUE CHAIN ANALYSIS
& ROAD MAP

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INTRODUCTION

This document has been prepared in the framework of the “Promoting Intra-regional trade in Eastern Africa-Tanzania” Project funded by Finland and executed by ITC. The objective of the project is to strengthen the capacity of SMEs and TSIs in order to increase value addition in agri-food products and related services and to expand trade within the region and exports to international markets. The project aims to address gaps that prevent SMEs from effectively participating in product and services value addition. The project will contribute to regional trade integration efforts by enhancing vertical and horizontal connections between various actors in the selected agri-food sectors (mango, honey and spices) and accessing new markets.

The document is a synthesis of the value chain analysis and present the market and buyers' requirements. A road map and implementation plan proposition were drafted to be discussed during a workshop held on November 4th, 2014 in which Tanzanian mango stakeholders will work together to identify the gaps for the mango sector along the value chain and to define the roadmap and its implementation plan to reach the sector objectives.

The objective of this sector roadmap document is to provide a toolkit for local stakeholders and Sector Associations to mobilise donor funding required for addressing identified gaps and to act as an aid in coordinating and synergising donor activities in the sector. Through the “Promoting Intra-regional Trade in Eastern Africa Project, ITC will be assisting in addressing some of these gaps in the short-term until 2016.

BACKGROUND AND FINDINGS

1. MANGO WORLD OUTLOOK

Production of world tropical fruits has strongly increased in the past decade. During the period 2004-2014, there has been an annual increase of 1.7%. This production is now estimated to reach 82 million tons by the end of 2014. While 90% of these fruits are produced in developing countries, a large part of the fruits are exported to the developed countries, where the demand is increasing rapidly.

The major tropical fruit produced and traded is mango. Studies indicate that mangoes account for 50% of the tropical fruits traded globally.

In Tanzania, there is only one harvesting season which is from November through March of the following year. Other countries have an advantage of longer harvesting seasons enabling them to offer mangoes to the markets for a longer period. As much as this can be seen as an obstacle, it offers an opportunity for mango stakeholders to explore interventions for longer supply seasons.

2. THE TANZANIA MANGO SUB-SECTOR

Tanzania ranks 17th in world mango production with an annual production of more than 300.000 tons (MMA 2011). There are two kinds of varieties of mangoes in Tanzania: (1) traditional/local varieties, and (2) improved/exotic varieties. The traditional varieties existed in the country for a long period; they include varieties like Dodo, Bolibo, Muyuni, Viringe and Bonyoa. Mainly small scale farmers grow these varieties without selecting the type. The improved/exotic varieties which were introduced ten years ago include varieties like Apple, Keitt, Kent, Alfonso, etc. They account for around 1% of the total production of mangoes in Tanzania and are mostly grown by medium and large scale farmers.

3. MANGO MARKET

Nearly the whole production of Tanzanian fresh mango is sold in the local markets with some informal export activity. Tanzanian mangoes are exported to Kenya through the Holili border, and some export experiences have been done to Dubai and Middle East countries in the past. However, there are no records suggesting any official mango exports currently going out of Tanzania. In the past three years, the processing market has developed in Tanzania. The few processing companies process mango pulp which has a lucrative market in and out of the country.

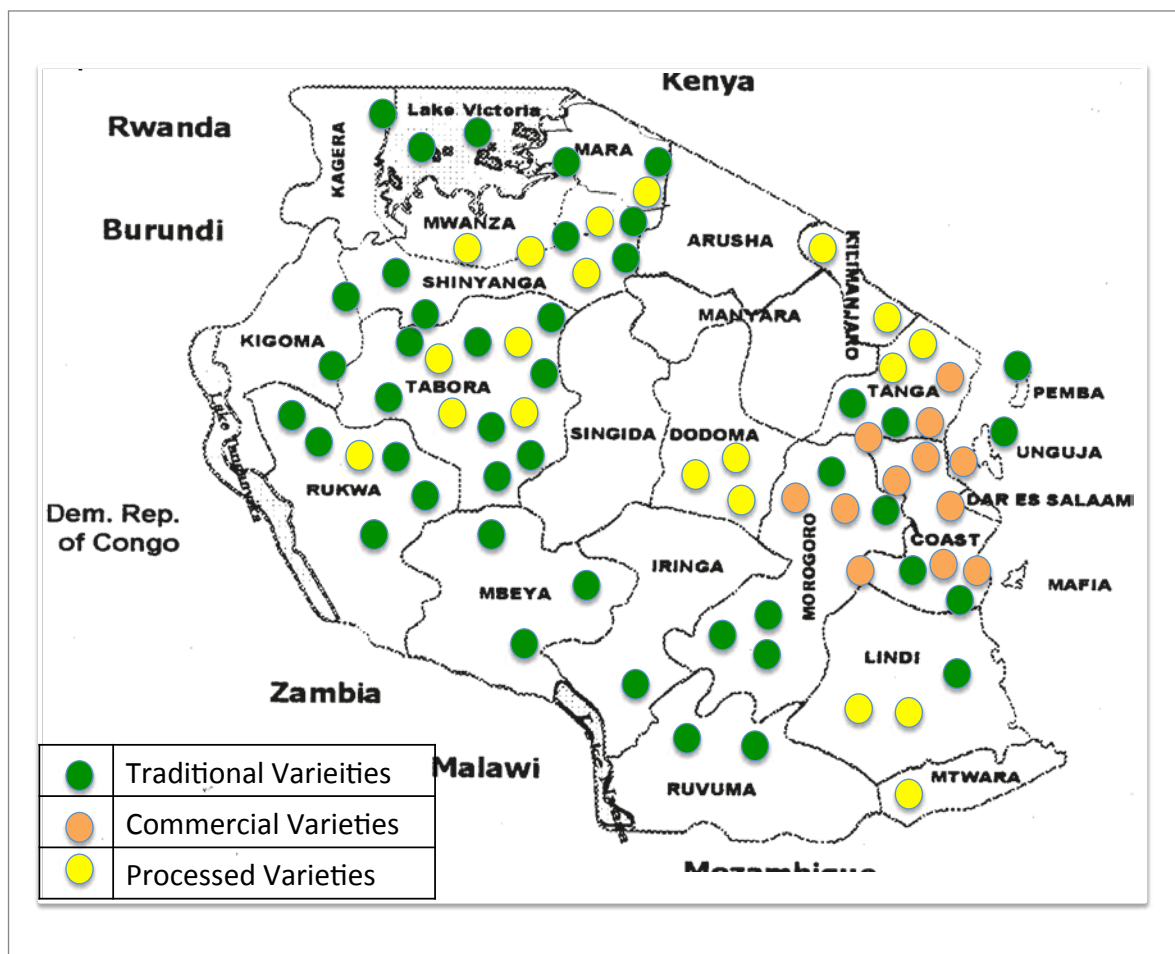
The mango export market in foreign countries offers several opportunities to the producing countries. However, export operations are not easy considering that each target market has its own requirements.

CONTENT OF THE DOCUMENT

This document gives information about the situation of the mango sector in Tanzania, using tables to show different aspects of the sector. The tables presented in this document are:

1. Tanzania Map: indication of mango production areas in the country, traditional varieties and improved varieties as well.
2. Production Map: volumes of production, mango varieties, production areas, target markets, main characteristics, major challenges, logistics, and value chain implication...
3. Mango sub-sector Map, describing the Value Chain of the mango sector in Tanzania
4. Statistics on the evolution of annual production
5. Average annual prices 2011-2013
6. Average monthly prices 2011-2013
7. Mango market: regional and international demand, volumes of transactions
8. Market segmentation
9. Gap analysis and requirements to access the international market
10. Implementation plan of the road map
11. Road Map for the development of the mango sector in Tanzania.

4. MANGO PRODUCTION AREAS



The figure above shows the major mango production areas. The processed varieties are mainly Dodo and Bolibo which are among the traditional varieties. The farmers do not grow specifically for the processor markets but sell to the traders who sell to the processors. The processors also source the Ngowe variety mainly from Mombasa.

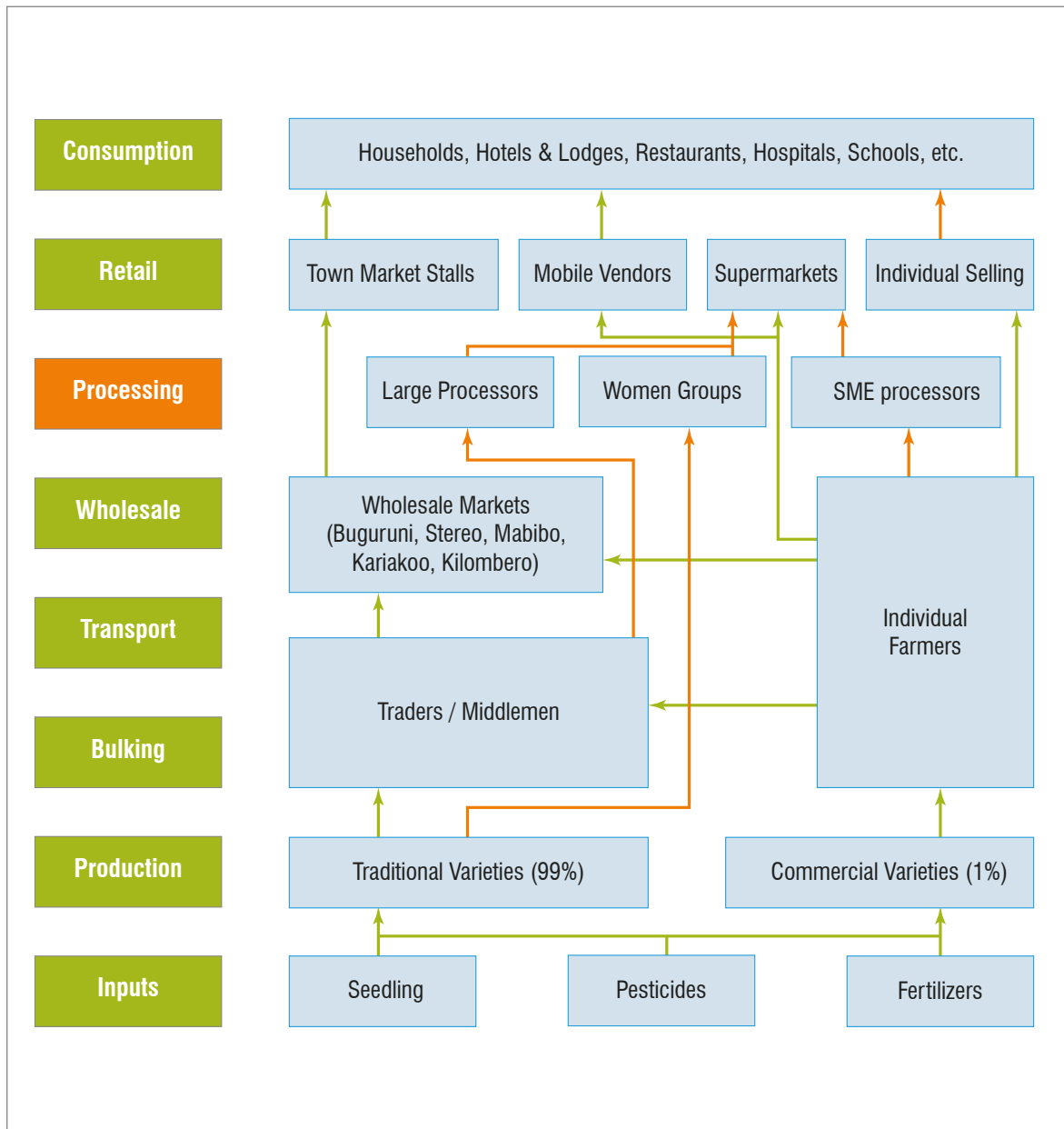
5. PRODUCTION MAP

This table shows the characteristics of different mango products. The table also shows that the current market for commercial varieties is the fresh market with the processed markets preferring more of the traditional varieties.

Product	Production (MT)	Specifications/Varieties	Current production areas	Target markets	Production characteristics	Major challenges	Logistics	Value Chain implications
Fresh mango	346,500	1. Traditional: Dodo, Bolibo, Muyunge, Viringe, Bonyoa	Tsborā, Shinyanga, Lindi, Geita, Rukwa Mtwara, Morogoro Zanzibar Tanga	<ul style="list-style-type: none"> Local Wet markets Processors Supermarkets Hotels & Lodges 	<p>Mostly smallholder farmers</p> <p>Average holding: 5 trees/household</p> <p>No investments on agronomy</p> <p>Produce up to an average of 2,000 fruits per tree</p> <p>No post-harvest investments</p>	<p>Domination by middlemen gives the farmers very low margins</p> <p>Rejection by premium markets due to poor post harvest handling</p>	<p>Packaged in local baskets ("tengas") with no standard weights</p> <p>Transported in open roof trucks with no refrigeration</p> <p>No sorting & grading and sold in local inaccurate measurements</p>	- Cannot benefit from the high demand in the processing markets (Seasonality, bulk of the market, volumes, varieties per region, support services etc)
	3,500	2. Improved: Apple, Red Indian, Keitt, Kent, Tommy Atkins, (1% of production)	Pwani, Morogoro, Tanga Dar es Salaam	<p>Export:</p> <ul style="list-style-type: none"> Regional markets: EAC, COMESA, SADC Middle East Europe 	<p>Mostly medium and large scale farmers</p> <p>Average yield 70 fruits/tree</p> <p>Farmers invest in agronomy & post harvest management</p> <p>Most varieties produced are table mangoes i.e. not attractive to the processing markets</p>	<p>Low prices in the local markets</p> <p>High investments in crop nutrition and fruit-fly control</p> <p>Land tenure insecurity due to rapid urbanization</p>	<p>Sorted and graded at the farm level.</p> <p>Transported in open roof trucks with no refrigeration</p> <p>Priced per piece both at the farm gate and wholesale markets</p> <p>Farmers try their own marketing channels to maximize profit margins</p>	(Seasonality, bulk of the market, volumes, varieties per region, support services etc) Dealing in quite an unpredictable and unstable market i.e. no incentive for growth
Dried mango	Insignificant	None	Mostly the high production areas	<ul style="list-style-type: none"> Supermarkets and local shops Regional markets Middle East 	Quite under-developed	<p>Mostly small scale and micro-processors.</p> <p>No demand due to lack of consumer awareness</p>	Sold on a personal basis i.e. personal delivery of very small quantities	Does not command a significant market share for the mangoes despite the potential

Product	Production (MT)	Specifications/Varieties	Current production areas	Target markets	Production characteristics	Major challenges	Logistics	Value Chain implications
Pulp	17,000	Dodo, Bolibo & Ngowe	Bakhresa Foods Mohammed Enterprises Masasi Foods Natureripe Kilimanjaro Rombo Micro Processors	Supermarkets Shops	Produced from mangoes of specific color and taste with a majority being the local varieties Average extraction rate of 50% - 55% Have a fixed buying price usually lower than the prices in the wholesale markets Capitalize on the high production season in order to get their volumes at good prices Require varieties whose pulp can endure at least 1½ years of shelf-life	Cannot get enough volumes from the farmers 5-10% loss due to poor harvesting techniques by farmers	Pay suppliers at least 2 days after delivery Transport costs are still very high with some feeder roads being impassable Dominance by middlemen discourage farmers from the processors market channel Farmers are not organized in groups, hence cannot benefit from economies of scale and charge lower prices	The channel benefits most middlemen There is more than 5,000 tons of unmet demand
				Export: Middle East Europe USA		<ul style="list-style-type: none"> Local Imports 	<ul style="list-style-type: none"> Internat. Standards Competitiveness 	<ul style="list-style-type: none"> Processing Packaging
Jams, Pickles & Chutneys	N/A	White flesh and sour i.e. most local varieties	Darsh Industries Dabaga Fruits, GFP Natureripe Kilimanjaro Masasi Foods Micro-processors	Supermarkets, Shops Export	Not quite mapped with very little data on volumes Very high competition from products overseas i.e. in a supermarket shelf import: local brands ratio is 16:4	SME & Micro-processors still have to go through rigorous regulation and certification processes to access the markets	Own distribution mechanisms	More than 75% informal

6. THE MANGO SUB SECTOR MAP



The subsector map above shows the different channels that the mangoes follow to their destination markets. The different stages can be discussed as follows:

Inputs: The major inputs currently used by farmers are the seedlings, pesticides and fertilizers. These inputs are mainly used by commercial mango farmers due to their better financial capacities compared to the traditional variety farmers. Seedlings are mainly provided by SUA, and AMAGRO members who own small nurseries in their farms. Natureripe Kilimanjaro is the AMAGRO member with the biggest nursery of all the membership. However, of late the roadside nurseries have developed an interest for mango seedlings due to their good prices. A mango seedling sells for an average price of Tshs 4,000.

The most common pesticides used by mango farmers are the pesticides to control the insects especially fruitflies. However, the study has established that there is very little synergy between the government fruit fly management program and the AMAGRO Mazoferm initiative. Furthermore, the products used by both parties are not so attractive to the commercial agro-dealers hence; the farmers cannot voluntarily access the products from the shops.

Due to the increased training on agronomy especially amongst the AMAGRO members, there is a growing interest in the use of fertilizers. Most of these fertilizers are accessed from YARA which is closely working with AMAGRO.

Production: Farmers producing the traditional varieties account for 99% of the volumes produced

Bulking: While traders dominate the traditional varieties, the commercial varieties follow different channels with the bulking done by individual farmers. Traders pay advances for mangoes while they are in the flowering stage and therefore buy all the mangoes the tree will produce

Transport: For the traditional varieties, the traders transport the mangoes in 10 ton open roof trucks to the urban wholesale markets. They pay up to 100 shillings per mango for transport for the commercial varieties, the farmers opt to sell to traders at the farm-gate or transport the mangoes themselves to the markets. More than 70% of the commercial farmers transport their own mangoes since they are produced in smaller quantities.

Wholesale: The wholesale market is dominated by the traditional varieties since they are the ones which follow the trader-led channel. The individual farmers skip the wholesale market for different retail markets. It is important to note that the traders lose 10% by the wholesale market gate due to transport handling and grading.

Processing: While traders bring their produce to the wholesale markets, some will send them to the processors depending on the volumes and prices at which they get the mangoes. While the processors pay an average of Tshs 270/kg (4 mangoes in a Kg), the wholesale market pays more than 4 times that price i.e. Tshs. 400/piece = 1,600/kg. Most of the processors who buy mangoes process them into pulp which is sold to a waiting lucrative market. It is important to note that there exists a huge number of small (backyard) processors. However, their products do not reach the urban demand i.e the supermarkets and shops begging the question of their motivation to keep on processing

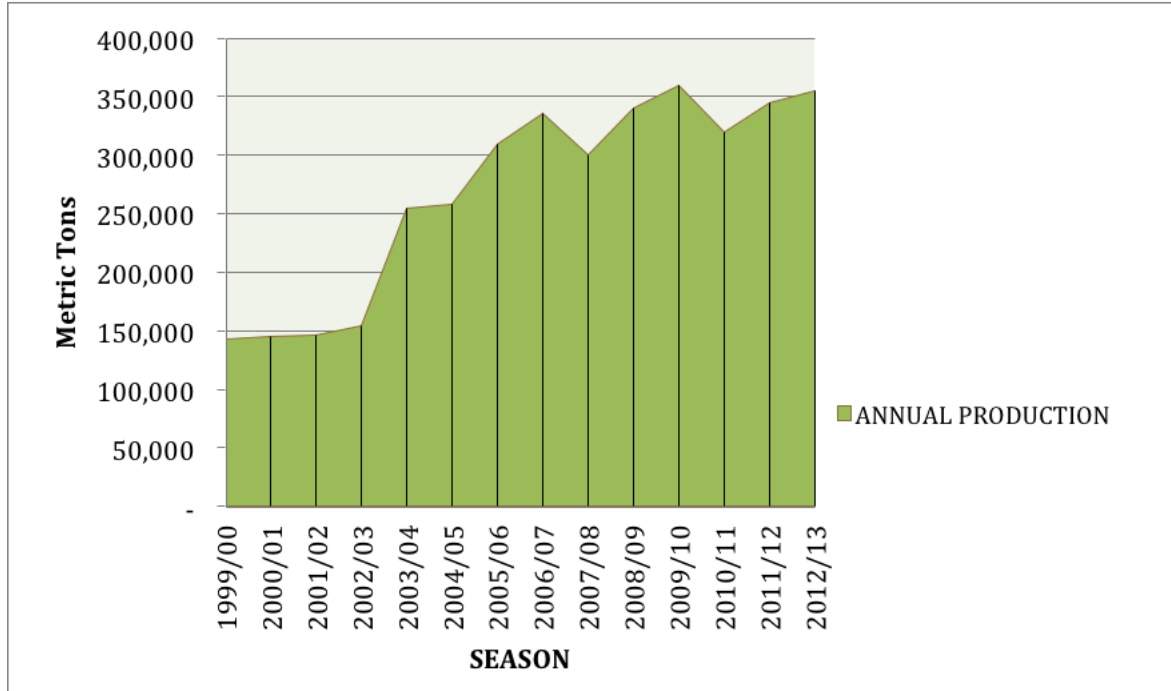
Retail: The retail market exists in the wet market, supermarkets, hotels and lodges as well as the mobile vendors. Commercial farmers currently enjoy this market where they have individual connections and sell their mangoes at higher prices.

7. PRICES OF MANGOS PRODUCTS ON THE MARKET

Target markets	Farm gate	National (local markets)	Super markets	Hotel industry	Processing
Local varieties	100	400	500	500	270
Improved varieties	350	500	800	800	
Price for dry			2000		
Price for chutneys etc			1800		

8. ANNUAL PRODUCTION OF MANGOES IN TANZANIA

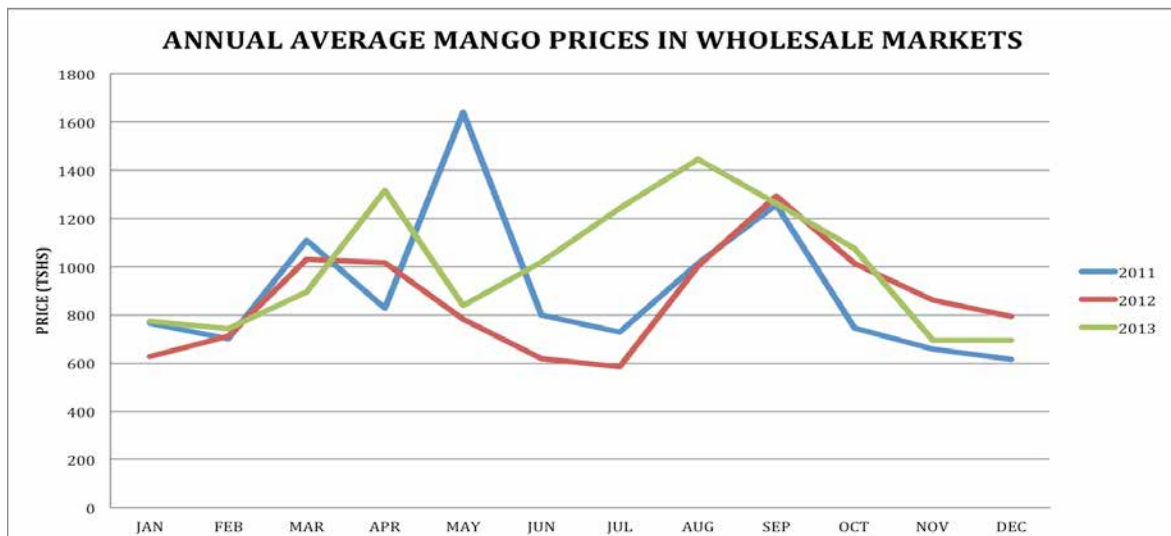
The graph below shows the total annual production of mangoes in Tanzania for the past 13 years.



Source: MAFC 2014

9. AVERAGE ANNUAL PRICES

The graph below shows the annual average prices in the past three years in six major regional wholesale markets including two markets in Kenya.

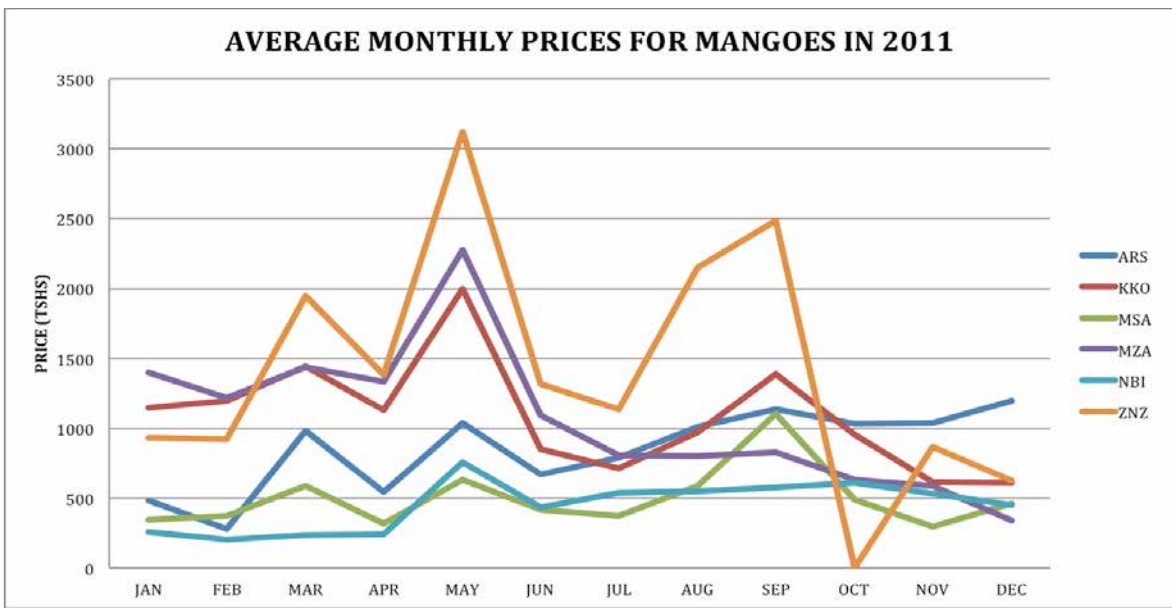


Source: TAHA 2014

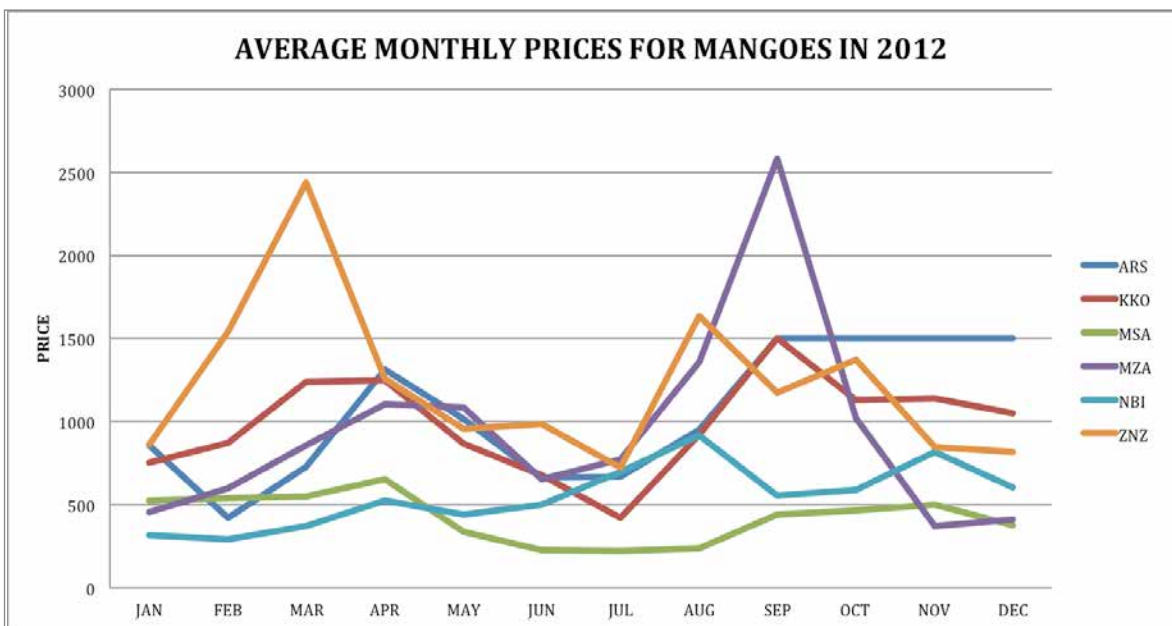
Considering that the market season for Tanzania is between November and February, its important to note that the prices decline during this season with 2012 having had the best prices.

10. AVERAGE MONTHLY PRICES BY MARKET

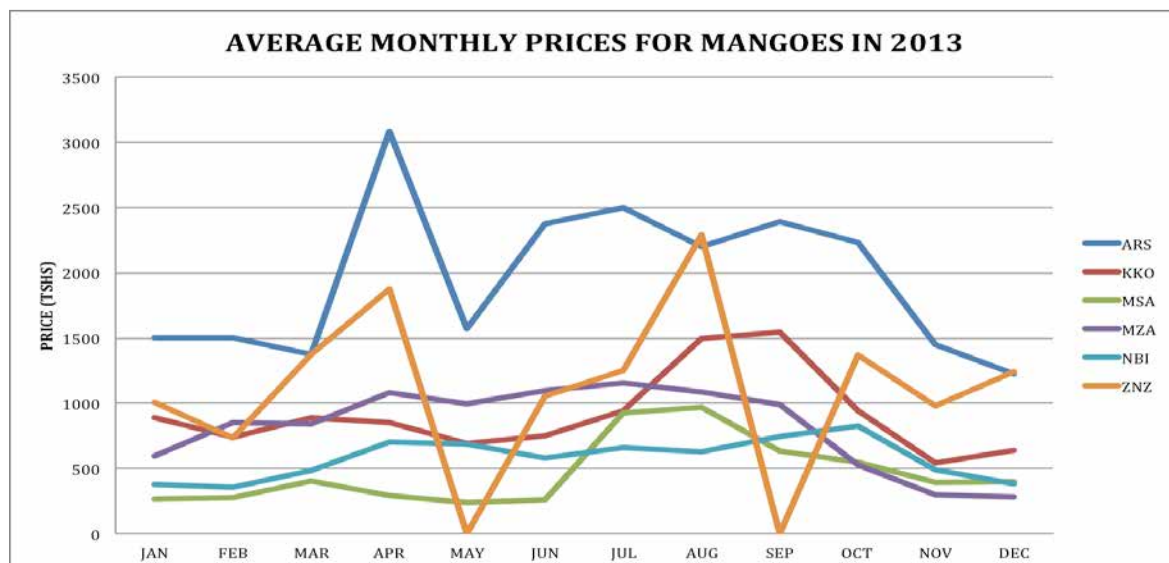
The three graphs below show the average monthly prices in the six major wholesale markets including two in Nairobi in the past 3 years. The markets are Kariakoo (KKO), Arusha (ARS), Mwanza (MZA), Zanzibar (ZNZ), Nairobi (NBI) and Mombasa (MSA). Considering that Arusha and Zanzibar are the two major tourist destinations, the mango prices have hit very high peaks during such seasons. However, these do not coincide with the harvest seasons hence the scarcity and even more reason for higher prices. In the last season, Arusha had the highest prices through out the year. It is also important to note that the two Kenyan markets (NBO and MSA) are constantly at the bottom in the three years implying that the low prices are attributed to the high volumes of production and the longer production seasons that Kenya enjoys.



Source: TAHA 2014



Source: TAHA 2014



Source: TAHA 2014

11. INTERNATIONAL DEMAND OF MANGOES

11.1. DEMAND AND SUPPLY ON A GLOBAL SCALE

Production, import and export of mangoes, mangosteens, guava (both fresh and dried) worldwide

11.2. GLOBAL PRODUCTION

In terms of total production in tons, India with more than 15,000,000 tons is foremost the biggest producer of mangoes, mangosteens, guavas (both fresh and dried) worldwide. The figure below shows the top ten mango producing countries in the world in 2011.

11.3. WORLD'S MAJOR MANGO PRODUCING COUNTRIES

Rank	Country	Production (tons)
1	India	15,188,000
2	China, mainland	4,350,000
3	Thailand	2,600,000
4	Indonesia	2,131,139
5	Pakistan	1,888,449
6	Mexico	1,827,314
7	Brazil	1,249,521
8	Bangladesh	889,176
9	Nigeria	850,000
10	Philippines	800,551

11.4. GLOBAL TRADE

The international mango market has grown considerably over the last 30 years. The trade mainly revolves around three regional areas: Asia, which trades mainly with the Middle East; Africa, which exports to the European market; and Latin America, which supplies the American and European markets (Unctad 2014). Slowly the American and European markets have got accustomed to mango and demand as grown over the years.

A specific product code for processed mango (juice, pulp, dried) does not exist. Mangoes, mangosteens and guavas, both fresh and dried are categorized under the following HS code: 080450. In 2013 the global export value of these products was \$1,927,061,000 USD. Between 2009 and 2013 the global annual growth in value was 14% on average. The annual growth in value between 2012 and 2013, however, was even 20%. On average, the annual growth in quantity between 2009 and 2012 was 7% (ITC trademap 2014). Global demand of mangoes, mangosteens, guavas

Global imports of mangoes stood at 1, 37 million tons in 2010 and increased more than 50% between 2006 and 2010. The USA has been the most important mango importer worldwide, followed by China (including Hong Kong) and the Netherlands. The United States and European Union together accounted for 75 percent of world mango imports. Close to 90% of Dutch imports are re-exported to Northern European destinations (Germany being the most notable market) as fresh or processed and mixed into products (USAID 2010). The following table shows the trend in the global demand for mangoes.

Top ten global mango importing countries (in tons) fresh and dried

Importing country	Exported value 2009	Exported value 2010	Exported value 2011	Exported value 2012	Exported value 2013
United States of America	301,527	345,355	401,976	424,962	501,254
China	152,789	154,585	154,828	206,888	245,071
Netherlands	159,200	188,868	196,887	205,732	243,000
Germany	70,734	88,036	119,724	102,045	127,895
United Kingdom	77,854	74,635	89,731	96,772	106,161
Canada	55,887	62,875	69,624	82,698	92,486
Vietnam	22,578	20,643	15,414	30,575	83,537
France	55,557	60,296	72,286	75,684	80,604
U.A.E	51,193	62,152	63,564	58,427	68,105
Saudi Arabia	26,856	48,766	51,258	56030	59,716

List of the ten main mango importers. (1000 USD). ITC – trade map: Product: 080450 Guavas, mangoes and mango-steens, fresh or dried.

11.5. WORLDWIDE MANGO EXPORT BETWEEN 2009 AND 2013

Year	Tons	USD (1000)
2009	1,452,021	1,158,284
2010	1,451,420	1,294,584
2011	1,631,569	1,522,218
2012	<i>unknown</i>	1,609,844
2013	1,731,953	1,927,061

11.6. MAIN EXPORTERS (QUANTITY)

Country	Item	Element	Year	Volume
Mexico	Mangoes, mangosteens, guavas	Exported quantity (tons)	2013	338,169
India	Mangoes, mangosteens, guavas	Exported quantity (tons)	2013	263,918
Thailand	Mangoes, mangosteens, guavas	Exported quantity (tons)	2013	252,904

Main exporters – Exported quantity 2013. ITC – trade map: Product: 080450 Guavas, mangoes and mangosteens, fresh or dried.

11.7. MAIN EXPORTERS (USD DOLLARS)

Country	Item	Element	Year	Value
Mexico	Mangoes, mangosteens, guavas	Exported Value (USD thousand)	2013	301,678
India	Mangoes, mangosteens, guavas	Exported Value (USD thousand)	2013	203,419
Thailand	Mangoes, mangosteens, guavas	Exported Value (USD thousand)	2013	180,342

Main exporters – Exported value 2013 (USD1000).

Tanzanian mangoes could be exported in the international market when all required conditions are satisfied. However, the main import market for processed products is the East African market: there is therefore strong business justification why Tanzania should offer competitive mango products. Here are some elements and features of this market.

11.8. DEMAND EVALUATION OF MANGO PULP AND JUICE THE EAST AFRICAN MARKET

Imported volumes of Mangoes, mangosteens, guavas have been multiplied by almost 5 in the years between 2007 and 2011 and 2.5 times in value.

11.9. VOLUME AND VALUE OF FRESH AND DRIED MANGOES, MANGOSTEENS GUAVAS THAT HAS BEEN IMPORTED BY EAST AFRICAN COUNTRIES

Imports in Value (USD 1000)

countries	2007	2008	2009	2010	2011
Eastern Africa + (Total)	392	496	1,077	704	928
Djibouti	374	374	435	473	645
Tanzania	0	80	606	65	162
Zimbabwe	0	23	13	36	75
Somalia	8	8	8	53	19
Seychelles	0	0	0	53	15
Uganda	10	10	9	7	8
Kenya	0	1	1	2	2
Malawi	0	0	2	15	2
Ethiopia	0	0	3	0	0
Rwanda	0	0	0	0	0
Zambia	0	0	0	0	0

countries	2007	2008	2009	2010	2011
Imported Volumes Tons					
Eastern Africa + (Total)	1,490	3,379	4,621	4,181	7,131
Tanzania	1	1,802	2,866	2,020	4,649
Djibouti	1,422	1,422	1,652	1,964	2,250
Uganda	67	87	91	65	110
Somalia	0	0	0	17	57
Zimbabwe	0	67	9	42	42
Seychelles	0	0	0	63	20
Kenya	0	1	0	2	2
Malawi	0	0	2	8	1
Ethiopia	0	0	1	0	0
Rwanda	0	0	0	0	0
Zambia	0	0	0	0	0

Volume and value of mangoes that has been imported by East African countries/Imported mangoes, mangosteens and guavas by Eastern Africa. Item 571, element 5622, FAOSTAT 2014

Also the imports of fruits juices have increased considerably in Eastern Africa with a growing middle class with sufficient purchasing power to buy these products. This is an indicator that the products are appreciated and purchased by consumers when available. In value, imports have more than doubled while in volume they are close to having doubled in the period of 2007-2011 for Eastern Africa. Kenya is the 3rd largest importer both in volume and value.

Imported fruit juices by Eastern African countries

Imports value (USD 1000)	2007	2008	2009	2010	2011
Eastern Africa + (Total)	18,395	25,732	30,261	32,862	40,674
Zimbabwe	741	1241	2,751	5,657	8,611
Zambia	3,459	5,048	4,726	6,834	7,649
Kenya	2,229	1,827	2,178	2,893	5,395
Mauritius	2,104	2,950	3,766	3,288	4,410
United Republic of Tanzania	2,459	4,465	4,146	4,656	4,156
Ethiopia	2,819	4,369	5,874	1,928	2,330
Malawi	564	701	1,872	2,661	2,117
Rwanda	26	142	653	1,142	1,730
Madagascar	212	565	705	946	1,068
Uganda	1,234	1,685	1,465	1,633	1,058
Imported Volumes (tons)	2007	2008	2009	2010	2011
Eastern Africa + (Total)	23,876	31,761	36,030	33,835	39,442
Zimbabwe	760	813	3,020	5,558	7,806
Zambia	3,232	4,597	4,009	4,625	5,410
Kenya	3,307	3,186	3,359	3,629	4,935
United Republic of Tanzania	4,394	5,945	5,771	5,190	4,437
Mauritius	2,354	3,180	3,901	2,463	3,377
Rwanda	40	178	1,455	2,478	3,299
Ethiopia	4,292	6,732	8,400	2,737	2,932
Malawi	790	718	896	1,465	1,923
Uganda	1,766	2,240	2,199	3,075	1,765



Photo: (CC BY-SA 2.0) Mango, 01-Guinea_mangoes_copyright-Tiny tin.jpg

Imports value (USD 1000)	2007	2008	2009	2010	2011
Madagascar	236	676	901	1,215	1,392
Djibouti	1,452	2,267	1,270	241	841
Seychelles	406	631	387	411	751
Burundi	189	213	334	699	518
Comoros	658	385	128	49	56

Imported juices by Eastern African countries. Item 622, element 5610, FAOSTAT 2014.

When considering specifically the mango pulp (used for juices and nectars) the average growth of exports destined to Africa since 2008 have grown by an average of 20% in value and 25% in volumes, while declining for the world by 9% in value and 3% in volumes. The difference between value and volumes means that slowly prices per ton are decreasing. The largest clients are Sudan, Egypt, Kenya and Tanzania. Kenya and Tanzania have purchase mango puree for the cheapest price in 2012 and 560 and 603 USD/T. Highest prices were paid by Algeria and Libya, most likely for a higher quality product. Egypt and Tanzania exhibit the highest average growth in volumes of 300 and 200 % respectively. Kenya is well positioned geographically to serve the African market. Companies currently using imported mango puree/pulp could go through a process of import substitution and source locally their raw materials. Local sourcing has important benefits: securing supply, avoiding currency fluctuations, reduction of transport costs, proximity value chains, among others. Juice processors in Kenya could benefit from such a shift in practices. Favourable trade arrangements within the regions could also favour Kenya as compared to suppliers from India. On the other hand, local producers will have to compete with imports which are among the cheapest on the continent. Efficient production and sourcing are keys to success. (Local Sourcing – KIT, SNV, Agri-pro-focus)

12. MARKET SEGMENTATION

The following table synthesizes the market situation, requirements and implications for the value chain.

Product	Production (MT)	Specifications/Varieties	Current markets	Target markets	Buyers Requirements	Competition	Key success factors	Value Chain implications
Fresh mango	World: 82 million MT (2014) Tanzania: 350.000 MT (2013)	1. Traditional: Dodo, Bolibo, Muyunge, Viringe, Bonyoa 2. Improved: Apple, Red Indian, Keitt, Kent, Tommy Atkins, ... (1% of production)	<ul style="list-style-type: none"> Local Processing units Export: Middle East (in 2006, now stopped) 	1. Middle East	Good appearance Sweetness Certifications for good safety and quality control: GCO GSO standards Good packaging Attractive label	<ul style="list-style-type: none"> Pakistan: from April to September Kenya: Oct-June Inde, Peru, Australia 	<ul style="list-style-type: none"> Control of fruit fly Respect of standards and buyers' requirements No irradiation Contacts with existing demand in the target countries Freshness of mangoes Consistency in delivery 	<ul style="list-style-type: none"> Choice of varieties Care on pesticides and fertilizers Quality control Harvesting: methods used, local transport Handling, treatment in the storage stations Packaging and loading Stability of temperature from harvest to the selling point Transportation mode (air/sea) Prices Information on the market Contact with customers Pack houses management
				2. Regional	Good appearance Packaging Competition in the regional market	<ul style="list-style-type: none"> Kenya Eastern and Southern African countries West Africa: Côte d'Ivoire, Mali, BF Latin America 	<ul style="list-style-type: none"> Competitiveness with neighbouring countries: appearance, sweetness, prices 	<ul style="list-style-type: none"> Choice of variety Follow-up from planting to harvest Use of insecticides and fertilizers Quality control Transportation mode Pack houses' management Contracts with customers Delivery time Payment
Fresh mango	World: 82 million MT (2014) Tanzania: 350.000 MT (2013)	1) Traditional: Dodo, Bolibo, Muyunge, Viringe, Bonyoa 2) Improved: Apple, Red Indian, Keitt, Kent, Tommy Atkins, ... (1% of production)	<ul style="list-style-type: none"> Local Processing units Export: Middle East (in 2006, now stopped) 	3. Europe	<ul style="list-style-type: none"> Good appearance: colour, size, shape... Legal requirements for safety and health control: ISO 9000 standards, Global gap certification, HACCP certification, EUR 1 form requirements... Solid packaging Attractive labelling Delivery time 	<ul style="list-style-type: none"> Brazil: Nov-Jan Asia: Apr-July West Africa (Côte d'Ivoire, Mali...): April-July Eastern and Southern African countries: same seasons 	<ul style="list-style-type: none"> Conformity to buyers requirements on: certifications, quality of products, packaging, prices, delivery time, consistency Information to the buyers: participation in international trade fairs, newsletters 	<ul style="list-style-type: none"> Choice of selected varieties Use of pesticides and fertilizers allowed in the import countries Quality control Transportation Handling, treatment in the storage stations Packaging and storage Stability of temperature from harvest to the selling point Quality control regulations Transportation mode Prices Information on the market Contact with customers Pack houses management

Product	Production (MT)	Specifications/Varieties	Current markets	Target markets	Buyers Requirements	Competition	Key success factors	Value Chain implications
Fresh mango	World: 82 million MT (2014) Tanzania: 350,000 MT (2013)	1. Traditional: Dodo, Bolibo, Muyunge, Viringe, Bonyoa 2. Improved: Apple, Red Indian, Keitt, Kent, Tommy Atkins,.... (1% of production)	<ul style="list-style-type: none"> Local Processing units Export: Middle East (in 2006, now stopped) 	3. USA	<ul style="list-style-type: none"> Standards: USDA APHIS PPQ phytosanitary standards and certifications (ISO 9000, Global Gap certification...) 	<ul style="list-style-type: none"> Latin America (Feb-June) 	<ul style="list-style-type: none"> Conformity to the US regulations on food products certifications Competitiveness with Latin America 	<ul style="list-style-type: none"> Quality control regulations Required certifications on origin, quality, quantity, phytosanitary requirements Packaging Transportation Prices Delivery Relations with the customers International agreements,
Dried mangoes	No data available	From traditional varieties	Local market	Middle East	Appearance: sweetness, texture, flavour, colour... Legal requirements for safety and health control Appropriate packaging Attractive labelling Delivery time Competitive price	<ul style="list-style-type: none"> Kenya Regional countries West Africa Other sweet fruits from Arabic countries: Morocco, Tunisia... 	<ul style="list-style-type: none"> Identify and use appropriate packaging Care to freshness of the products 	<ul style="list-style-type: none"> Cutting methods Drying methods Packaging Labelling
				Regional	Appearance: sweetness, texture, flavour, colour... Legal requirements for safety and health control Appropriate packaging Attractive labelling Delivery time Competitive price	<ul style="list-style-type: none"> Kenya Regional countries 	<ul style="list-style-type: none"> Competiveness with neighbouring countries 	<ul style="list-style-type: none"> Drying methods Packaging Storage Transportation
				Europe	Appearance: sweetness, texture, flavour, colour... Legal requirements for safety and health control, certifications Appropriate packaging Attractive labelling Delivery time Competitive price	<ul style="list-style-type: none"> Kenya West Africa: Côte d'Ivoire, Mali, Burkina Faso Central Africa: Cameroon Asia: Thailand, India Latin America 	<ul style="list-style-type: none"> Identify and use appropriate packaging Care to freshness of the products Competitiveness with mangoes from other producing countries 	<ul style="list-style-type: none"> Processing methods Packaging Labelling Transportation Prices Marketing
				USA	Appearance: sweetness, texture, flavour, colour... Legal requirements for safety and health control according to the USDA APHIS PPQ standards Appropriate packaging Attractive labelling Delivery time Competitive price	<ul style="list-style-type: none"> Latin America 	<ul style="list-style-type: none"> Competitiveness with mangoes from other producing countries 	<ul style="list-style-type: none"> Processing methods Packaging Labelling Transportation Prices Marketing

Product	Production (MT)	Specifications/Varieties	Current markets	Target markets	Buyers Requirements	Competition	Key success factors	Value Chain implications
Juice and pulp	No data available		Local market	Middle East	Appropriate packaging for liquids Sweetness, colour Legal regulations for Middle East countries (GCO GSO standards) Competitive prices	<ul style="list-style-type: none"> African countries: Kenya, Eastern and Southern African countries... Other fruit juices from tropical countries... 	<ul style="list-style-type: none"> Identify and use appropriate packaging Care to freshness of the products Competitiveness with mangoes from other countries 	<ul style="list-style-type: none"> Processing methods Packaging Labelling Price Marketing Competition
				Regional	Competitive prices Appropriate packaging Sweetness Freshness	<ul style="list-style-type: none"> Local products Regional countries Juices from similar fruits: bananas, guavas, passion fruits, oranges,... 	<ul style="list-style-type: none"> Competitiveness with mangoes from other countries 	<ul style="list-style-type: none"> Processing methods Packaging Labelling Transportation Prices Marketing
				Europe	Conformity to legal regulations: ISO 9000 and 9001-2000 rules, Certifications: Global Gap certificate, EUR 1, HACCP certificate... Appropriate packaging and labelling Delivery time	<ul style="list-style-type: none"> Local juices and pulps form different fruits: apple, grapes, oranges... Juices from different countries (Africa, Asia, Latin America...) 	<ul style="list-style-type: none"> Conformity with international standards 	<ul style="list-style-type: none"> Processing methods Packaging Labelling Transportation Prices Marketing
				USA	GCO GSO standards on quality control, packaging, labelling, competition	<ul style="list-style-type: none"> Local products Imports from different countries: Latin America, Europe,... 	<ul style="list-style-type: none"> Conformity with international standards Competitiveness with mangoes from Latin America. 	<ul style="list-style-type: none"> Processing methods Packaging Labelling Transportation Prices Marketing

13. IMPLEMENTATION PLAN

The Road map/implementation plan based on recent studies on the sub-sector and reflect the contributions of Tanzanian stakeholders provided during the mango sector stakeholder workshop conducted on November 4th, 2014 in Dar es Salaam.

The main findings and recommendations have been integrated under the six key strategic objectives below.

1. The implementation plan is divided in six key strategic areas relevant for the strengthening of the Tanzania mango sub-sector.
2. Increase volume of mangos within the country
3. Improve Quality Management and develop Food Safety Certification
4. Provide adapted financial services to support producers, processors and exporters capacities
5. Develop storage facilities and improve logistics
6. Ensure availability of inputs
7. Create access to relevant markets, disseminate market information and make the Tanzania mango visible at various markets

13.1. OVERALL OBJECTIVE: DEVELOPMENT OF FRESH AND PROCESSED MANGOS SECTORS

Results	Activity No	Type of activity	Direct Recipients	Potential implementing partners	Progress measures (indicators)	External support required	Priority and targeted timeline	Proposed activities to be carried out by the partners
<p>1- Increase production of mangoes (traditional and improved varieties):</p> <p>a. Increase number of trees with appropriated varieties</p> <p>b. Increase yield per tree</p> <p>c. Research and Development setting-up</p>	1.01	Production	Producers,	AMAGRO, MARI, MAFC, SUA LGAs TIRDO, TASAF, Private sector companies, BANKS, FSDT, NEEC, THC, TaFF, TanTrade, TWCC, Other Dev Partners	<ul style="list-style-type: none"> • Number of mango growers trained • Number of mango nurseries established • Number of tree, or surface extension 	Financing through matching grants, loans, projects : UNDP, FAO, USAID, DANIDA, IFAD	Very high 2014-2016	<ol style="list-style-type: none"> 1. Establishment of certified nurseries for seedling 2. Train farmers on mangos good agricultural practices 3. Encourage Farmers to produce mangos (trade or improved): demonstration plot, experience sharing etc 4. Establish research on mango varieties, agricultural practices and processing
<p>2- Quality management and assurance with Food safety</p> <p>a. Improve the harvesting and post-harvest handling</p> <p>b. Establish Traceability system in every step of the value chain</p> <p>c. Improve quality awareness of producers through buyers, NGOs and government extension services along the value chain</p> <p>d. Introduce HACCP safety standards and good manufacturing practices. (GMP)</p>	1.02	Quality/ Production Food safety and Quality standards	Producers, Processors, Exporters	TBS, TFDA, SIDO, LGAs-Trade Offices, LGA-Health offices, Private sector companies, THC, , TCCIA, NEEC, GS1, Trace-T, Tancert	<ul style="list-style-type: none"> • Number of farmers and collectors trained in quality control system • Number of farms certified by national or international organizations • Traceability mechanism established • Number of farmers trained of Gap/GMP 	Financing through projects grants, donors, technical capacity building: USAID, DANIDA, IFAD, FAO, ITC,	Very high 2014-2016	<ol style="list-style-type: none"> 1. Train farmers groups on GMP, GAP, quality and traceability 2. Train farmers and collectors on fruit fly management with adequate chemical treatment. 3. Train farmers on using adequate harvesting tool 4. Train collector and farmers on transportation good practices 5. Introduce traceability in groups that are already processing quality products 6. Train processors on Hygiene and safety (TFDA) requirements along with certification (TBS) procedures 7. Train farmers and processors on GMP and HACCP certifications to allow greater access high end urban and regional/international markets

Results	Activity Ne	Type of activity	Direct Recipients	Potential implementing partners	Progress measures (indicators)	External support required	Priority and targeted timeline	Proposed activities to be carried out by the partners
3- Management and Access to Finance a. Good finance practices at farmers and processors levels b. Improve access to finance c. Reinforce TFIs (AMAGRO, SIDO, TCCIA, TAHA, etc)	1.03	Access to Finance	Producers, Processors	AMAGRO, Banks, MoF	<ul style="list-style-type: none"> Numbers of farmers and processors trained on finance management Numbers of farmers and processors obtaining grants or loans Numbers of TSIs reinforced 	Technical capacity building IFAD/FAO/ITC	Medium 2017-2018	<ol style="list-style-type: none"> Training on records keeping and business plan Facilitate access to finance through training on business plan Linkage to banks Train TFIs on management
4- Storage and Logistics: a. Identify strategic points in existing production areas and develop or improve collection centres b. Train storage technician on storage, logistics and management c. Localised farmers and their production	1.04	Storage, Logistics and transport	Producers	AMAGRO, LGAs, SUA, TAHA, TCCIA, MAFC	<ul style="list-style-type: none"> Collection centres renovated or newly established, Trained Collection center managers, reduction of transport costs 	Financing through private sectors investment, donors, technical capacity building UNIDO, ITC	High 2017-2020	<ol style="list-style-type: none"> Support building of regional collection centres for remote areas Assist and support improvements in security and hygiene measures at collection centres Partnership with TAHA or fresh fruits and vegetables exporters to use the facility as pack house in a short term and then consider to build a pack house only for mangos Train centre personnel on storage, logistics, and business management. Survey to get GPS location, varieties and farmers contact details
5- Locally available inputs a. Improve inputs Access and use (as fruit fly pesticides). b. Improve packaging access for processed mangos	1.05	Procurement	Producers,	AMAGRO, TCCIA, MACF	<ul style="list-style-type: none"> -Prices and local availability certified inputs Numbers of enterprises or TSIs providing adequate packaging 	Technical capacity building	High 2017-2018	<ol style="list-style-type: none"> Strengthen inputs distribution and availability Strengthen good quality packaging access
6- Market Access and linkage a. Access to market and prices information b. Promote products in target markets c. Monitoring of NTBs	1.06	Market Information and linkage	Producers, processors	TAHA, TCCIA, TANTRADE, AMAGRO,	<ul style="list-style-type: none"> Numbers of services implemented Numbers of users of the services Number of participants in fair and exchange visits; new orders generated, sales volume to new markets 		High 2017	<ol style="list-style-type: none"> Facilitate market linkages through commercial meeting, agreements and exhibition Training on market information and requirements Development of prices information system

14. ROAD MAP SUMMARY

Market	Short term (Y1-2)	Medium term (Y3-5)	Long term (> 5Y)
Local & Regional Markets	<ul style="list-style-type: none"> ■ Capacity building for mango growers: visit of farms and advices on how to improve the production ■ Conduct a rapid survey on fruit-fly infestation in production zones ■ Establishment of quality seedlings for the two processed varieties i.e. dodo and bolibo ■ Formation of mango grower groups in the local variety production zones ■ Promotion of other table varieties i.e. commercial varieties ■ Promotion of more value added products like dried mangoes ■ Capacity building of micro-processors for more access to the urban markets ■ Regions Lot 1: Morogoro, Tabora, Shinyanga, Lindi, Mtwara & Tanga 	<ul style="list-style-type: none"> ■ Development of an integrated fruit-fly reduction approach ■ Installation of storage centers in good conditions ■ Creation in mango nurseries in all producing regions ■ Establishment of national quality standards of mangoes ■ Improvement of market infrastructure in the major fruits wholesale markets ■ Creation of supply contracts between farmers and processors ■ -Regions Lot 2: Dodoma, Mbeya, Rukwa, Kigoma, Geita, Musoma 	<ul style="list-style-type: none"> ■ Capacity-building for mango growers ■ Regions Lot 3: Kilimanjaro, Zanzibar, Mwanza, Iringa
Middle East	<ul style="list-style-type: none"> ■ Increase production of improved varieties ■ Conduct a study tour to determine competitive varieties of mango and the buyers' requirements ■ Direct contacts with local buyers in the targeted countries ■ -Participation in trade fairs in Middle East countries ■ Creation of production/supply zones and consolidation of volumes 	<ul style="list-style-type: none"> ■ Control of fruit fly ■ Establishment of pack-house infrastructure and equipment ■ Trial direct supply from Tanzania 	Increase regular supply
Europe	<ul style="list-style-type: none"> ■ Increase production of improved varieties ■ Detection and control of fruit fly ■ Participation in international trade fairs ■ Train exporters in export procedures and regulations ■ Conformity with the buyers' requirements ■ Establishment of a quality control system and certification of mango products 	<ul style="list-style-type: none"> ■ Control of fruit-fly ■ Establishment of pack-house infrastructure and equipment ■ Trial direct supply from Tanzania 	Direct supply



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