CITRUS FOR LOCAL AND REGIONAL MARKETS SUB SECTOR QUICK SCAN
TANZANIA

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FINAL DRAFT

STUDY COMMISSIONED BY SME COMPETITIVENESS FACILITY AND CONDUCTED BY MATCH MAKER ASSOCIATES LIMITED (MMA)
# TABLE OF CONTENT

**LIST OF TABLES AND FIGURES** ........................................................................................................ III

**ABBREVIATIONS** ............................................................................................................................. III

**ACKNOWLEDGEMENT AND DISCLAIMER** ........................................................................................ IV

1. **INTRODUCTION** ........................................................................................................................ 1

   1.1 **BACKGROUND TO THE STUDY** ...................................................................................... 1

   1.2 **OBJECTIVES OF THE STUDY** .......................................................................................... 1

   1.3 **APPROACH AND METHODOLOGY** .................................................................................. 2

   1.4 **LIMITATIONS** ................................................................................................................... 2

   1.5 **STRUCTURE OF THE REPORT** .......................................................................................... 2

2. **OVERVIEW OF THE CITRUS FRUIT SUB SECTOR** ................................................................ 3

   2.1 **SUB SECTOR DEFINITION** ............................................................................................... 3

   2.2 **OVERVIEW OF ORANGE SUB SECTOR IN TANZANIA** ...................................................... 3

   2.3 **CITRUS IN TANGA REGION** ............................................................................................. 4

   2.4 **MARKET TRENDS AND DYNAMICS** ................................................................................. 5

      2.4.1 **Regional market** .......................................................................................................... 5

      2.4.2 **Domestic market** .......................................................................................................... 6

   2.4 **ACTORS AND FUNCTIONS IN THE FRESH CITRUS SUB SECTOR** .................................... 7

      2.4.1 **Input Supply** ................................................................................................................. 7

      2.4.2 **Production** .................................................................................................................... 8

      2.4.3 **Brokerage** ................................................................................................................... 9

      2.4.4 **Harvesting** .................................................................................................................. 9

      2.4.5 **Collecting/Bulking** ..................................................................................................... 9

      2.4.6 **Transport and Logistics** .............................................................................................. 10

      2.4.7 **Wholesaling** ............................................................................................................... 10

      2.4.8 **Retailing** ..................................................................................................................... 10

   2.5 **PROFITABILITY ANALYSIS** ............................................................................................... 10

   2.6 **THE EMERGING SUPPLY CHAINS IN CITRUS SUB SECTOR** ........................................... 12

      2.6.1 **On-farm (Smallholder) farmer channel** ..................................................................... 13

      2.6.2 **Domestic market channel (high & low season)** ......................................................... 14

      2.6.3 **Kenya channel** ............................................................................................................ 14

   2.7 **SUPPORT ORGANISATIONS** .............................................................................................. 15

   2.8 **MAJOR CONSTRAINTS AND OPPORTUNITIES** .................................................................. 15

   2.9 **SUMMARY OF MAIN FINDINGS (OVERVIEW OF THE SUB SECTOR)** ....................... 17

3.0 **CITRUS SUB SECTOR DEVELOPMENT STRATEGIES** ............................................................ 17

   3.1 **IDENTIFICATION OF SUPPLY CHAIN FOR FURTHER DEVELOPMENT** .................. 18

      3.1.1 **Contract farming arrangement with processors and institutional markets** ................. 18

      3.1.2 **Supply chain development for regional market** ............................................................ 18

   3.3 **RECOMMENDED WAY FORWARD** .................................................................................... 19

      3.3.1 **Short term leverage interventions** .............................................................................. 19

      3.3.2 **Medium Term leverage interventions** ........................................................................... 19

      3.3.3 **Long term leverage interventions** ................................................................................ 19

   3.4 **POTENTIAL ENTRY POINTS FOR SCF SUPPORT** ............................................................... 20

**REFERENCES** .............................................................................................................................. 21

**APPENDICES** ............................................................................................................................... 22
LIST OF TABLES AND FIGURES
Table 1: Overview of Orange production and productivity in Tanzania
Table 2: Position of Fruit production in Tanga region within major fruit growing regions
Table 3: Agro ecological zones of Tanga region and position of Citrus
Table 4: Export of oranges from Tanzania
Table 5: Initial investment Costs in 1 acre orange farm
Table 6: Distances to key markets & Logistics
Table 7: Summary of Simplified Gross Margins in the citrus sub sector
Table 8: Major Constraints and Opportunities

Figure 1: Map depicting main study area
Figure 2: Orange Sub Sector Map
Figure 3: Proposed supply chain development for citrus –orange sub sector

ABBREVIATIONS
AMSDP Agricultural Marketing Systems development Program
ARI Agricultural Research Institute
DAI Pesa Development Alternatives International- Private enterprise Support Activities Project
DALDO District Agriculture & Livestock Development Officer
MMA Match Maker Associates Ltd
MVIVATA Muungano wa Vikundi vya wakulima Tanzania
SACCO Savings & Credit Cooperative Society
SCF SME Competitiveness Facility
SIDO Small Industries development Organisation
SME Small and Medium Enterprises
TBS Tanzania Bureau of Standards
TCCIA Tanzania Chamber of Commerce Industries and Agriculture
TOR Terms of Reference
TShs Tanzanian Shillings
UNIDO United Nations Industrial Development Organisation
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into the subsector dynamics.

Finally, we would like to register that opinions expressed in this report are purely those of the authors
based on observations and findings during the study. It therefore goes without saying that the authors,
and not SCF who takes full responsibility for any errors of commission or omission that may be found in
the report.
1. INTRODUCTION

1.1 Background to the study

SME Competitiveness Facility (SCF) is a matching grants opportunity for businesses in Tanzania that wish to develop or increase their ability to trade and export. The SCF aims to support product quality improvement and the meeting of international standards to enable SMEs access potential markets within and outside Tanzania. SCF supports the Government of Tanzania’s endeavour to develop the business sector as an engine of pro-poor economic growth, in line with Tanzania’s National Strategy for Growth and Reduction of Poverty (MKUKUTA). The SCF focus is on business activities that contribute to export, economic growth, employment creation and the reduction of poverty.

Since early 2006 SCF has focused primarily on two types of interventions: agro processing for fruits and vegetables, spices, natural products such as seaweed, and sisal; and three services: food safety (traceability, food safety audits), trade development (effective trade fair participation, branding, supply chain management) and packaging. SCF phase one will end in June 2008 and SCF II is currently being planned. It is projected that fruit and vegetables will also be in focus in Phase II. It is in this context that SCF has commissioned Match Maker Associates Ltd to undertake a number of selected subsector studies in the fruit and vegetables sector in Tanzania. The studies of different intensities include the following:

Fully fledged Sub Sector Analysis:
- Dried fruits and vegetables for urban market and export
- High value and fresh vegetables for local market

Quick Scans:
- Fresh and processed tomatoes for local and regional markets
- Baby vegetables for EU market
- Fresh mangoes for Middle East market
- Fresh citrus for local and regional market

This report focuses on the study of fresh citrus with specific reference to oranges for the local and regional (Kenya) market. The report provides an overview hence a quick scan and not an in-depth study of citrus sub sector dynamics in Tanzania and draws main reference from North-Eastern corridor (Tanga, Kilimanjaro, Arusha, and Manyara regions).

1.2 Objectives of the study

The overall objective of the study is to highlight the dynamics of the citrus subsector in terms of products and market focus. Furthermore the quick scan would identify the main challenges and opportunities for growth and competitiveness and proposed value chain upgrading strategies as well as the roles of various stakeholders.

Specifically the study covers the following areas:
- Identifying the citrus market requirements particularly for the regional markets in particular Kenya
- Identifying the key players involved in each stage of production and marketing using the value chain approach
- Identifying key input suppliers including technologies, services
- Identifying production base and productivity issues in the study area
- Analyzing the factors affecting performance of the existing value chains
- Identifying ways to improve competitiveness
- Analyzing the roles and relationships of actors in the industry for implementation of the interventions
• Making recommendations that are useful for promoters of the study related to economic
development through the growth of SMEs in agriculture and the objectives of MKUKUTA and the
on-going planning for SCF II.

1.3 **Approach and methodology**
This study covers only a broad overview (a quick scan) and not an in-depth sub sector analysis. The
main approach therefore was to use secondary sources of information as much as it is feasible. These
sources were complemented with primary interviews with key actors in the field (farmers, private
companies, support organisations – NGOs and Government departments). A visit to Tanga region was
necessary since it is the main growing area of citrus in Tanzania. In Tanga focussed group discussion
were held with citrus farmers in Kilongo Village – Muheza district as well as with other actors in the
chain. Discussions were also held with regional authorities responsible for economic cluster and
agricultural sector in particular in the region. Market analysis for citrus in Dar-es-salaam and Arusha
were carried out to understand the local market and for the regional markets interview with regional
traders were held and lessons from earlier market studies in Kenya were also used. List of people met
during the study is attached in appendix 2.
The preliminary findings would be validated by a carefully selected stakeholder’ meetings and on the
basis of their comments and those of SCF, final report would be prepared.

1.4 **Limitations**
This report is a quick scan that draws reference to existing secondary information and limited field
analysis. In this case there is no serious limitation as far as the scope and methodology employed is
concerned. Although quality and completeness of secondary data is an obvious limitation, the
consultants have been able to gather and simulate meaningful information backing up analysis and
recommendations presented in this report.

1.5 **Structure of the report**
This report is structured into three main chapters. The first chapter introduces the report in terms of
objectives, methodology and limitations. Chapter two dwells with an analysis of the citrus sub sector
with specific attention to oranges. The analysis starts from market trends & dynamics and then identifies
the actors, their functions and interrelationships in the sub sector. Sub sector mapping summarises the
emerging picture of sub sector dynamics and this is followed by assessment of profitability, support
institutions and a summary of major constraints and opportunities for growth and competitiveness.
Chapter three focuses on the sub sector development strategies and identification of supply chains for
further upgrading. Short, medium and long term leverage interventions are recommended and within
them the potential role of SCF is indicated.
2. OVERVIEW OF THE CITRUS FRUIT SUB SECTOR

2.1 Sub sector definition

This quick scan focuses on fresh citrus for the local and regional market. In the citrus fruit group, orange is the largest crop, but also grown in rather small volumes and mainly for home consumption are lemon, lime, mandarin and grapefruit. Hence in this study a specific focus is made to oranges. The citrus fruit in Tanzania have good growth conditions and are suitable crops for many horticulture farmers. In terms of citrus, Tanzania is generally self-sufficient and citrus fruit are available all year round. Despite the favourable conditions for citrus fruit in Tanzania, farmers still do not take advantage of it and very limited value addition takes place hence the main outlet for citrus is the fresh market.

Citrus fruit are grown in most parts of Tanzania. The research for this report however has focused mainly on the northern eastern corridor of Tanzania. The Coast, Morogoro and Dar es Salaam have also been included in the research due to its importance in the sub sector. Other regions that are known in the production of citrus but not included in this study are Mwanza and Ruvuma.

Even though citrus are grown all year round in Tanzania, there are differences in the seasonality. Most of the citrus fruit in the northern corridor are produced in the months July to October with July to August as a peak period. November to February is considered as a low production period and March to May with very low production levels.

2.2 Overview of Orange sub sector in Tanzania

There are several varieties of oranges which are grown in Tanzania including Msasa, Nairobi, Valencia, Pamba, Jaffa, Washington and Zanzibar. The most common varieties are Msasa, Valencia and Nairobi. The different varieties help farmers to extend the seasonality because of different growth conditions. The agricultural census of 2003 established that the total production of oranges by smallholders in Tanzania was around 194,978 tons per annum, harvested from 23,062 ha resulting in a 8.5 t/ha yield. A total of 109, 413 households are estimated to be involved in orange production, with an average of 0.4 ha per household. Of the total planted area of oranges in the country only 0.2 percent is by medium to large scale farms.

Orange production is largely concentrated in the North East Coast, with Tanga and Coast region having the largest planted area. This is followed by Morogoro, Mwanza and Ruvuma. Insignificant production takes place in more regions of the country as shown in table 1 below:

<table>
<thead>
<tr>
<th>Region</th>
<th>Hectare planted with Orange</th>
<th>Productivity (Tons/ha)</th>
<th>Average ha per orange growing household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanga</td>
<td>9,342.34 ha</td>
<td>22.41 t/ha</td>
<td>1.3</td>
</tr>
<tr>
<td>Zanzibar</td>
<td>1,712.49 ha</td>
<td>4.1 t/ha</td>
<td>0.2</td>
</tr>
<tr>
<td>Dar es salaam</td>
<td>2,022.27 ha</td>
<td>4.9 t/ha</td>
<td>0.7</td>
</tr>
<tr>
<td>Coast</td>
<td>7,635.31 ha</td>
<td>18.31 t/ha</td>
<td>1.0</td>
</tr>
<tr>
<td>Morogoro</td>
<td>4,548.8 ha</td>
<td>10.9 t/ha</td>
<td>1.1</td>
</tr>
<tr>
<td>Kilimanjaro</td>
<td>1,284.16 ha</td>
<td>3.1 t/ha</td>
<td>0.6</td>
</tr>
<tr>
<td>Manyara</td>
<td>280.13 ha</td>
<td>0.7 t/ha</td>
<td>0.7</td>
</tr>
<tr>
<td>Arusha</td>
<td>27.72 ha</td>
<td>0.1 t/ha</td>
<td>0</td>
</tr>
<tr>
<td>Lindi</td>
<td>1,869.39 ha</td>
<td>4.5 t/ha</td>
<td>0.7</td>
</tr>
<tr>
<td>Mtwara</td>
<td>368.91 ha</td>
<td>0.9 t/ha</td>
<td>1.4</td>
</tr>
<tr>
<td>Ruvuma</td>
<td>2,826.8 ha</td>
<td>6.8 t/ha</td>
<td>1.1</td>
</tr>
<tr>
<td>Iringa</td>
<td>223.59 ha</td>
<td>0.5 t/ha</td>
<td>0.7</td>
</tr>
</tbody>
</table>
What is apparent is that oranges and citrus at large are now grown on commercial scale in Tanzania and productivity levels are still quite low.

### 2.3 Citrus in Tanga region

In the northern corridor of Tanzania, Tanga region is regarded as the most significant producer of citrus fruits. Data from 1997/98 which is available show an overview over the different fruit crops in Tanzania and for Tanga region oranges is the third most grown crop after Mango and pineapple. Oranges is also the third most grown fruit crop in Tanzania.

#### Table 2: Position of Fruit production in Tanga region within major fruit growing regions.

<table>
<thead>
<tr>
<th>Fruit crop</th>
<th>Tanga region</th>
<th>Total major regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana</td>
<td>56,400</td>
<td>221,400</td>
</tr>
<tr>
<td>Orange</td>
<td>85,500</td>
<td>159,332</td>
</tr>
<tr>
<td>Pineapple</td>
<td>155,000</td>
<td>218,825</td>
</tr>
<tr>
<td>Mango</td>
<td>120,000</td>
<td>185,680</td>
</tr>
</tbody>
</table>

Source: Tanga Agric Dept

Below is a short description of this north eastern region of Tanzania.

Tanga region is located in the north east part of Tanzania, Tanga boarders to Kenya in the north, Morogoro and the Coast region in the south and Kilimanjaro and Arusha in the west. In the east lies the Indian Ocean and in the south the Migaji River is dominating.

Tanga region has a population of 1,280,262 people and the region consists of 27,348 sq. of which 17,000 sq.kms. is available for agriculture.

The Region of Tanga can be divided into four different Agro economic zones. The different zones are: the costal belt, wet plains, dry plains and the mountain belt. Citrus fruit are mainly grown in two first mentioned zones. Below follows a table with characteristics of different zones.
Table 3: Agro ecological zones of Tanga region and position of Citrus

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Rainfall</th>
<th>Dominant crops</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Costal belt:</strong> 0-15m above sea level – Covers Pangani, Tanga and part of Muheza district.</td>
<td>800-1400mm - Well to moderately drained.</td>
<td>Citrus fruits, Sisal, Coconuts, Cashew nuts, Maize, Cassava, Rice and Sea Weeds.</td>
</tr>
<tr>
<td><strong>Wet plains:</strong> 300-600m above sea level – Covers most of Muheza and Korogwe district.</td>
<td>800-1000mm – Well to medium drained.</td>
<td>Sisal, Coconuts, Cashew nuts, Cotton, Maize, rice, beans, Cassava and Citrus fruits.</td>
</tr>
<tr>
<td><strong>Dry Plains:</strong> 200-600m above sea level – Covers Handeni and part of Korogwe, Muheza and Pangani.</td>
<td>500-800mm – Well and moderately to poorly drained.</td>
<td>Timber, Honey, Sisal, Cotton, Tobacco, Maize, Cassava and beans.</td>
</tr>
<tr>
<td><strong>Mountain belt:</strong> 1000-2000m above sea level – Covers Usambara mountains, Amania mts and Nguu mts.</td>
<td>800-2000mm – Well drained.</td>
<td>Tea, Coffee, Cardamon, maize, potatoes, bananas, beans, vegetables and temperature fruits.</td>
</tr>
</tbody>
</table>

It is therefore clear that within the Northern Eastern corridor, Tanga stands out as the region with most potential in citrus production.

2.4 Market trends and dynamics

There are different market trends for the local and regional market. In this section the findings of the different market trends and its dynamics are presented.

2.4.1 Regional market

The Regional market consists mainly of Kenya. Orange export to the other East African countries is very insignificant and exports outside Africa are negligible. Kenyan market was self-sufficient with oranges however, due to bad disease management and because of lack of resources to control the disease this position has changed. Farmers found other crops which were easier to grow and went away from the orange. This has put Kenya in a position where they now must import oranges from neighbouring countries, hereby Tanzania. During the study it was established that Kenya imports citrus and in particular oranges from Tanzania for local consumption including processing but also for re-export to other regional markets.

The regional export market for Tanzanian oranges has been growing over the last years. The Kenyan export market has nearly doubled in few years and has remained and important market for Tanzania. Surveys show that around 60% of the oranges produced in Tanga region are exported to Kenya mainly during the peak production season from June to September. It has also been established that the export of citrus to Kenya is approximately 44% of all the oranges they import. The transport cost from Tanga to Kenya is relatively lower than to other markets in the country and this is partly a comparative advantage of Tanga region. During the study it was established that truck load (Fuso 5-6 tons) from Tanga to Nairobi is Tshs 550,000 which is almost half price compared to transport costs from other oranges producing areas in Tanzania. Data also shows that export has been doubled from 99/00 to 01/02 season.

The regional (Kenya) market has specific preferences compared to the Tanzanian local market. The orange varieties that are demand in Kenya are: Washington Naval, Valencia, Voi Minneola, Voi Pixie and Outspand. Kenya import oranges from Tanzania, South Africa and Egypt. Tanzania supplies Kenya with mostly the Washington Naval variety.

There is a longer supply chain for citrus farmers in Tanzania to Kenya markets than internally in Tanzania. When a buyer from Kenya wants oranges from Tanzania they are not expected to contact farmers directly. There is local legislation especially in Muheza District which prohibits importers to buy
directly from farmers but it is not fully enforced. On paper Kenyan importers have to contact a broker in Tanzania who would make purchase arrangements with farmers. During the study however, some farmers indicated to have direct negotiations with Kenyan traders. The buying transaction usually takes place at farm level and traders prefer to be involved directly in harvesting and arranging for transport. This way the trader has an upper hand in selecting only the superior quality oranges on the farm, but in addition dictating the terms as farmers assumes very limited risks / responsibilities beyond farming. It was established that in several instances farmers make prior arrangements with traders and sell the crop before maturing. Advance payment based on price dictated mainly by traders does take place, and this further marginalises the farmers. It was noted that once oranges are harvested, the journey to Kenya takes up to 48 hours because of bad roads, boarder stops and market delays. Taxes to both Tanzanian and Kenyan revenue authorities have to be paid at boarder posts.

Oranges are delivered to Nairobi, Mombasa and Nakuru. The deliveries are done in 4-5 ton Lorries and the maximum amount these lorries can carry is approximately 65 000 oranges, which is estimated to be around 6 tons. Oranges are packed and transported in 93kg bags, it is estimated that one lorry can carry between 60-65 bags. The table below indicates the average amount of oranges exported to Kenya on daily basis during the peak season.

<table>
<thead>
<tr>
<th>Town</th>
<th>Number of lorries</th>
<th>Oranges arriving</th>
<th>Number of bags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nairobi</td>
<td>3600</td>
<td>234,000,000</td>
<td>234,000</td>
</tr>
<tr>
<td>Mombasa</td>
<td>1080</td>
<td>70,200,000</td>
<td>72,000</td>
</tr>
<tr>
<td>Nakuru</td>
<td>1800</td>
<td>117,000,000</td>
<td>117,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6480</strong></td>
<td><strong>421,200,000</strong></td>
<td><strong>421,000</strong></td>
</tr>
</tbody>
</table>

Source: Dai Pesa Report 2003

Tanzania also imports citrus fruit from regional countries. Visits to supermarkets by the study team revealed that oranges and other citrus fruit form South Africa and Kenya are available in their shelves. The imported citruses are of different varieties from the ones grown in Tanzania. Compared to Tanzanian varieties, imported citruses are sold at much higher price than local fruit. However the imports are not large quantities and are essentially for up market clients. The formal retail channel which includes supermarkets has about two percent of the total market. It was not possible to get information about the amount of citruses the formal retail channel imports.

2.4.2 Domestic market

The economic growth in Tanzania in the last couple of years together with growth in the population and awareness of healthier eating is a reason for why the domestic market for citrus is growing and it is expected that the growth will continue.

During the study it was established that three different domestic market segments could be distinguished. The first and the one which is considered to be the largest market segment is the rural and urban household consumption purchased through informal markets. The second is the formal retail channel and institutional consumption. Oranges purchased through this channel (formal retailing outlets) have a very slight share of the market. The third one is the market for processed products such as juice, marmalade and other orange products. Since our focus is in the market of fresh citrus fruit, the processed products have not been analysed. But it suffices to put in record that processing of citrus is mainly done at domestic level and industrial processing is not yet mature. But also processed juices face stiff competition from cheaper and well packaged (tetra packs) imports. The market is full of fruit juices imports from Egypt, South Africa, and Kenya etc.
There are however, recent initiatives in Morogoro and Dar es Salaam to launch processing of concentrates for export market and juices for local market but yet operational. Reports are that Morogoro Plant by UNNAT Fruit Processors may become operational later in 2008.

Fresh rural consumption mainly consists of consumption by people who live in small towns and villages. Farmers own consumption consists of a very small part of the consumption and can be considered negligible. People in the villages usually buy oranges from neighbouring farmers, rural markets and rural street vendors. The consumption of oranges follows seasonality; most of it is consumed when there is a peak in production, abundant availability and low prices. In order to meet demand during this period in the different parts of the country, oranges are transported by traders between and among different regions.

Fresh urban consumption of oranges is mainly purchased through informal trading channels after being transported to urban areas from rural areas where the production is being done. Most of the oranges that are consumed in Tanzania are obviously consumed in urban areas. Most of the oranges are consumed as fruit. However, some of the fruit are also being processed in the different household into juices etc. Formal fresh citrus market channels (Kariakoo/Buguruni/Tandale and supermarkets) in urban areas are growing but deals only with a small percentage of the citrus sold in urban areas.

Institutional consumption includes governmental institutions such as defence force, hospitals, schools, tertiary education institutions, and restaurants and hotels. The institutional markets are a significant market. Most of the governmental institutions have some contracted suppliers for citrus who link directly with traders from the production areas. We have not come across farmer groups who have managed to secure a supply contract with any institutions, although negotiations were underway with farmers in Kilongo Village in Muheza to supply oranges to Azam Ltd in Dar es Salaam who a processing juices. As for restaurants and hotels few of them make use of contracted suppliers, but mostly they use several channels to purchase such as from the wholesale and retail markets. Some of the hotels (upmarket) indicated that they squeeze fresh juice on the premises, although there is some indication of the utilization of imported juice from South Africa and sourcing juice from small household level juice processors. Imported fruits is done mainly through the supermarket chains e.g. Shoprite.

2.4 Actors and functions in the fresh citrus sub sector

There are different actors performing various functions in the citrus sub sector. On its way from soil to plate, the citrus fruit passes through several actors. In this chapter the actors and their functions will be explained.

2.4.1 Input Supply

Young trees are used to replace old or trees with diseases or when there is need for expansion. Most trees are either grown by the farmers themselves or bought from local tree nurseries. Most of the local tree nurseries are owned by farmers and trading of young trees is done within farmers themselves. Earlier the government had nurseries where farmers could buy trees but these are not running anymore. The rootstock being used is Rough lemon which it is known to be robust and strong. Still the rootstock is susceptible for diseases as gummosis and rot diseases, Phytopthora sp. One of the problems regarding cultivation is the insecurity of getting the ordered cultivar. Many of the farmers indicated that this is a problem. Some farmers are in a position to bud their own trees, those not in that position usually order different trees in order to get some of the preferred trees. There is barely any significant sourcing of inputs like fertilisers, high breed seedlings. Occasionally, sourcing of pesticides takes place from local based input suppliers.
2.4.2 Production

Oranges is usually just one of the crops that small and medium farmers are growing. Intercropping with other fruits like bananas, mangoes, coconut and pineapples are common. Also vegetables like Paddy, Maize and cassava. While small-scale farmers have more intercropping and focus on input and labour on the crop which is most profitable, medium farmers seems to focus more on orange, which is a signal that orange production is profitable. Usually small-scale farmers are helped by their family on the farm and do only make use of labour in the harvest period, or at times the traders arrange to undertake harvesting at a cost. Medium farmers also use family but also hire labour throughout the year. The farmers usually men are assisted by their wives at the farm, but it is the men who are the decision makers on pricing, point of sale etc.

Generally oranges are produced organically in Tanzania, without any fertilizer, pesticide or weed killers. Fruit growing takes place under rain fed conditions and no evidence was found of oranges grown under irrigation. During the study it became clear that farmers also apply minimal crop husbandry practices as there is no spraying, pruning, or removal of surplus flowers. Where oranges are grown in monoculture, slashing of undergrowth and grass takes place once or twice a year. Where intercropping with cash crops occur, husbandry practices designed to improve production of the annuals also benefits the oranges.

In some areas farmers indicate that disease and pests pose a problem. Ants that damage the trees as well as gummosis and foot rot are cited as the most common problems. Anti infestations are mostly removed manually and diseased trees pruned or removed to prevent the spread of disease. Extension services focused on husbandry practices is for all intents and purposes non-existent. Seed certification and certified mother orchards are not in place and made known to farmers. Enterprise Works, a USAID program has tested a number of citrus varieties and started some mother orchards but these services are not reaching farmers. SUA too has been involved in this area.

Study by DAI Pesa in 2003 found out that within the orange business that medium to larger farmers are doing better than small farmers and areas close to main roads or close to markets help farmer’s willingness to expand. The larger farmers located in more central areas attracts buyers and get higher prices than other farmers. More and more farmers are growth minded and see opportunities. However, with a limited demand in the domestic market and other constraints, the growth has been confined.

There are often high entry barriers for the fruit market; this is also counts for the orange sector. High investments are needed for both starting and expanding a farm. It also takes five years before an orange tree gives fruits. Below are the investment costs of starting or expanding one acre of orange farm shown.

Table 5: Initial investment Costs in 1 acre orange farm (TShs)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost (TShs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land clearance</td>
<td>30 000</td>
</tr>
<tr>
<td>Uproot tree trunks</td>
<td>40 000</td>
</tr>
<tr>
<td>Digging (holes)</td>
<td>20 000</td>
</tr>
<tr>
<td>Seedlings</td>
<td>50 000</td>
</tr>
<tr>
<td>Planting (seedlings)</td>
<td>30 000</td>
</tr>
<tr>
<td>Weeding</td>
<td>40 000</td>
</tr>
<tr>
<td>Pruning</td>
<td>20 000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>230 000</strong></td>
</tr>
</tbody>
</table>

Source: Field data
These investment costs are one time investments and in the time before the trees gives fruit some income through intercropping is possible.

2.4.3 Brokage
Brokers in the orange market operate differently depending on the season. In the high season in Tanga region in particular, broker’s task is to be a middleman between orange producers and buyers from Kenya. Buyers from Kenya do not have the connections in the local market and they also require bulk loads between 4 -7 tons. In the low season brokers are employed by traders to bulk the orange supply before leaving to other areas with a demand for the citrus fruit. However, brokers do often make a margin on the oranges. This is due to a low communication between the traders and the orange producer which the broker takes advantage of. The broker communicates one price to the farmer and another to the buyer. In the low season when the price differences between regions are significant, brokers can have a very good margin on oranges. Sometimes the broker margin is avoided when traders from Kenya goes to orange districts and communicate a price to farmers, in this case the farmers supplies direct to the trader. During the study it was revealed in Kilongo Village, Muheza District that farmers have decided to organise themselves under a SACCO and they have agreed that all transactions with either brokers or traders would be done through the association and not with individual farmers. If this farmer organisation gets stronger, it is likely that better margins would remain with farmers and gradually they can assume the wholesale trading function.

2.4.4 Harvesting
To lengthen the storage time oranges are often purchased while still on the tree. On the tree most crops ripen slower than when harvested, this also counts for the orange. When it is time for harvesting contractors will be hired. Together with the farmer and his family the harvesters will harvest and pack baskets of oranges. There is a selection and counting of the oranges during the harvesting and packaging. After the harvesting the contractor are paid per orange. Sometime small farmers will harvest oranges before selling to a trader. This usually happens when the farmer sells oranges direct to the consumers or during the high season when several traders comes to buy oranges. In case of this situation the farmer harvest on his own or pay harvesters to do the job. The case of harvesting before selling happens very rarely and only once the farmer knows there is a market for oranges.

In cases where the farmer is in economical difficulties it happens that the oranges are sold before ripened or when the orange tree is blossoming. The farmer and trader decide a price on per orange basis per tree and the farmer is paid 25% of the price in advance. When the orange are harvested then the farmers receives the last payment for the oranges. This kind of transaction is not favourable for the farmers and is avoided as long as possible, selling before ripening means that farmers will lose almost 66% of normal price for oranges. Some small-scale farmers harvest their oranges themselves and take them to the local market where orange bulking is being done. Here they negotiate with traders about the price. This is mainly done in the high production season when farmers know there will be people to buy their oranges.

2.4.5 Collecting/Bulking
Bulking of oranges is mainly done by brokers and it takes place when the oranges are loaded on the truck. Some of the larger traders rent their own truck and are able to fill it up. Smaller traders usually by basket and put them on trucks. One truck can carry between 3 to 4 tons of oranges, depending on how willing truck drivers are to overload. The collecting and bulking are done while harvesting and the payment are done on the spot per orange.
2.4.6 Transport and Logistics
Transport is paid per truck or per basket. The rate for transport depends on the destination. Rates from Tanga Region (Muheza) to significant markets were indicated as follows during the study:

<table>
<thead>
<tr>
<th>Market</th>
<th>Distance</th>
<th>Price pr. Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dar es Salaam</td>
<td>276 kms</td>
<td>220 000-250 000</td>
</tr>
<tr>
<td>Nairobi</td>
<td>661 kms</td>
<td>520 000 – 550 000</td>
</tr>
</tbody>
</table>

The prices are changing throughout the season. The prices are determined by road conditions, especially during the rainy season, and also for the amount of time it takes to fill a lorry. It often takes longer time in low season than in the high season, but in the high season the condition of the roads may be worse with more difficulties for the trucks to get to local destination and therefore the price raises.

2.4.7 Wholesaling
Most of the citrus fruit traders buy directly from the villages and transport to the urban areas where they are sold at the wholesale markets. There are different mechanisms in the market but the two most common is firstly, traders delivering to the wholesale markets and then selling to different retailers. The other main mechanism is traders delivering directly to retailers who have made orders from different traders. A great part of sales seem to go through different markets places. There were no indications that farmers are selling directly to hotels, restaurants or other institutions in urban areas. At the wholesale markets in Dar es Salaam the main trading mechanisms is that traders sells to brokers who in turn find buyers for the crops. In these market place there are some wholesalers who are buying from the farmers through brokers. Some of them are selling to hotels, restaurant and other institutions while some are selling to retailers. Wholesalers are either selling to retail shops or to retailers holding stalls in the main markets.

2.4.8 Retailing
There are different forms for retailers. There are large urban supermarkets, smaller urban shops and vendors. Small shops and vendors can also be found in villages and rural places. Retailers mainly buy from wholesalers in the market. Some of the smaller vendors and retailers also buy from other retailers.

2.5 Profitability Analysis
The profitability in orange farming depends to a large extent on the number of oranges produced per ha and per tree and the price farmers receive for their crops. Based on conversation with farmers, simplified gross margins (SGM) have been calculated. These calculations provide a proxy indicator and may not always be correct and it is also difficult to know all costs and income. The calculations are also supported by earlier reports which are being reviewed in a desk study as part of the quick scan.

The best scenario mentioned by farmers is a production of 50 000 oranges per annum from one acre. The farmer mentioned three different prices (low, average and high) which they are able to get for their oranges in the market. The low price is 10 TShs pr. orange, average 20 TShs and high price is 28 TShs. The gross margin is 46% for low, 73% for average and 80.7% for the high price. These margins may be considered high, but this is a best case scenario with both high prices and high production, which is unlikely because in during most peak seasons prices decreases. However, the example can be used to show a scenario where farmers with good agriculture practices are able to produce high amount of oranges. As for the highest gross margins this shows what gross margin a farmers is able to get if production peak are outside the high season where the prices are higher.
Speaking to farmers they mentioned that 25,000 oranges per annum for one acre was a more likely scenario. With the same prices as before the new SGM are: -8% for low price, 46% average price and 61.4% for high prices. Important to notice here is that in an average production scenario with low price SGM for farmers are negative. This means that farmers are losing money when producing oranges. For the other price alternatives SGM has decreased but farmers are still making a profit on the production.

For the last scenario where the farmers in a bad year are only able to produce 10,000 oranges the results look different. Here it is only with a high price that farmers are able to make a small profit. The SGM are for this scenario -170% for low price, -70% for average price and for high price the SGM is 3.6%. From these numbers it is possible to see the necessity of a good husbandry and high productivity levels for farmers. In case of a situation where the farmers are not able to produce more than 10,000 oranges it is easy to see how farmers can come in a difficult situation. One should also take in caution that in this scenario there is often an external occurrence affecting the harvest e.g. drought and pest. In case of this occurrence more farmers are often affected this could increase prices. The wholesalers buying prices are the same as farmers selling prices. Wholesaler selling prices are collected at market places. For low price 30Tsh is being used, average 55Tsh and high price for an orange is set to 80Tsh. It is assumed that when buying prices from farmers are low the wholesale sales price is also low.

For the low price SGM for wholesalers are 46.7%, average price SGM is 52.7% and high price 57.5%. From the SGM it can be seen that a wholesaler is making a reasonable profit. If then an assumption about average buying price is made the SGM will look different. With an average price on 20 TShs per orange SGM is 20.7% low, 56.7% average and 70.2% high. With an average buying price there are more differences between the numbers, with the low price SGM has decreased and high price SGM has increased.

Kenyan traders buy at the same prices as Tanzanian traders, however in the prices are also included taxes and transport cost. The SGM to Kenya varies from 31% low sales price 30 TShs, 54% average sales price 45 TShs and 66% with a high sales price 60Tsh. It is assumed that buyers from Kenya purchases during the high production period in Tanzania and therefore the price is set to 10Tsh. A lorry from Kenya is often bigger and they are more willing to overload, therefore an average lorry carries about 65,000 oranges. Retailers at the market sell oranges for between 40 TShs and 100 TShs depending on seasonality and in supermarkets and urban shops oranges are sold for 300Tsh-400 TShs. Retailers who are not willing to share their direct costs and therefore the SGM will give a wrong picture, looking at the SGM for market retailers it will give reasonable overview because of low direct cost, except for the purchase costs. SGM for this group is 25% with low price, 26.7% average price and 20% high price. Though this picture is not exactly it can give some indication about the profit. One of the supermarkets is selling oranges form the northern corridor for 200Tsh per piece. With an average buying price on 55Tsh this gives a SGM on 72.5% which is higher than at market retailers. Supermarkets and urban retailers will have a higher SGM but also have higher indirect costs.
Table 7: Summary of Simplified Gross Margins in the citrus sub sector

<table>
<thead>
<tr>
<th>Farmers</th>
<th>Wholesalers</th>
<th>Wholesale average buying price</th>
<th>Wholesale Kenya</th>
<th>Marketplace retail</th>
<th>Supermarket 200 selling price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production /sales per year (pieces)</td>
<td>10 000</td>
<td>25 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
</tr>
<tr>
<td>Low price</td>
<td>-170%</td>
<td>-70%</td>
<td>3.5%</td>
<td>46.7%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Average price</td>
<td>-8%</td>
<td>46%</td>
<td>61.43%</td>
<td>52.7%</td>
<td>56.7%</td>
</tr>
<tr>
<td>High price</td>
<td>46%</td>
<td>73%</td>
<td>80.7%</td>
<td>57.5%</td>
<td>70.2%</td>
</tr>
</tbody>
</table>

The SGM indicates when there are high prices in the market and all participants are making profit. Also the SGM % shows that the profit and the actors in the chain are making money. In a good year, the farmer can have up to 80.7% SGM. However, for the farmers to reach 80.7% SGM many things should go well, both high prices and a good harvest. Mark place retailers have the lowest SGM for high market prices. With average market prices range most of the actors are also doing well. Farmers who have a poor harvest have a negative SGM with the average prices. Rest of the actors have a percentage more or less 50% with marketplace retailers as an exception.

2.6 The emerging supply chains in citrus sub sector

During the research period three significant market channels has been found. Two of the channels reaching the domestic market in Tanzania and one for the regional export market to Kenya. In the next section these channels are explained and will be shown in a sub sector map on figure 2 below.
2.6.1 On-farm (Smallholder) farmer channel
The on-farm smallholder farmer channel represents the smallest portion of the market and consists of smallholder farmers who sell directly to consumers. Farmers are often located near rural and urban markets, around roads and junctions, and places where a number of people move. The participants in this channel have vertically integrated the functions of harvesting, transporting, wholesaling and
retailing. Often this channel can employ the children of farmers or others who sell to rural consumers or others who take some oranges and sells directly from a car.

This is a small scale business for many and it does commands a small percentage of the total market. However, since many of the participants in this channel are doing most of the assignments themselves the profit for farmers in this channel is higher than the others.

2.6.2 Domestic market channel (high & low season)
The domestic market channel could be divided into ‘a’ and ‘b’. This is because of the different arrangements that are observed depending on orange seasons with high production period and a low production period. In the high season, channel 2a, handles abundant oranges in the market and traders are travelling to main production areas e.g. Tanga region and purchase oranges from farmers. The crop is then brought to different wholesale marketplaces and sold to different retailers, hotels, restaurants and institutions for consumption. Most of the farmers sell their oranges in the tree, after which the trader takes over and contract different actors for harvesting, counting and packing, bulking and transporting. When arriving at the market the oranges are bought by either retailers who have placed an order in advance or in bulk at the wholesale market. At the wholesale market, retailers are buying from wholesaler before selling to restaurants, hotels and institutions.

Another smaller channel is the formal retail channel which includes supermarkets. This channel has similarities to the domestic channel. Since, only small quantities pass through this channel it was not considered important enough to get is own channel. The farmers delivering to the supermarkets are on contract. This channel is maintained through out the year.

The second domestic channel (2b) takes care of the low production season, where the actors are the same but their assignments are different. The amount of oranges available in the market is low during this season and therefore brokers job are to track available oranges in different places and bulk these for transport. During this period brokers are important because they know farmers and areas, and the number of oranges available. They can fill a load of oranges faster and less expensive than a trader who does not have the same information would be able to. When the lorry is filled the broker contacts the trader and they handle the oranges form there. The broker often makes a margin between the farmer and trader. He/she communicates one price to the farmer and another to the trader. The broker charges a fee. After the trader has taken ownership over the oranges, process is the same as channel 2a.

2.6.3 Kenya channel
The third channel (Kenya channel), is the export channel. The only export of citrus fruit from Tanzania is to Kenya. This is quite significant channel in volume and destination as approximately 60% of the oranges from Tanga region goes to the Kenyan market. This channel is only active during the high production season when Kenya has a shortage of oranges and Tanzania a surplus. For oranges to be exported to Kenya, a Kenyan trader contacts a local broker from the area where the purchase of oranges is going to happen. Tanga supplies most of the oranges but also Morogoro and Coast regions. The broker then goes to the farmers to find the oranges and purchase these from farmers. After this the broker hands over the oranges to the Kenyan trader who arranges the transport to Kenya. Kenyan trader are protective for their own market and do not allow Tanzanian traders into it. Very few traders from Tanzania have successfully penetrated the Tanzanian market. Likewise, the brokers in Tanzania are protective of their market and they do not give market knowledge to traders from Kenya. The export market is also more complex with taxes, levies and border crossing regulations. When oranges cross the border to Kenya, the identity and traceability is generally lost. Tanzania orange business is not branded. It is worth noticing however, that oranges from Tanzanian are sold for lower prices than other
oranges that Kenya imports. Probably this relates to the varieties sold in Kenya from Tanzania, but also the lack of branding may contribute as well.

2.7 Support organisations
The citrus subsector is supported by a number of public and private organisations. Further development of the subsector can benefit from collaborative efforts among these support agencies. The regional and local government authorities provide regulatory, research as well as extension services. Muheza District Council for instance has been implementing citrus improvement program for a number of years whereby they are promoting improved varieties of seedling materials among other extension services. Agricultural Research Institutes (ARI) is also involved in research and dissemination activities. ARI Mlingano in Tanga though presently inactive for lack of funds has a special program for citrus production. Sokoine University of Agriculture is quite active in research and development work in citrus subsector. Various research projects have been carried out although dissemination of such findings is minimal. DAI Pesa a USAID funded project was operational in Tanga and Morogoro areas and citrus market linkages and farmer organisational strengthening was one of their focuses. This project has come to an end and the District Councils are expected to sustain the support activities. Agricultural Marketing System Development Program (AMSDP) is under being implemented in a number of districts in Tanzania where citrus are some of the sub sectors that benefit from program activities. Farmer’s lobby and advocacy organisation such as MVIWATA and TCCIA are also providing a voice for citrus farmers. In Tanga region TCCIA has organised citrus farmers into SACCOs and providing financial services. In terms of value addition, UNIDO and SIDO are supporting women groups involved in fruit drying and juice processing in Muheza District in Tanga region.

2.8 Major constraints and opportunities
The major constraints hindering growth and competitiveness of the citrus sub sector are summarised in table 8 below. In the same table opportunities have been identified which if taken up could be a stimulant for leverage interventions. The main categories of analysis include production and management, marketing, infrastructure & technology development, access to finance and social cultural.
<table>
<thead>
<tr>
<th>Constraints</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of specialisation on orange varieties by farmers in Tanzania, leads to mismatch with market demands and lower prices for oranges domestically and regionally.</td>
<td>Suitable growing conditions country wide offer possibility to grow oranges all year around.</td>
</tr>
<tr>
<td>Poor crop husbandry practises and limited extension services &amp; incidences of pests &amp; diseases leading to low yields and lower incomes for farmers.</td>
<td>Available training facilities exist to improve farmer’s husbandry practices.</td>
</tr>
<tr>
<td>Inadequate management skills in farmer associations lead to loss of advantages of economies of scale.</td>
<td>Possibility exists to grow more than one citrus crop in order to diversify markets.</td>
</tr>
<tr>
<td>Seasonal over production of oranges in Tanzania goes without value addition infrastructure</td>
<td>Regional and district council management who have identified the orange sub-sector as an important sub-sector for the development of MSEs within their region or district.</td>
</tr>
<tr>
<td>Production that is totally reliant on rainfall inhibits attainment of maximum productivity.</td>
<td>Proximity of Tanga region to several large markets as DSM, Arusha, Mombassa and Nairobi.</td>
</tr>
<tr>
<td>Lack of transparency in the market systems between traders and farmers limits win-win benefits</td>
<td>The upcoming Farmer associations stand a chance to create direct linkages with markets.</td>
</tr>
<tr>
<td>Farmers do not have enough market information which makes them unable to find markets without brokers.</td>
<td>Existence of support agencies ready to improve farmers marketing skills and make them more aware of market opportunities.</td>
</tr>
<tr>
<td>Associations are not strong enough to negotiate with own clients making them dependent on local brokers and traders.</td>
<td>Growing economy and population in other regional markets than Kenya could create an opportunity for export.</td>
</tr>
<tr>
<td>Oranges from other regional countries are better branded and get a higher price</td>
<td>Emergence of public-private sector initiatives in outgrower schemes (UNNAT Fruit Processing in Morogoro, Trans Zambezi Industries)</td>
</tr>
<tr>
<td>Poor quality fruit and cultivars that is not competitive on the international market limits access to other export markets</td>
<td>R&amp;D on Dried fruits is available</td>
</tr>
<tr>
<td>Limited understanding of Kenyan market dynamics creates dependency of trader’s terms</td>
<td>Model for Farmer associations linked with SACCOS has proven success in some areas.</td>
</tr>
<tr>
<td>Poor roads &amp; other infrastructure increases transaction costs of farmers and inaccessible during rainy season.</td>
<td>With good prices and good harvest citrus is a good business proposition for farmers.</td>
</tr>
<tr>
<td>Weak domestic demand for processed products and technology capacities which is regarded as an inhibiting factor for the growth of a dynamic citrus sub sector</td>
<td>Local authorities still has room to pass and enforce by laws for favourable business practices</td>
</tr>
<tr>
<td>Associations are not able to get loan through their SACCOS and can not avoid “desperate” farmers selling cheap citruses.</td>
<td>Contract farming modalities may instil long term business relationships</td>
</tr>
</tbody>
</table>
2.9 Summary of main findings (overview of the sub sector)

- Tanga region is the highest citrus growing region in Tanzania. The most common citrus fruit grown in Tanga is orange. The other citrus crops are grown in smaller quantities with just a few trees on the farm and are often left unattended.
- Citrus fruit are grown throughout the year but the main seasons are from July to August and from November to February.
- Both the regional and the domestic markets are growing. This is mainly due to growth in population, economically and healthier eating habits.
- The main export market for oranges from Tanzania is Kenya. Around 60% of oranges from Tanga region are exported to Kenya during the peak production period. During this time there is a shortage of oranges in the Kenyan market.
- Most oranges find its way to the market through traders. Many traders use brokers in the villages to find oranges, this is mainly in the low production period and for the Kenyan market. These brokers often make a small margin when dealing between farmers and traders.
- As long as there are average prices or an average harvest all actors in the sub-sector have a positive SGM, hence citrus is a potentially viable business.
- Poor farmers who are not organised and constantly in financial difficulties are more vulnerable to be exploited by brokers or traders and the price they receive for citrus fruits are very low.
- Opportunities for farmers to be organised into marketing/savings and credit associations would increase their bargaining power with other actors in the supply chain.

3.0 Citrus Sub Sector development strategies

To develop the citrus sub sector, stronger networks and relationships between farmers, brokers and traders are needed. For farmers to strengthen themselves it is important to improve the relationship among themselves. Farmer associations are already present, however many of these are still loose in their relationships. Improved management is needed together with basic training on modern business skills. This could strengthen farmers, their associations and make it possible for them to reach new markets. Closer relationships with wholesale traders, hotels, restaurants or other institutions could strengthen profit margins for farmers. The availability of long term relationships among chain actors could in a short run improve profit, for a medium perspective of time stronger relationships could improve and create markets in terms of new clients, branding and improved finance both for farmers and associations. For a longer term period ambition could be to also improve varieties and enter the Kenyan market in a more organised and direct manner.

In the long run we foresee stronger associations where trust between the farmers has been built managing to undertake joint investments with local authorities in improving basic local infrastructure. This can be irrigation, agricultural machines, but also market oriented facilities like shops for local products, access roads, nurseries and collection centre and cooling facilities.

Apart from market issues as mentioned above stronger farmer associations are also able to influence more with the district, region and state government. Farmers in several districts have joined TCCIA and others are members of MVIWATA. In the long run a professional management of a large and strong farmer association would be able to lobby and influence decision makers. This could help improving the infrastructure in the region e.g. roads, irrigation and other necessities.

The development of the citrus fruit sub sector also includes improved farmer agronomic practices. Farmers stated that only a minority of available citrus fruit is harvested, the majority is said to be small and traders will not buy these ones. Improving practices could mean realising higher quality oranges with a larger potential including higher price and possibilities for export. Other opportunities for farmers in to improve traceability, use of organic pesticides so as to access fair-trade and organic markets which
would bring more lucrative returns. This is crucial to be accompanied with adapting export varieties which are important for Tanzanian farmers if they want to export.

The other strategy to develop the sub-sector is to start diversify between more citrus crops. The main crop grown now is orange, however with several regional and domestic producers there is hard competition on the orange market. One strategy for development could be to focus more on the other citrus crops.

3.1 Identification of supply chain for further development

3.1.1 Contract farming arrangement with processors and institutional markets
As described above the importance of farmer associations with stronger relationships and networking is important. The supply chain which most likely could be improved in the short run is the domestic channel (2). This channel has an unmet market demand in urban areas both in the fresh market but also increasingly in supplying the upcoming processing facilities that are just recently been installed. As an instance, UNNAT Fruit Processors Ltd in Morogoro is in the final stages of commissioning 100 tons per day processing facility for oranges and pineapples. This factory has already earmarked all citrus growing areas with contract farming programs which are soon going to be started.

Organised farmers have an opportunity together to enter the urban wholesale markets without much reliance on brokers. The model developing for farmers in Kilongo village (Muheza district) is a good example to emulate. Cooperation to access common services, bulking and joint marketing would enable them to sell directly to urban markets.

Further strengthening of SACCOs is necessary in order to help farmers who are in need of financial support before their crop is sold. Direct orders should be solicited from urban traders in Dar es Salaam and Arusha. Also contract negotiations on deliveries to processors like UNNAT Ltd, Azam and Bakheresa are an option. Direct deliveries of fresh citrus fruit, to hotels, restaurants or institutions in urban areas is also an option for farmers from Tanga Region.

3.1.2 Supply chain development for regional market
Constraints for the farmers concerning the regional export market to Kenya are similar to the ones for the domestic market. To enter the export market the associations needs to be even stronger because of more difficulties reaching to Kenyan markets. The Kenyan traders are also very protective of their market which makes the entry barriers very high. However, with stronger farmer associations and forging closer relationship with selected Kenyan traders could help farmers to export without the interference of local brokers. This new way of working from transaction based relationship with Kenyan traders to more long term relationship would need facilitation.

The proposed supply chain development for Citrus -orange sub sector is mapped below:
3.3 **Recommended Way forward**

3.3.1 **Short term leverage interventions**
One of the most important short term interventions has to be in continuing to improve existing farmer associations. The capacity strengthening measures could consist of training and advisory packages. Farmers could be trained in farming as business with emphasis on marketing skills to improve their market linkages arrangements. Management is another issue for the associations and the association leadership should be trained to improve their management skills. Immediate training in good agronomic farmer practices including access to market oriented varieties and post harvesting handling is also recommended. SUA and other R & D institutions have developed packages for agronomic practices which require support for dissemination to farmers. Enterprise Works in Iringa has tested several varieties of citrus and all that is needed is to make the farmers aware and able to acquire such technologies.

The other immediate area of support in strengthening farmers association is in improving their access to financial services through strengthening their SACCOS capital base and systems and procedures to lend to its members. The experience gained in Muheza district is worth emulating.

3.3.2 **Medium Term leverage interventions**
- Expand and replicate successes from the short term interventions e.g. strengthening of farmer associations in new areas
- Strengthen market linkages between farmers and upcoming processors in Tanzania e.g. with UNNAT Processor Ltd who intent to access export markets.

3.3.3 **Long term leverage interventions**
For a long term perspective an intervention could be to expand commercialisation of citrus into modern medium to large scale farms in order to create a good base for export. This will include growing new
varieties, good husbandry practices, and instilling traceability regime that would allow access to fair trade and possibly organic markets.

Another burning issue is to facilitate branding initiatives of the citrus exported from Tanzania to the regional markets. With growth in market linkages with Kenya and other regional markets foreseen, there is a need to instil a regime to recognise the identity of Tanzanian citrus into the export markets.

3.4 Potential entry points for SCF support
- Matching grant to enable farmers association to acquire market linkage and managerial skills:
  Farmer associations who are willing to enter into long term market linkages for the local or regional market could access SCF matching grant to build their internal capacities and BDS needs of its members. Working with these issues could improve farmer's competitive advantage increasing their skills and make it possible for farmers to take a more active part in supply chain.

- Further market research on citrus products
  Research is required on market potential for other citrus crops than oranges. The market potential for other citrus fruit is not well documented and therefore more research in this field can be recommended. This can both be to explore the domestic market and regional market.

- Documentation on fruit and vegetables sector.
  Data on fruit and vegetables is outdated and no structured system is in place. Data from the Ministry is incomplete. The documentation on citrus fruit and fruit in general regarding production, sales, export etc is not good. SCF should support/lobby for better data management within the fruit & vegetables sub sector.

- Standards and certification and branding requirements
  Accessing regional and international markets require adherence to minimum standards. SCF could support developing a system for tracking and disseminating market requirements in terms of international standards and certification requirements.
References

DaiPesa (April 2003) Orange sub-sector Study; Report by Ebony Consulting International

DaiPesa (August 2004): The markets for oranges in Mombasa and Nairobi; Report by Consultant Benjamin Swai

Mbiha, Emmanuel and Maerere, Amon (December 2002) Problems and potentials for marketing of oranges produced in Muheza district; Report for Muheza District Council

Appendices

Appendix 1: List of people met

- DALDO and their teams in Muheza and Korogwe Districts (Mr. Materu (Korogwe Urban), Mr. Mbowe Korogwe, Mr. Mjema (Korogwe Rural), Ms. Nsia Nkya & Ms. Nahada Mbwana (Muheza)
- Focused group discussion with 20 members of Kifaa Association at Kilingo Village Muheza
- Mr. Ndibalema Kisheru - Regional Assistant Administrative Secretary (Economic Cluster) Tanga
- Regional Agriculture Advisor Tanga region
- Mr. Nisarg Thakore, UNNAT Fruit Processing Ltd, Morogoro