Value Chain Analysis: Tomato, Onion and Irish Potato in Jenda, Mzimba District, Malawi

MicroVentures Market Linkages Project
Prepared for the Microloan Foundation
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Acknowledgements

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Acronyms

ADD Agriculture Development Division
ASWAp Agriculture Sector Wide Approach
ATC Agricultural Trading Company
ATCC Agricultural Technology Clearing Committee
BIF Business Innovation Facility
CIP International Potato Centre
FAO Food and Agriculture Organisation
FICA Flemish International Cooperation Agency
FIDP Farm Income Diversification Programme
GAP Good Agricultural Practice
HODOM Horticulture Development Organisation of Malawi
MLF Microloan Foundation
MACE Malawi Agricultural Commodity Exchange
MoAFS Ministry of Agriculture and Food Security
MoIT Ministry of Industry and Trade
MRC Market Resources Centre
MSMEs Micro, Small and Medium Enterprises
NASFAM National Smallholder Farmers’ Association of Malawi
OPV Open Pollinated Varieties
OVOP One Village One Product
PHH Post Harvest Handling
PPP Public Private Partnership
UIL Universal Industries Limited
UNDP United Nations Development Programme
VCA Value Chain Analysis
Chapter 1: Introduction
Objective
The purpose of this report is to present a Value Chain Analysis (VCA) of three commodities, namely tomato, onion and Irish potato, in the Jenda area of Mzimba District. The VCA will inform the Microloan Foundation (MLF) MicroVentures Market Linkages Project.

A VCA is an integral element of designing the Project as it is necessary that the complexities of the individual target commodities are fully understood before any intervention is formulated.

MicroVentures Market Linkages
Microloan Foundation has been developing its MicroVentures Programme since 2007. MicroVentures aims to support the establishment of micro-business for female smallholder farmers through the delivery of appropriate business training and loans.

The programme has successfully improved yields and quality of produce but still faces challenges in the marketing of crops. The Market Linkages Project will tackle this challenge and MLF will link to the Flemish International Cooperation Agency’s (FICA) Sustainable Trade Project for additional support.

Sustainable Trade Project
FICA is providing financial support to projects that contribute to capacity building and sustainable market integration of smallholders and/or farmer groups in Malawi and Southern Africa.

The aim is for projects to develop a strategy for the sustainable marketing of viable products produced by smallholder groups. The marketing of the products can be aimed at the local, national, regional or international level.

Target Areas for Research
The MicroVentures Programme is focused on groups in Mzimba and Kasungu Districts in Malawi. To narrow the focus of this research and specifically inform the Market Linkages Project the trading centre of Jenda and its surrounding area is examined in detail.

Tomato, onion and Irish potato are the three commodities selected for VCA. They have been chosen because current production trends of groups under MicroVentures dictate that these are mainstay crops, important as both a domestic food source and a source of revenue.
Value Chain Analysis is an essential tool

Value Chain Analysis is a tool that examines the mechanisms and drivers which control the mode by which a product reaches its end market. It gives an understanding of how to improve the competitiveness of the chain whilst increasing participation in a manner that fairly distributes value down the chain.

A VCA is completed in three parts:

1. Supply Chain Analysis is an overview of all the players and linkages in the current chain. The chain comprises of different actors which may be integral players or peripheral service providers. The horizontal and vertical linkages between actors, the services they deliver, and the distribution of power are analysed.

2. End Market Analysis is critically important as the specifications of the market are one key factor affecting the total value of the chain; the competitiveness. Market analysis also gives an indication as to the possible scope of sector development.

3. Enabling Environment Analysis provides a context for the value chain, outlining external influences at all levels and linkages. A conducive enabling environment is often the catalyst for chain development. (Slide 34)

VCA examines the potential of a sector and identifies the constraints and the opportunities to realising this potential. By understanding both the internal and external systems by which the chain currently operates it can be modified to improve its competitiveness and participation; ultimately delivering an improved proportion of the value to smallholder producers.
Methodology must be specific to VCA

**Literature Review**
The examination of secondary data through a literature review is critical in order to focus the scope of the primary data collection and to learn lessons from existing research. The literature will review case studies of existing market linkages projects in Southern Africa, provide national level production statistics and examine academic research papers into production systems of the crops.

**Primary Data Collection**
Primary data aims to provide specific information pertaining to context of the research. It offers a different perspective, and validates, data collected in the literature review. In this study primary data will be collected that gives key information regarding the role of players in the value chain, gross profit margin data, and information on the value added distribution up the chain. Primary data is a vital complement to secondary information as it collects opinions and experiences of those directly involved in the value chains and those who interventions are likely to target or impact. Primary data collection will consist of, among other things, farmer focus group discussions and key stakeholder interviews.

**Farmer Focus Group Discussions (FGD)**
Gathering information directly from farmers, the targeted beneficiaries of the Market Linkages Project, is critical if the project is to be planned and implemented in an appropriate and effective manner. In terms of the VCA, information from farmers will be the salient feature of the production analysis and gives an opportunity for Cost of Production and Profit Margin analysis at the smallholder level (more details of calculation method on request).

**Key Stakeholder Interviews**
These will be held with the following organisations:
- NGO’s (operating in the targeted area)
- Government Officials
- Traders/Transporters
- Agro-Dealers
- Wholesalers/Retailers
- Processors

These interviews will inform the supply chain analysis and the end-market analysis. They will also gather a range of perspectives on the enabling environment constraints and the opportunities for raising the competitiveness and participation of the value chains.
Agriculture and the Malawian Economy
Agriculture is the backbone of both smallholder livelihoods and the national economy. It is estimated that the Malawian agricultural sector accounts for 40% of GDP and 80% of export earnings (ASWAP 2010). 85% of the national population are directly dependant on agriculture for food security and economic livelihood support (NSO 2009).

The agricultural sector is of high national importance, with the Malawi Growth and Development Strategy (MGDS) aiming to increase agricultural productivity and food varieties by:
(i) increasing value addition to agricultural products by smallholder farmers and orienting smallholder farmers to greater commercialisation, and
(ii) strengthening the linkages of farmers to markets.

The Agriculture Sector Wide Approach (ASWAp)
Tomato and onion are referred to in the ASWAp as an important source of nutrition as well as a contributing factor for improved smallholder incomes. In terms of production the main focus is upon improving efforts to raise productivity levels. Particular emphasis is placed on increasing the hectarage of these crops under irrigation.

Improving both the number and the quality of small-scale agro-processing units is a target of the ASWAp. For tomatoes this refers to the production of tomato paste. For Irish potatoes the priority is import substitution though developing potato crisps and similar products. Potato production is not seen as a key tool for improving smallholder incomes but is an important element of smallholder nutrition.

Trade Statistics

<table>
<thead>
<tr>
<th>Crop</th>
<th>Imports 2010</th>
<th>Exports 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MT</td>
<td>$</td>
</tr>
<tr>
<td>Tomato</td>
<td>18</td>
<td>16,000</td>
</tr>
<tr>
<td>Onion</td>
<td>61</td>
<td>43,000</td>
</tr>
<tr>
<td>Potato</td>
<td>42</td>
<td>24,000</td>
</tr>
</tbody>
</table>

Source: TradeMap (2011)
Large price fluctuations over the year

The supply of produce is the main factor influencing the prices obtainable for horticultural produce over the course of the year. Most horticultural crops are produced in two season; rain-fed and irrigated. The timings of these season depends on the geographical area but the average national pattern in shown in the diagram below.

Produce supply is lowest in the months of November to March when the majority of crop is in the field thus prices are highest. When crops have been harvested supply is abundant and prices fall; this tends to be over the winter months. It is imperative that farmers understand these fluctuations and target production to coincide with times of peak demand.

Source: FEWSNET 2011
### Household in Mzimba entrenched by poverty

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mzimba District</th>
<th>Kasungu District</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Density (person per sqkm)</td>
<td>25-50 persons/sqkm</td>
<td>50-100</td>
<td>NSO 2009</td>
</tr>
<tr>
<td>Number Smallholders Households</td>
<td>142,000</td>
<td>127,000</td>
<td>Agricultural Census 2008</td>
</tr>
<tr>
<td>% Male household head</td>
<td>74</td>
<td>91</td>
<td>FinScope 2009</td>
</tr>
<tr>
<td>Average plot size (ha)</td>
<td>0.28</td>
<td>0.31</td>
<td>Agricultural Census 2008</td>
</tr>
<tr>
<td>Literacy Rate (%)</td>
<td>50</td>
<td>63</td>
<td>FinScope 2009</td>
</tr>
<tr>
<td>Average monthly income MK1000-MK10,000 (%)</td>
<td>72</td>
<td>68</td>
<td>FinScope 2009</td>
</tr>
<tr>
<td>Firewood as main source of energy (%)</td>
<td>95</td>
<td>95</td>
<td>FinScope 2009</td>
</tr>
<tr>
<td>Not enough food to meet household needs (%)</td>
<td>65</td>
<td>84</td>
<td>FinScope 2010</td>
</tr>
<tr>
<td>Reason for food shortage</td>
<td>Lack of fertiliser</td>
<td>Lack of fertiliser</td>
<td>CRS 2010</td>
</tr>
<tr>
<td>% financially excluded</td>
<td>40</td>
<td>43</td>
<td>FinScope 2009</td>
</tr>
<tr>
<td>Most important crop for household security</td>
<td>Maize</td>
<td>Maize</td>
<td>CRS 2010</td>
</tr>
<tr>
<td>Cash crops</td>
<td>Soya, Groundnuts, Sunflower, Horticulture</td>
<td>Soya, Groundnuts, Sunflower, Horticulture</td>
<td>CRS 2010</td>
</tr>
<tr>
<td>% using improved variety</td>
<td>17</td>
<td>19</td>
<td>CRS 2010</td>
</tr>
<tr>
<td>Crop farming as main source of income (%)</td>
<td>89</td>
<td>76</td>
<td>FinScope 2009</td>
</tr>
<tr>
<td>Average cash income from crop farming</td>
<td>MK77,458</td>
<td>MK57,971</td>
<td>FinScope 2010</td>
</tr>
<tr>
<td>Received services from NGO (%)</td>
<td>13</td>
<td>36</td>
<td>CRS 2010</td>
</tr>
</tbody>
</table>

Source: Various Literature – see reference in table

Note: % refers to % of households indicating specified response
Chapter 2: Value Chain Analysis - Tomato
The strongest linkages in the tomato supply chain are those orientated around the trader system. Traders buy from smallholders and transport through several individuals until the produce is sold to the market. In extremely few cases do smallholders sell further up the chain than the primary/secondary trader level. The lack of supporting services to both smallholders and traders means that the efficiency of routes up the value chain and the flow of information down the chain is limited.
Supply Chain Analysis: Production

**Production**
The majority of tomato production is by smallholders with a few commercial producers nationwide. Ex Agris Africa are an example of a commercial producer.

There are very few official statistics of tomato production available but FAOSTAT quotes national production in 2009 to be 38,438mT from 4536ha at an average yield of 8.78 mT/ha.

Tomato production is reported to be a popular crop choice in the Jenda area. It is grown as a cash crop but can also support diets when necessary. Tomato is grown in a *dimba* (vegetable garden in wetland area in dry season). On average about 0.4ha is used to cultivate tomatoes. Farmers stated that if they could afford more inputs then the production area could be increased; land availability is not a constraint.

Results from the farmer FGDs revealed that tomatoes are grown in two growing seasons; one as a rain-fed crop and the other as a winter dimba crop. Each growing season lasts for around 8-12 weeks. Reported yields were 6mT per growing season from 1 acre of land.

Farmers stated that *Rodade* is the most common variety of tomato they grow. It is grown because it is easy to take care of, resistant to disease and produces good quality fruit.

MLF farmers use their loan money to purchase seeds and other inputs. They follow Good Agricultural Practice (GAP) to a moderate degree. Women are mainly responsible for tomato production but in some cases men take the produce to market. In other cases women accompany the men and help make marketing decisions.

Although some grading takes place it is to a limited extent. There is an understanding of two quality groups but there is no grading according to size, and tomatoes with imperfections are still included in the ‘good’ quality group.

Although farmers are organised into loan groups they still act as individuals, this is mainly due to their need for cash at different times. The market knowledge of the farmers is poor. Some understand that their produce is sold in Lilongwe but none understand the specifications and characteristics of the end market.
Input Supply
For high quality tomato production the use of commercial seed, enhanced nutrition and pesticides must be considered. These inputs can be sourced from local agro-dealers, bought from specialist shops and are also distributed by development organisations. The use of the inputs should be in accordance with the local environmental conditions and extension advice.

Nutrition
Under commercial production Super D Fertiliser is the recommended nutrition alongside organic strategies such as manure. It should be applied at transplanting with CAN applied as top dressing at later date. Many smallholders do not have access to fertilisers and thus apply organic materials only or rotate their crop with maize or legumes to take advantage of nitrogen remaining in the soil.

Disease/Pest Control
To treat late and early blight it is recommended that a mix of Copper Hydroxide and Diathane is sprayed on both sides of leaves on a weekly basis. For aphid control plants should be sprayed with Confidor or Methamidaphos. Disease and pest control can be largely influenced by GAP. Tomatoes are a member of the Solanaceae Family, and it is therefore very important to destroy any crop residues from other family members, such as potatoes or tobacco, before planting begins. Such practices as these are critical at smallholder level where access to chemicals may be restricted.

Seed
Open Pollinated Varieties (OPV) are less expensive than hybrid varieties and are thus more popular with smallholders. Many smallholders do not buy any seed but instead recycle local varieties. A recommended OPV is Rodade which yields large fruits and is resistant to Blight. A recommend hybrid is Marondera.

The source of the information is a best practice example from commercial farmer Ian Lockington.

<table>
<thead>
<tr>
<th>Input</th>
<th>Seed</th>
<th>Nutrition</th>
<th>Disease/Pest Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details</td>
<td>Tengero Rodade Marondera</td>
<td>Super D Fertiliser CAN</td>
<td>Copper hydroxide Dithane Confidor</td>
</tr>
<tr>
<td>Supplier</td>
<td>CropServe Panner Seed</td>
<td>Local agro-dealers (ATC) Farmers Organisation</td>
<td></td>
</tr>
</tbody>
</table>
There tends to be at least three levels of trading between production and the end-market in the tomato value chain. The levels of trading are determined by the geography of production and market, but also by cultural factors and access to resources.

The **primary level** of trading is between the rural farmer and the nearest trading centre (at times the end market). These traders are often residents of the village and are producers of the crop. Transport is of small, intermittent volumes, often carried by head or by bicycle.

The **secondary level** of trading is from the trading centre to the city. This is done by individuals from outside the area and with access to capital. These traders have the ability to transport produce via truck and thus deal in larger volumes of produce. By being able to travel to alternative buying areas they have a greater bargaining power than the primary trader and tend to dictate the buying price. Secondary traders deliver produce to a certain market in the designated city. These informal areas are particular to a type of produce and have be formed, and their status reinforced, over many years.

**Tertiary trading** takes place within the city. Having purchased from secondary traders, tertiary traders then transport the produce to the various processors or retailers in the city, or sell directly to buyers who come to the market place.

This three tier system of trading is very common in all areas of the country and across a range of products. There are three determinants for the trading system: **Geography** – the fragmentation of producers across large rural areas means that the most efficient way for produce to be bulked is via a network of small traders **Resources** – many traders do not have the capital or infrastructure available to them to complete longer journeys with produce **Culture** – there are strong informal systems in place that dictate the pattern of buying and selling. For example, a trader bringing produce to a market in Lilongwe is prevented by custom to sell directly to a buyer.

Although other trading structures are beginning to form, such as NASFAM and co-operatives, the majority of produce still reaches the market in the traditional manner of informal trading.
The main tomato markets are supermarkets, hotels/lodges, restaurants and personal consumers. The only tomato processing is by Mulanje Foods in the Southern Region. A comparison of four key tomato consumers is shown in the table below to give an outline of the characteristics of the market. Tomato imports are low and tend to be specialist varieties such as baby tomatoes. The market does not have concerns over the varieties of tomatoes produced in Malawi. Max/min prices are determined by seasonal supply patterns with a higher prices paid for improved quality.

<table>
<thead>
<tr>
<th></th>
<th>PTC/Metro</th>
<th>Foodworths</th>
<th>Sunbird</th>
<th>Le Dolce Vita Restaurant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases per week</td>
<td>500kg</td>
<td>250kg</td>
<td>100kg per hotel (varies according custom)</td>
<td>50kg</td>
</tr>
<tr>
<td>(average)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max/min price per kg</td>
<td>MK165/MK100</td>
<td>MK200/MK170</td>
<td>MK200/MK100</td>
<td>MK165 average</td>
</tr>
<tr>
<td>Supplier</td>
<td>Traders – they come to an on-site buying unit in each city, produce then distributed nationwide</td>
<td>Own vegetable garden (minor) and single direct supply from a farmer</td>
<td>Have 3 month contracts with ‘preferred suppliers’</td>
<td>Staff member travels to the market to buy vegetables</td>
</tr>
<tr>
<td>Grading</td>
<td>Weak grading system undertaken themselves</td>
<td>Completed by farmer to a high standard</td>
<td>Expected to be done by suppliers</td>
<td>Whatever is available at the market</td>
</tr>
<tr>
<td>Packaging</td>
<td>Done themselves but would prefer done by seller (if price right)</td>
<td>Self package and are happy with this system</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Critical factors</td>
<td>Quality of produce</td>
<td>Quality of produce</td>
<td>Consistent delivery, price</td>
<td>Price</td>
</tr>
<tr>
<td>Interest in ‘ethical branding’</td>
<td>Have ‘Best Buy Malawi’ campaign but feel price is ultimate factor for the majority</td>
<td>Feel their customers expect quality, source is less important</td>
<td>Do not think there is consumer demand for this</td>
<td>Very interested but depends of affordability. Prefer to buy from women and organic</td>
</tr>
<tr>
<td>Interest in MLF project</td>
<td>Yes but stresses the need for farmer management or marketing arm</td>
<td>Not for tomatoes - they are happy with their supplier</td>
<td>MLF can bid to be a ‘preferred supplier’</td>
<td>Yes, has bought from permaculture centre previously</td>
</tr>
</tbody>
</table>
### Profit Margin Analysis

Smallholders receive the lowest profit margins in the value chain. This is due to high production costs, augmented by high input costs, poor yields, post harvest losses, and a lack of economies of scale. The fragmented nature of production and poor organisation at the farmer level means that bargaining power is reduced and primary traders are able to successfully purchase at lower prices. Primary traders have low overhead costs and thus make substantial profit. Secondary and tertiary traders suffer higher overhead costs and greater competition and consequently see lower profits. Retailers, especially at the higher end of the market, grade produce to receive optimum prices and improve their profit margins significantly.

<table>
<thead>
<tr>
<th>Costs</th>
<th>Smallholder</th>
<th>Primary Trader</th>
<th>Secondary Trader</th>
<th>Tertiary Trader</th>
<th>Processor/Retailer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seed 0.2MK</td>
<td>Raw material 65MK</td>
<td>Raw material 120MK</td>
<td>Raw material 130MK</td>
<td>Raw material 165MK</td>
</tr>
<tr>
<td></td>
<td>Fertiliser 6.4MK</td>
<td>Packaging 5MK</td>
<td>Packing 2MK</td>
<td></td>
<td>Packing 5MK</td>
</tr>
<tr>
<td></td>
<td>Pesticide 2.8MK</td>
<td>Transport 2.5MK</td>
<td>Loading 4MK</td>
<td></td>
<td>Storage 3MK</td>
</tr>
<tr>
<td></td>
<td>Labour 4.7MK</td>
<td>Transport 2.5MK</td>
<td>Transport 16MK</td>
<td></td>
<td>Transport 2MK</td>
</tr>
<tr>
<td></td>
<td>Transport 2.5MK</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.7MK</td>
<td>72.5MK</td>
<td>142MK</td>
<td>130MK</td>
<td>175MK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Selling Price</th>
<th>Smallholder</th>
<th>Primary Trader</th>
<th>Secondary Trader</th>
<th>Tertiary Trader</th>
<th>Processor/Retailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>40MK</td>
<td>120MK</td>
<td>167MK</td>
<td>165MK</td>
<td>220MK</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profit</th>
<th>Smallholder</th>
<th>Primary Trader</th>
<th>Secondary Trader</th>
<th>Tertiary Trader</th>
<th>Processor/Retailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.7MK</td>
<td>47.5MK</td>
<td>25MK</td>
<td>35MK</td>
<td>45MK</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 3: Value Chain Analysis - Onion
The onion value chain is very similar to the tomato chain. Weak support services at lower levels of the chain impede the competitiveness of the chain and thus lead to high import levels. Informal trading dominates the chain, acting at the salient link between production and the market. Alongside supermarkets, hotels and restaurants, the chilli processor, Nali, is also a large purchaser of onions (in the Southern Region).
Supply Chain Analysis: Production

Production
Both purple and white onions are grown nationwide in Malawi. They are a popular food crop and are a common ingredient in the local ‘relish’. In 2009, nationwide production stood at 48,576mT from 2304ha, giving a yield of 21mT per ha (FAOSTAT 2011). There are numerous ‘hotspots’ of onion production, one of which is the Jenda area. In Jenda most farmers perceive that there is a market for purple skinned (Red Creole) onions and thus these are the predominant variety grown.

On average a smaller proportion of land is dedicated to the production of onions than other horticultural products; around 0.5 acres. The reason given for this is the feeling that the onion market in Jenda is swamped. Farmers also reported theft on onions from the field and thus production is lowered to reduce the risk of this.

MLF farmers reported yields of 3mT per 0.5 acre per growing season, this translates to 30mT per ha per year. Onions are a food and cash crop but domestic consumption is usually restricted to damaged or low quality produce.

Onions are produced in two growing seasons over the course of the year. The first season is rain-fed; October-January. The second season is irrigated, from January-April. Onions are produced almost entirely by females of the household. The length of the growing season is critical to ensuring the complete growth of the onion. Some farmers recognise this and do not harvest the onion early but wait until the full growth cycle is completed; four – five months.

There were few reports of loss of produce due to disease or pests. Farmers graded produce according to size and quality. There was an understanding that bruised onions can degraded high quality onions and thus they were stored separately.

With high yields and good post-harvest handling the main challenge faced by onion producers is the chosen variety and the over supply to the market. In Jenda onion prices are as low as MK17 per kg. Famers knew that traders coming to Jenda were from Lilongwe, Mzuzu and Kasungu but there was no knowledge of the value chain beyond this point. It is clear that the lack of market information reaching the farmer level is having a negative impact on critical production decisions.
Supply Chain Analysis: Input Supply

**Input Supply**
Onion production requires less inputs than other horticultural crops but yields can be impacted by adherence to GAP. Key factors of GAP

- **Adequate spacing between lines to ensure good growth** – 10 to 15cm
- **Maintain soil moisture to a depth of 15cm**
- **Crop should be in the ground for four-five months to complete growth cycle**
- **When appropriate size reached, cease irrigation and allow onion to dry in the field for ten days before lifting.**

**Seed**
The *Red Creole* onion variety is popular in rural areas and with individual consumers purchasing onions at the market place. Analysis of the retail and hospitality market however reveals that there is a large and growing demand for *Texas Grano* white onions. These are currently imported from South Africa but the seed is available from Crop Serve or Panner Seed. Hybrid varieties are available but tend to be very expensive and thus inaccessible to smallholder, and even commercial farmers.

**Nutrition**
Basal fertiliser is recommended to be Super D Compound with CAN be used as a top dressing 2-3 weeks after top dressing.

**Disease/Pest Control**
Onions do not tend to suffer from fungal diseases. In terms of soil pests Confidor or Karate, or a combination of the two, should be applied where and when necessary.

**Red Creole**

**Texas Grano**

*Source: Information of this slide is from commercial farm Ian Lockington*
Supply Chain Analysis: Trading

The trading of onions follows the same three-tier system as outlined earlier for tomatoes. Onions are a more robust crop than tomatoes and therefore tend to be bulked in larger quantities; often 75kg sacks.

Traders, at the secondary level in particular, not only have to foot the raw produce costs but must have enough capital available to cover labour, packaging and transportation charges. A costing of the trading activities undertaken at the ‘secondary’ level is shown below.

<table>
<thead>
<tr>
<th>Secondary Trader: Jenda to Lilongwe</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost</strong></td>
<td><strong>MK per kg</strong></td>
</tr>
<tr>
<td>Raw Produce</td>
<td>15</td>
</tr>
<tr>
<td>Packing Labour</td>
<td>2</td>
</tr>
<tr>
<td>Loading Labour</td>
<td>1</td>
</tr>
<tr>
<td>Off-Loading Labour</td>
<td>0.2</td>
</tr>
<tr>
<td>Transport Charge</td>
<td>4.3</td>
</tr>
<tr>
<td>Packing Material</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Total Cost per kg</strong></td>
<td><strong>24.2</strong></td>
</tr>
<tr>
<td><strong>Selling Price per kg</strong></td>
<td><strong>33.3</strong></td>
</tr>
<tr>
<td><strong>Profit per kg</strong></td>
<td><strong>9.13</strong></td>
</tr>
</tbody>
</table>

Source: Google Images
End Market Analysis: Retail

Most consumers use locally sourced onions although many supermarkets import the *Texas Grano* variety. There is no processing of onions in Malawi but Nali Industries use onions in their chilli sauce. The price of onions tends to be stable over the year. The table below outlines the characteristics of four major onion consumers.

<table>
<thead>
<tr>
<th></th>
<th>Shoprite</th>
<th>Foodworths</th>
<th>Nali</th>
<th>Ulendo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purchases per week</strong></td>
<td>Not available</td>
<td>350kg</td>
<td>500kg</td>
<td>12kg</td>
</tr>
<tr>
<td><strong>(average)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average price per kg</strong></td>
<td>Not available</td>
<td>MK185 (not including transport)</td>
<td>MK150 average</td>
<td>MK419</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Supplier</strong></td>
<td>Imported from SA</td>
<td>Imported from SA (<em>Texas Grano</em>)</td>
<td>Send buyers to the local market to purchase</td>
<td>Foodworths</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grading</strong></td>
<td>Done by supplier</td>
<td>Done by supplier</td>
<td>Buyers buy only large onions</td>
<td>Expected to be done by supermarket</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Packaging</strong></td>
<td>Self-packaged when necessary</td>
<td>Self-packaged when necessary</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Critical factors</strong></td>
<td>Quality and shelf-life</td>
<td>Quality and variety</td>
<td>Size</td>
<td>Convenience and quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interest in ‘ethical branding’</strong></td>
<td>Some consumers may be interested but not the majority</td>
<td>Feel their customers expect quality, at this stage source is less important</td>
<td>Yes, especially in terms of exporting their products</td>
<td>Do not feel there is a market for this</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interest in MLF project</strong></td>
<td>Would prefer to source locally than import</td>
<td>Yes, if they can reach the same standard and variety as current imports</td>
<td>Happy to buy from MLF groups but fear transport constraints, factory located in Limbe</td>
<td>Will only buy if convenient and correct quality</td>
</tr>
</tbody>
</table>
Profit Margin Analysis

The disparity in profit margins throughout the onion value chain is large. Farmers receive a profit of MK9.2 per kg and Retailers MK130 per kg. The main reason for this trend is the low selling price of onions in Jenda due to over supply of Red Creole onions in contrast to the high selling prices the supermarkets set to be comparable with the price of imported Texas Grano onions. Profit margins are high at the secondary and tertiary trading levels with selling prices increasing accordingly. It is possible that an increased number of onion traders are completing value addition activities, such as varietal selection, grading and bulking, in order to justify the higher selling prices of onions.

<table>
<thead>
<tr>
<th>Per Kg</th>
<th>Smallholder</th>
<th>Primary Trader</th>
<th>Secondary Trader</th>
<th>Tertiary Trader</th>
<th>Processor/Retailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>Seed 0.7MK</td>
<td>Raw material 15MK</td>
<td>Raw material 15MK</td>
<td>Raw material 80MK</td>
<td>Raw material 120MK</td>
</tr>
<tr>
<td></td>
<td>Fertiliser 4.9MK</td>
<td>Raw material 15MK</td>
<td>Packing 2MK</td>
<td>Packing 5MK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pesticide 0.5MK</td>
<td>Packaging 3MK</td>
<td>Loading 1MK</td>
<td>Storage 3MK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labour 1.1MK</td>
<td>Transport 12MK</td>
<td>Transport 2MK</td>
<td>Transport 2MK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transport 2MK</td>
<td>9.2MK</td>
<td>18MK</td>
<td>80MK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.2MK</td>
<td>18MK</td>
<td>30MK</td>
<td>80MK</td>
<td></td>
</tr>
<tr>
<td>Selling Price</td>
<td>15MK</td>
<td>20MK</td>
<td>60MK</td>
<td>120MK</td>
<td></td>
</tr>
<tr>
<td>Profit</td>
<td>5.8MK</td>
<td>2MK</td>
<td>30MK</td>
<td>40MK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2MK</td>
<td>30MK</td>
<td>40MK</td>
<td>25MK</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 4: Value Chain Analysis - Potato
Although many support services to the potato value chain are weak there is a strong research service provided by the International Potato Centre. The potato chip processor Universal Industries Limited (UIL) dominates the market and is one of the few large scale buyers that does not rely on imports. UIL wish to prioritise purchasing directly from smallholders through contract farming and thus offer an opportunity to strengthen the participation of farmers at higher levels of the value chain.
Supply Chain Analysis: Production

Production
Irish potato (‘potato’) is the fourth major food crop in Malawi after maize, cassava, and sweet potato. From 1990 to 2008 potato production increased from 34,000mT to 673,000mT. The NSO 2010 crop estimates of national smallholder production are 775,000mT from 48,700ha. Mzuzu ADD accounts for only 23% of total potato production with Lilongwe ADD, containing the high production areas of Dedza and Ntcheu, producing over 60% of total production.

Average yields in Malawi should be around 8-15mT per ha. MLF farmers report yields of around 7.5mT per ha but smallholders supported by a Concern Universal project were able to get between 4 and 14mt/ha and Universal Industries, a commercial producer, obtain yields of 31mT/ha.

The main reason for the variability in yields seen is the plant material available and strategies employed to combat disease infestation. Improved seed for emerging varieties is not yet available in Malawi. It is in the process of being approved by the Malawi Agricultural Technology Clearing Committee.

Potato is grown as a rain-fed crop but also as a winter dimba crop. MLF farmers stated they used 1 acre or less on which to produce potatoes over two or three production cycles in the year.

Interviews with farmers revealed Potato is not ranked as a priority crop in Mzimba District. Although it can be used as a food, farmers reported only using about 5% of total production for food needs. Potatoes consumed tended to be those rejected during grading due to poor quality. Potato is also not overly popular as a cash crop because Jenda, and Mzimba as a whole, is not an area of high quality potato production; it therefore struggles to compete with areas such at Dedza and Ntcheu.

 Farmers in Jenda do not have a real understanding of the market and are not aware of buyers such as Universal Industries. There is an understanding of price fluctuations in line with supply and demand but no real effort to take advantage of this dynamic. Farmers grade according to size and quality but have very poor storage facilities and aim for a quick sale. Households growing potatoes act on an individual basis with no direct targeting of the market as an informal or formal group.

Source: Information of this slide taken from Demo. P et al. 2007 and 2009
Supply Chain Analysis: Input Supply

**Input Supply**
Input supply, alongside GAP, both before planting, during production, and post-harvest is the most critical factor in potato production. There have been a few initiatives focusing on potato production in the Central Region but very few in the Northern Region. Farmers in Mzimba District are reliant on traditional knowledge and fragmented advice from Government extension workers. Any inputs used are sourced from local dealers such as Agricultural Trading Company or brought to the area by informal vendors.

**Seed**
Farmers have very little knowledge of varieties of potato. They tend to name the seed they use according to the area it comes from. Farmers in Jenda most commonly use a red skinned variety from Dedza or recycle their seed. Universal Industries (UIL), in coordination with the International Potato Centre, is attempting to coordinate the introduction of new varieties into Malawi that suit their production needs. The desired variety that is currently available is Lady Rosetta and this has been multiplied and distributed by UIL.

**Disease/Pest Control**
Disease and pest control can be mitigated through the use of high-quality plant material and by ensuring soils are clean before planting. Aside from these factors, the use of inputs is an essential tool; see table below.

<table>
<thead>
<tr>
<th>Disease/Pest</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nematodes</td>
<td>Nemacur</td>
</tr>
<tr>
<td>Blight</td>
<td>Dithane</td>
</tr>
<tr>
<td>Bacterial Wilt</td>
<td>Dithane</td>
</tr>
<tr>
<td>Aphids</td>
<td>Karate/Confidor</td>
</tr>
</tbody>
</table>

**Nutrition**
Nutrition is essential to boost yields. It is recommended that smallholders use organic fertilisers such as manure and compost. Commercial potato production makes use of inorganic fertilisers. Best practice is the application of DAP as a basal fertiliser followed by applications of CAN and MOP.

*Source: Information on this slide from Universal Industries*
Supply Chain Analysis: Trading

The Jenda Supply Chain
As Jenda cannot compete with other key production areas, both in terms of price and quality, this research found that only on a few occasions did the potato supply chain reach further than the Jenda Trading Centre. Potatoes produced in rural Mzimba District reach Mzuzu or other larger trading centres, such as Jenda, via Primary Traders. Here they were often sold on the market for relatively good prices. The potatoes are then used locally as a domestic food source, often for potato chips.

The National Supply Chain
When potatoes are traded from high production areas such as Dedza and Ntcheu they follow the two/three tier trading system to reach market. The market for these potatoes are consumers in Lilongwe, Blantyre, and Mzuzu as well as other trading centres nationwide where potato production is low. Potatoes are a robust commodity but can degrade if stored incorrectly and their weight requires more resources to transport. Traders of potatoes often specialise in this as opposed to other horticultural traders who may deal in many crops. It is thought that potato traders undertake a degree of grading before supplying to the market.

The Universal Industries Supply Chain
Universal Industries (UIL) are the only commercial processor of potatoes in Malawi. The preference of UIL is to buy directly from smallholders. To work with smallholders UIL requires that they are organised into a formal group and have experience in producing potatoes. UIL give farmers a detailed specification of the produce they require and pay a price of MK90-95 per kg accordingly. Currently smallholders can only supply Universal with a small amount of their 100mT per month demand. The remaining produce is sourced from traders in high production areas.

When UIL buy from traders the flow of market information becomes fragmented and thus they are forced to purchase potatoes that do not meet their quality demands. Traders seemingly do not have the capacity to act as an efficient link between the market and producers in situations that require more than simply transferring volumes of produce. UIL pay traders around MK34-40 per kg for potatoes and buy using their own staff members. When dealing with smallholders UIL foot half of the transport cost. In this way the smallholder begin to move up the value chain in greater co-ordination with the market.
End Market Analysis: Retail

The only processor of potatoes is Universal Industries located in the Southern Region. Most potatoes found in supermarkets are imported however there is a large demand for local potatoes by restaurants. A comparison of three major potato purchasers is outlines in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Universal Industries (UIL)</th>
<th>Foodworths</th>
<th>PTC/Metro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases per week</td>
<td>Current: 10mT</td>
<td>660kg</td>
<td>1-2mT</td>
</tr>
<tr>
<td>(average)</td>
<td>Projected: 25mT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average price per kg</td>
<td>Meeting specification: MK95</td>
<td>MK168 (not including transport)</td>
<td>MK100-MK120</td>
</tr>
<tr>
<td></td>
<td>Not meeting specification: MK40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier</td>
<td>Smallholder groups (often NGO supported) and</td>
<td>Imported from SA, white medium/large variety</td>
<td>Traders – they come to a on-site buying unit in each city, produce is then distributed nationwide. Majority of potato traders come from Ntcheu</td>
</tr>
<tr>
<td></td>
<td>traders. UIL go to location to buy. Smallholder</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>groups are located in Dedza and Ntcheu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grading</td>
<td>Specification distributed and farmers expected</td>
<td>Expected to be done by supplier</td>
<td>Weak grading system undertaken themselves on-site</td>
</tr>
<tr>
<td></td>
<td>to grade. UIL also graded further on-site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>N/A process into potato chips</td>
<td>Self-package if necessary</td>
<td>Done themselves but would prefer done by seller (if price right)</td>
</tr>
<tr>
<td>Critical factors</td>
<td>Variety, quality, timing of delivery</td>
<td>Variety, quality</td>
<td>Quality of produce</td>
</tr>
<tr>
<td>Interest in ‘ethical</td>
<td>Not relevant for potato crisp consumers</td>
<td>Feel their customers expect quality, at this stage source is less important</td>
<td>Have ‘Best Buy Malawi’ campaign but feel price is ultimate factor for the majority</td>
</tr>
<tr>
<td>branding’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest in MLF</td>
<td>Yes, but concerned about transport costs</td>
<td>Yes, but only if the variety and the quality is appropriate</td>
<td>Yes but stresses the need for farmer management or marketing arm such as NASFAM has</td>
</tr>
<tr>
<td>project</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Smallholder: Profit Margin Analysis

Universal Industries Ltd in co-ordination with Concern Universal and the International Potato Centre formed a Public Private Partnership to improve market linkages for Irish Potatoes (see Slide 42). The impact on various groups of smallholders involved in the project are shown below alongside the current profit margins for Jenda farmers. The project involved delivering improved input supply and extension services to smallholders as well as a guaranteed market and prices, according to specification, for product. Seasonal profits varied dramatically due to climatic trends, input utilisation and the susceptibility of the crop to Bacterial Wilt and other pests/diseases. Group 1 invested heavily in inputs and with GAP achieved substantial yields. Group 2 suffered from disease losses but made good profits overall. Group 3 did not use high quality plant material and thus suffered from low yields. Farmers in Jenda are currently investing in potato production but it is clear a lack of extension, appropriate inputs and plant material are constraining yields. This, in combination with low local demand, is significantly reducing the viability of the crop in Jenda.

<table>
<thead>
<tr>
<th>Producer</th>
<th>UIL Group 1</th>
<th>UIL Group 2</th>
<th>UIL Group 3</th>
<th>Jenda Farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>0.18ha</td>
<td>0.19ha</td>
<td>0.16ha</td>
<td>0.4ha</td>
</tr>
<tr>
<td>Yield</td>
<td>14.3mT/ha</td>
<td>8.2mT/ha</td>
<td>4.4mT/ha</td>
<td>2.5mT/ha</td>
</tr>
<tr>
<td>Total Costs</td>
<td>MK41,513</td>
<td>MK37,795</td>
<td>MK18,983</td>
<td>MK41,367</td>
</tr>
<tr>
<td>Gross Income</td>
<td>MK108,816</td>
<td>MK70,512</td>
<td>MK31,429</td>
<td>MK47,700</td>
</tr>
<tr>
<td>Season Profit</td>
<td>MK67,303</td>
<td>MK32,717</td>
<td>MK12,446</td>
<td>MK6,333</td>
</tr>
</tbody>
</table>

Chapter 5: Value Chain Framework Analysis
Enabling Environment

The tomato, onion and Irish potato value chains are domestic and are dominated by informal processes. Due to this enabling environment constraints such as export restrictions, tax and minimum pricing policy do not really come into play. Nevertheless, there are number of factors at the production and trading level that have large impacts.

**Access to Finance**
The lack of formal financial services constrains players across the value chain. Where microfinance is available the impact upon production is clear. Financial products for farmers and for MSME’s such as traders are critical if the chain is to become more competitive and efficient. Finance is critical to facilitate economies of scale and to improve the quality of goods. The lack of accessible finance at the manufacturing level of the chain prevents investment in value addition activities. Although informal finance is often available this is high risk and often leads to debt problems. The type of financial products and their geographical reach are both factors to be addressed.

**Cultural Factors**
The impact of underlying cultural forces is an influence in the value chain that is often underestimated. Cultural forces impact on power ratios, choices made by players, and the flow of goods and services through the chain. In this way they can have a negative, or positive, pressure of the feasibility and success of value chain upgrading, and thus must be incorporated into any intervention. Informal traders are a dominant force in the value chain and exert a strong influence of producers and smaller traders. The power ratios of informal traders can have a negative impact on the value chain by enforcing detrimental informal regulations. An example of these include the prevention of producers or primary traders selling directly to retailers. Despite the negative aspects to the trading system, it is one of the strongest example of horizontal linkages in the value chain and is an key position to help strengthen vertical linkages. As long as an appropriate approach is employed when dealing with the cultural context, it is suggested that it can be a key mechanism to upgrade the value chain.

**Access to Information**
Access to information regarding the characteristics of the end-market is a key missing link in the value chain. Many farmers are not aware of the end market let alone what the specifications of produce may be. If the chain is to prove competitive the effective flow of information must be enabled.
Enabling Environment

**Government Policy**
There is currently a lack of government policy on horticultural production. There is the *Malawi Agricultural Technology Clearing Committee* which approves the release of new varieties. Developing and releasing new varieties can be a lengthy process and this has limited the competitiveness of the potato value chain to date.

Government monitoring of horticultural production is poor. This prevents harvest forecasting and planning for the sector. There is no effort as yet to generate standards or regulations for the horticultural sector and thus quality control is loose. Government extension workers, through the MoAFS, have some training in horticultural production but this tends to be constrained to traditional crops. The lack of resources available to the extension department limited both the quality and coverage of extension services.

**Dialogue**
There is no national level association for horticultural products to promote dialogue between actors. There used to be a Horticulture Development Organisation of Malawi (HODOM) but this has ceased to function.

A lack of dialogue prevents a sector strategy being formulated; it widens the gap between production and market levels of the value chain. The main reason that HODOM closed was the discontinuation of donor funding. As with many initiatives, insufficient capacity building of local stakeholders was completed to ensure the long term operation of the project.

**Transport Services**
There is very little export of horticultural produce from Malawi. The main factor behind this is slow and expensive transport routes that constrain the capability to deliver fresh and high quality produce.

The nature of transport services at the domestic level also has an impact on the value chain. In the same way as the trading system, transport tends to be fragmented and dominated by informal, small-scale players. These characteristics prevent efficient bulking and larger deliveries of goods to the market. Transport services are limiting in terms of their cost effectiveness but they also negatively impact on the quality, and hence end value, of produce. Quality of produce is lowered due to poor packing and protection meaning high rates of damage occur.
Vertical Linkages

**Vertical Linkages** are defined as the links between actors at different levels of the value chain, for example between the producer and the trader.

There are clear vertical linkages in the value chains in terms of buying and selling relationships and the role that each actor plays. However, these links are purely market interactions and when considering non-market interactions vertical linkages are extremely weak in all three of the chains.

Non-market vertical linkages are the flow of information and services between different levels of the value chain and are crucial to improving the efficiency and competitiveness of the chain.

Examples of poor vertical linkages include inadequate flows of market information, a lack of services distributed from higher levels of the chain, a lack of finance down the chain and a lack of mutually beneficial relationships between players.

The main reason for poor vertical linkages is the lack of effective supporting services. In a few areas initiatives are emerging that aim to improve vertical linkages. An example of such a programme is the Malawi Agricultural Commodity Exchange (MACE) and its sub-programme, Market Resource Centres (MRC). MRCs are located in all Districts nationwide. They seek to act as a portal for linking producers to markets, not only in terms of the transfer of goods but more importantly as a conduit for information both up and down the chain.

A fundamental element of MACE is a text messaging service that farmers can use to communicate to registered market players details of products for sale. Likewise the market can transmit information on products they are looking to buy and thus relationships can be formed. The advantage of this service is not only the actual information, but the efficiency by which the link is formed and implemented.
Horizontal and Vertical Linkages

**Horizontal Linkages** are the relationships between players performing the same function in the value chain, for example between individual smallholder farmers.

Strong horizontal links in a value chain, especially at lower levels, may give economies of scale, improve product quality and/or create opportunities for accessing value addition. The impact of these elements can vastly improve the livelihoods of the poor involved in the value chain, especially those at the production level.

Some initiatives that target improving horizontal linkages have started to emerge in the agricultural sector in Malawi though there are relatively few for horticultural products. Strong horizontal linkages are mainly orientated around production and there is a clear, detrimental, lack at the trading levels and above.

Most programmes that strengthen horizontal linkages are the formation of farmer associations or cooperatives. The main barriers to forming strong links between producers are the existing levels of mistrust between farmers, the different financial needs, and the variability in production timings.

An example of strong horizontal linkages in agriculture in Malawi is the NASFAM model. NASFAM prides itself on being a strong network for over 100,000 smallholder farmers nationwide. Not only is assistance provided in a top down manner, NASFAM initiates communication between farmers informally, but also organises farmers into a series of formal groups that allow them to trade in a more formal and effective manner. Farmers under the NASFAM umbrella have improved GAP, organisation and access to support services as a unit, so resulting in increased market knowledge, market linkages and bargaining power.

**NASFAM Network Model**

```
National Board of Directors
  National Assembly

Association Committee
  General Assembly

Action Committee
  Action Committee

Club

Individual Members
```
Chapter 6: Market Linkages
Case Studies
Chapter 7: Constraints and Opportunities
Constraints and Opportunities: Tomato

Constraints

The main challenge facing tomato producers in Jenda is the **over supply to the market**. With no means to access value addition or trade at higher levels of the chain the producer remains with low returns for the product. The producer cannot move up the value chain due to a lack of supporting services that augment weak horizontal and vertical linkages.

The **nature of production and entrenched cultural practices** does not facilitate the organisation or collaboration of individual farmers into a group **dynamic**. Individuals have different production timings and financial requirements that inhibit the formation of groups or associations.

When examining the support services to the value chain it is the **lack of information** that is the main constraining factor. Due to the many trading levels, and the fragmentation of value chain actors, information is disjointed and lost down the chain. In particular the lack of market knowledge at the producer level prevents efforts to increase the competitiveness of the chain.

Opportunities

There are **strong trading systems and linkages in place**. Although these exclude certain players they offer a strong platform on which to build an intervention in the value chain. If the trading system could be formalised there would be opportunities for support services, such as information and finance, to play a significant role in improving the efficiency of the value chain. Some of the value addition achieved at the retail level could begin to be passed down the chain.

At the production level simple **extension services** could go a long way towards improving the quality and yields achieved by smallholders. Currently farmers are using incorrect inputs, poor storage methods and grading to a limited extent. If these elements were improved then greater returns for produce could be seen.

**Farmer organisation** is a key element to be addressed but is a significant challenge that must be approached in a long term, strategic manner. Once groups are formed, based on natural structures, it is again a slow process before they will have the capacity to begin to take steps towards value addition.
Constraints and Opportunities: Onion

**Constraints**

As with the tomato value chain the fragmentation of actors means that **the flow of product and services is disjointed and discontinuous**. The flow of information from the market to producers is extremely weak and has a large impact on the onion chain. There is **over supply** of *Red Creole* onions but the market is importing *Texas Grano* onions from South Africa. This gap in the market is totally unperceived by primary traders and thus by producers.

Although there is some understanding of GAP and post harvest handling by producers, many onions on the market are **not to the level of quality that the market requires**. Consistently low prices available to the producer discourages investment in the crop and the cycle of degradation continues.

Challenges faced in the chain are increased by a **lack of dialogue** at all levels. For example, Foodworths have good suppliers but do not take the next step of encouraging domestic production of key imported varieties; the necessary information is simply not delivered to the producer.

**Opportunities**

**Increased smallholder production of Texas Grano** onions is a clear opportunity not only to improve returns to the farmer but to boost **import substitution** at the national level. That said, it is not as simple as just solving the problem at one level of the value chain with a one time intervention. Mechanisms must be in place so that future changes in market demands can be translated to the producer through the existing trading system. This effort must be matched by agro-dealers having appropriate inputs available to producers and extension services up to date with latest trends.

One method to tackle the challenge of the **sector wide approach**, that is clearly necessary, is through the re-establishment of an institution such as Horticulture Development Organisation of Malawi (HODOM). This institution ideally would link market demands and research services with agro-dealers, traders and producers through **technological developments** such as MACE or the emerging E-SOKO technology. Again, it is the long term capacity building approach using existing players that is the critical strategy.
### Constraints

The salient constraint faced, that severely restrains the competitiveness of the Irish potato value chain, is the **access to appropriate, improved varieties**. Although 3-5 new varieties are in the process of being approved by the Government of Malawi the industry has suffered in recent years, most especially in the processing sector. Supermarkets rely heavily on imported raw potato and processed potato products.

Alongside a lack of improved plant materials, poor knowledge of Good Agricultural Practice for potatoes and poor access to inputs means that both **yield and quality is declining** in the face of disease and pest prevalence. There is a large scale lack of supporting financial and extension services that could ensure the use of the necessary inputs.

In the Jenda area the quality of potatoes is so poor that trading from the area to Lilongwe and other cities has ceased. Until all the necessary services are coordinated there is little hope for the growth and improvement in the potato value chain in the Jenda area.

### Opportunities

As the middle and upper classes in Malawi grow so does the demand for table potatoes and potatoes for processing into potato crisps. This presents a large opportunity for producers to meet this demand. The key factor is the access to new varieties approved for production in Malawi. These varieties match market demand but are also adapted to the production environment.

The **contract farming system** developed by Universal Industries is an example of how services can be delivered to producers in win-win situation so that returns to the smallholder increase but so does the quality and suitability of the product for the market. The UIL scenario is appropriate as the intervention in the value chain is driven by an existing player with thorough knowledge of the value chain.

Key to the UIL approach is a **holistic strategy**: the market specifications are clearly dictated to organised groups, alongside the delivery of extension services and high quality seed. All components are necessary for the opportunity to be taken advantage of effectively.
Conclusions

**Sector-Wide Approach**
When approaching interventions in agricultural value chains in Malawi the advocated approach is that of a sector-wide approach. In this way the competitiveness and participation in a value chain can be improved in a holistic, effective and lasting manner.

Specifically in relation to generalised horticultural production the salient intervention should be one that looks to stimulate movement from high volume, low quality, low profit production to targeted, high quality, high value produce. The flow chart on the next slide, Slide 47, outlines how such a ‘value chain upgrading’ process may occur and the necessary forces needed to facilitate the process.

A generalised approach must be modified according to the implementing context to be effective. What is clear, nonetheless, is that all components must be addressed if a sustainable outcome is to be achieved. Interventions at one level alone cannot upgrade a chain. It is often the case that the producer level is targeted but the trading level is excluded. Trading in horticultural value chains is the vital link between production and the market and requires attention.

**Tomato Value Chain: Jenda**
The flow of produce from Jenda to the end market is strong. High quality produce receives suitable prices as good yields are achieved for the market desired variety. The fragmentation of the value chain and tiered trading system means that producers are disconnected with the end market limiting the returns seen by the producer.

**Onion Value Chain: Jenda**
Jenda is an area of high production for Red Creole Onions. There is an over supply to the market thus lowering the value of produce. There is an opportunity for producers in Jenda to grow Texas Grano onions, targeting market demand, thus receiving higher returns for their produce.

**Potato Value Chain: Jenda**
A hierarchy of markets is observed for potatoes in Malawi. Currently, farmers in Jenda are only able to access the local, low value market because a poor quality variety is used. Until improved varieties of potato are available and utilised by farmers in Jenda it is suggested that improved returns from potato production are simply not accessible.
Value Chain Analysis: MicroVentures Market Linkages Project

**Value Chain Upgrading**

**Value Chain Framework Upgrading: Must be applied at all levels of the value chain**

<table>
<thead>
<tr>
<th>Stronger Horizontal Linkages</th>
<th>Stronger Vertical Linkages</th>
<th>Improved Support Services</th>
<th>Improved Enabling Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Stronger organisation at the farmer level through Farmer Associations and Co-operatives - Organisation and co-ordination at trader level</td>
<td>- Non-market linkages to be strengthened by initiatives such as ESOKO or MACE - Market and non market linkages direct between producer and market through contract agreements</td>
<td>- Market information service - Extension services - Access to finance at all levels - Input supply</td>
<td>- Government Policy on Horticulture - Improved dialogue and communication through structure such as HODOM</td>
</tr>
</tbody>
</table>

**Basic Value Addition Activities at producer level** (correct selection of varieties, GAP, PHH, grading)

**Efficient flow of goods and services up and down chain**

**INPUT SUPPLY**

**Value Chain**

**UPGRADING**

**UPGRADING**

**OUTPUT**

**IMPACT**

- Improved organisational activities at producer and trading levels
- Higher level value addition activities producer and trading levels (packaging, bulk supply)
- Higher quality, targeted produce reaching market in efficient manner

- Improved Competitiveness
- Greater Participation
- Improved organisation at producer and trading levels
- Efficient flow of goods and services up and down chain

Greater total ‘value’ of chain
Poor able to access more value from the chain
Further Information

For further information on the Business Innovation Facility visit the Practitioner Hub at www.businessinnovationfacility.org or contact enquiries@businessinnovationfacility.org

A summary of the MicroVentures project supported by BIF can be found on the Practitioner Hub here.

For more information on Imani Development visit www.imanidevelopment.com

For more information on the Microloan Foundation visit www.microloanfoundation.org.uk

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