

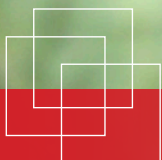


International
Labour
Office



SKILLS FOR TRADE AND ECONOMIC DIVERSIFICATION

MALAWI'S OILSEEDS AND HORTICULTURE SECTORS



Skills for
Trade and
Economic
Diversification

STED



SKILLS FOR TRADE AND ECONOMIC DIVERSIFICATION

Malawi's Oilseed and Horticulture Sectors

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PREFACE

This report presents the findings of analytical research undertaken in Malawi by applying the Skills for Trade and Economic Diversification (STED) methodology to two sectors of the Malawian economy, namely oilseeds and horticulture.

The STED methodology has been developed by the International Labour Organization (ILO) in recognition of the fact that having workers with the right skills is crucial if firms and industries are to succeed in trade, and that workers can access better quality jobs if they have the skills required for the success of industry. The availability of appropriately skilled workers helps countries to develop the productive base necessary for achieving higher and more diversified exports, and provides an environment conducive to foreign direct investment, higher absorption of technology, sustainable economic growth and the creation of productive employment.

The right kind of skills also enhance the employability of workers, and are a key determinant of their success in finding meaningful and well-paid employment. Research around the world has shown that highly educated workers sometimes find it difficult to get employment, while at the same time firms find it difficult to fill vacancies for skilled positions. This is generally because the skills taught by the education and training systems do not match the demands of the labour market. This constitutes a significant economic loss for the country and a personal problem for workers who lack opportunities for decent employment.

The STED methodology takes a forward-looking perspective, asking not just what skills are in demand today, but what skills will be in demand in the future, in order to match skills demand with skills supply in the labour market. STED also builds upon the ILO's unique tripartite structure and its ability to bring together governments, workers, and employers to work together for more and better jobs.

In the Malawian context, the STED methodology was applied as a response to the recommendations of the Malawi National Export Strategy (GoM, 2012), which highlight a low skills base as one of the main factors constraining Malawi's move into higher value-added production in sectors with potential for exporting, economic development and employment growth. The NES identifies three priority export sectors in which Malawi has a comparative advantage (oilseeds, sugar-cane products and agro-manufacturing), but identifies "access to skills" as the greatest challenge to businesses realizing this growth potential. A recent Diagnostic Trade Integrated Study identified limited availability of higher-level skills and professional services as a constraint in diversifying Malawi's export base.

The findings and recommendations of the Malawi STED research have paved the way for the provision of better informed technical assistance in demand-led skills development in Malawi. The tripartite partners are very keen to extend the STED analytical research to other sectors of the economy.

Girma Agune

Acting Chief
Skills And Employability Branch
Employment Policy Department, ILO

Alexio Musindo

Director
ILO Country Office for
Zambia, Malawi and Mozambique



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ACRONYMS

AGOA	African Growth and Opportunities Act
BRICS	Brazil, Russia, India, China and South Africa
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
EBA	Everything But Arms treaty
ECAM	Employers Consultative Association of Malawi
EU	European Union
GDP	Gross Domestic Product
GoM	Government of Malawi
GSP	Generalized System of Preferences
ILO	International Labour Organization
ILOHES	ILO Horticulture Enterprise Survey
ILOOES	ILO Oilseeds Enterprise Survey
ILOSSMS	ILO Skills Supply Side Mapping and Analysis Survey
ITC	International Trade Centre
LCD	Least Developed Country
LUANAR	Lilongwe University of Agriculture and Natural Resources
MCCI	Malawi Chamber of Commerce and Industry
MNE	Multi-National Enterprise
MSME	Micro, Small and Medium Enterprise
MT	Metric Tonnes
MUST	Malawi University of Science and Technology
NES	National Export Strategy
NRC	Natural Resources College
NSO	National Statistical Office
R&D	Research and Development
SADC	Southern African Development Community
SME	Small and Medium Enterprises
STED	Skills for Trade and Economic Diversification
TA	Technical assistance
TEVETA	Technical, Entrepreneurial and Vocational Education and Training Authority



TFTA	Tripartite Free Trade Area
TVET	Technical and Vocational Education and Training
VAT	Value Added Tax
WEF	World Economic Forum
WIL	Work Integrated Learning



Introduction and background

Malawi has a relatively small economy, with Gross Domestic Product (GDP) estimated at US\$3.7 billion (World Bank, 2014a). Dependent on vulnerable sectors and subject to structural challenges, the economy is also vulnerable to external shocks, including falls in commodity prices, climate change and fuel prices. Consequently, economic growth has fluctuated, with a boom between 2006 and 2010, when the country recorded average real GDP growth of 8.7 per cent¹, a slump in 2011-12², then a rebound in 2013. Growth has since remained positive, rising moderately from 6.1 per cent in 2013 to 6.3 per cent in 2014. Despite positive growth, Malawi, ranked 173 out of 188 countries on the 2015 United Nations Human Development Index, remains one of the poorest nations on earth. With income per capita of US\$250 (World Bank, 2016), over half of its 17 million inhabitants live in extreme poverty (NSO, 2012).

The country's production and exports are dependent on a narrow range of resource-based activities. With little value addition, and being mostly in raw form³, Malawi's exports have grown at a much slower pace than its high-value imports.⁴ Consequently, the country has experienced a chronic and steadily growing balance of payments (BoP) deficit. The trade imbalance widened from 13.9 per cent of GDP in 2011 to 23.5 per cent in 2014 (NSO).

Malawi's trade imbalance has been widening (Figure 1) despite its significant export opportunities. The situation poses a strategic imperative for the country to bring its long-term export trend into line with its long-term import trend. As a positive response, in 2013 Malawi began to implement the National Export Strategy 2013 - 2018,

1 Coupled with improved service delivery and food security, as well as progress towards the Millennium Development Goals (MDGs)

2 Due to economic shocks (adverse terms of trade and significant reductions in income from tobacco); souring relations with key stakeholders that led to a drop in donor inflows (especially budget support); and a severe shortage of foreign exchange, which in turn led to shortages of essential commodities, such as fuel and inputs for manufacturing. As businesses lost credit lines due to delays in making payments abroad, operations were scaled down and social unrest ensued as workers lost their jobs.

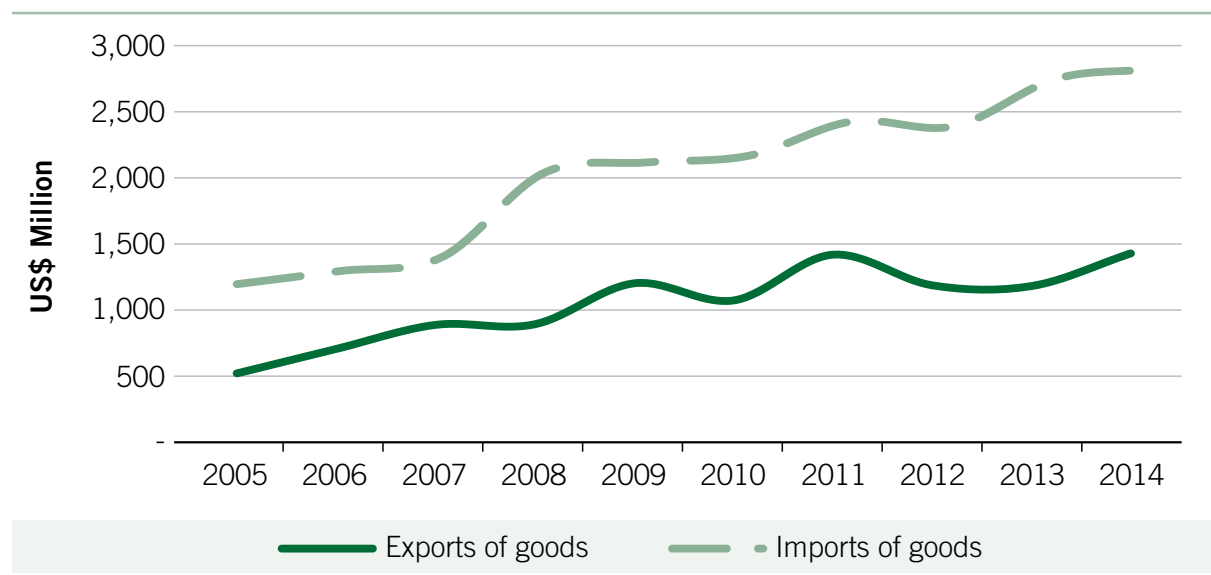
3 The average share of all processed/manufactured goods was estimated at about 22 per cent of total exports between 2002 and 2004. (Nakhumwa and Peiris, 2009).

4 Oil, cars, machinery, drugs etc.



with a view to broadening its export base, increasing productivity and improving value addition to its primary agro produce.

Figure 1. Malawi's imports and exports of goods, 2005-2014



Source: NSO.

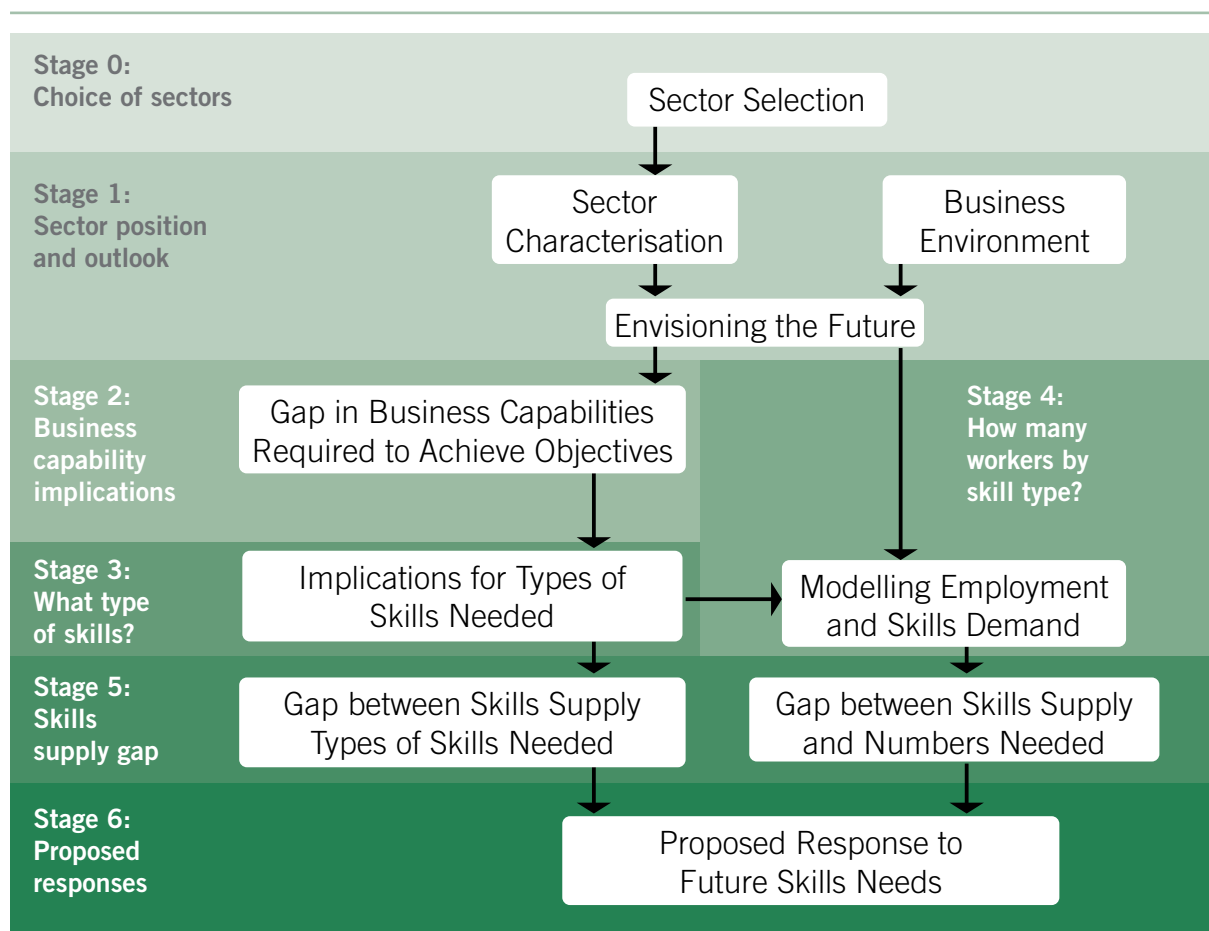
By placing the private sector and its capacity to invest at centre stage and engaging the government in an enabling role that focuses on unleashing investment capacities, the broad objective of the National Export Strategy (NES) is to increase and stabilize national income, as well as economic and employment growth.

The NES cites a low skills base as one of the major factors constraining Malawi's movement into higher value-added production in export sectors. The NES has identified access to skills as the greatest challenge to businesses realizing their growth and export potential in Malawi's priority export clusters. This report attempts to analyse the growth potential of two selected sectors – namely oilseeds and horticulture – with a focus on the skills that are required for Malawi to fully exploit the export potential of these sectors. Responding to the NES, this report uses the Skills for Trade and Economic Diversification (STED) skills-anticipation methodology developed by the International Labour Organization (ILO) to help policy-makers work with the private sector and employers' and workers' associations in thinking strategically about future skills demands and the supply responses required in the present. It reflects a recognition that: "It is no longer sufficient to train workers to meet their specific current needs; we should ensure access to training programs that support lifelong skills development and focus on future market needs".⁵

The NES has prioritized three export clusters: (i) the oilseeds and oilseed products sector, covering the sunflower, soybean, groundnut and cotton subsectors, (ii) the sugarcane and sugarcane products sector, and (iii) the manufacturing sector, including the agro-processing subsector (dairy, horticulture, wheat, maize pulses), the beverages subsector, the plastics and packaging subsector and the assembly subsector. While the STED methodology could be applied to all these sectors and/or clusters, this report focuses on the oilseed and horticulture sectors prioritized by stakeholders. The purpose of the STED analysis is to help identify and anticipate the skills needed to improve productivity, trade performance and employability in the two sectors, as well as to provide a demonstration that will inspire similar analytic work in other sectors.

The application of the STED methodology, as reported herein, followed a standard six-stage process defined in the ILO's STED Practical Guide, as shown in **Figure 2**:

⁵ G20 Pittsburgh Summit: Leaders' Statement (Pittsburgh, 2009), para. 44.

Figure 2. ILO STED methodology stages

This research methodology involved desk research and primary research based on three surveys conducted in 2015. The Oilseeds Enterprise Survey (OES) was a survey of nineteen enterprises engaged in all stages of the oilseeds sector value chain from a sampling framework of 57 companies (the total number of registered farms and firms in the sector). The Horticulture Enterprises Survey (HES) included eleven⁶ enterprises representing the entire horticulture sector value chain, extracted from a sampling framework of 24 registered farms and firms.

Finally, the Skill Supply Side Mapping and Analysis Survey (ILOSSMS, 2015) provided insights on skills provision in twenty⁷ training institutions.⁸

The Malawi STED research was not without limitations. Response rates were 70.4 per cent, 55.0 per cent and 64.5 per cent respectively for the surveys of the oilseed and horticultural industries, and the skills-supply institutions. For some of the small enterprises, poor record keeping affected the quality of the data collected and therefore the depth of analysis. Finally, some companies with good records were unwilling to disclose information on business performance. Nonetheless, the research findings presented in this report provide a sound basis and a good opportunity for reflecting on important issues affecting the two sectors' export capacities and recommending appropriate responses.

⁶ Out of an original list of 32 enterprises involved in the horticulture sector, 20 were traced and found active.

⁷ Out of an original list of 47 training institutions, 29 were traced and found active.

⁸ Out of an original list of 55 enterprises, 27 enterprises were traced and active, comprising the final sample. Of these, 19 participated in the survey. This compares with a total of 12 enterprises that participated in the Skills Scoping Study of 2014.



All in all, the STED research report confirms the significant potential of the two sectors, as outlined in the 2013 National Export Strategy. The report has re-confirmed that the oil seed sector in Malawi is underdeveloped and has yet to succeed in breaking into international value chains. Firms in this sector mostly serve the domestic market and export to regional markets to a much lesser extent. While the firms have plans for market expansion, for them to become competitive, and to succeed in accessing new markets, they will require adequate and consistent supplies of quality raw and finished products. They will also need to improve existing products, develop new products that meet international standards and requirements, and improve their inbound and outbound logistics, transport and other infrastructure and services.

The STED research also established that the horticulture sector in Malawi is largely underdeveloped, with almost all firms serving the domestic market. The majority of these firms believe that there is export demand for Malawian horticulture products and that venturing into export trade is economically viable. However, for them to translate these aspirations into reality, they need technical assistance to increase productivity and improve the quality of their products, and access to effective cold chains and storage, handling, transport and marketing facilities. In addition, the sector will need more effective linkages across the value chain.

The STED research identified skills limitations as one of the key factors affecting the two sectors' capacity to achieving the above-stated ambitions. To put the sectors on a competitive growth path, this report therefore recommends responses at four levels. The proposed responses are broadly defined below:

- At training system level, existing training and education institutions need re-organisation and re-orientation to, among other things, ensure the availability of adequate training infrastructure and equipment; improve the capacity of training staff; and align training offers to industry needs by regularizing training needs assessments and/or tracer studies.
- The sectors should explore other sources of skills supply beyond existing training and education institutions.
- At national policy level, there is need to disseminate important strategies, such as the NES, and to institutionalize important labour-related exercises, such as skills anticipation processes linked to skills development.
- At the enterprise level, retraining and/or up-skilling is needed to ensure enhanced skills in the workforce .

The rest of this report is organized as follows: Chapter 2 presents insights for the oilseed sector in terms of profile and characteristics, business environment, sector envisioning, gaps in business capabilities, skills implications and skills supply gaps, as well as recommendations. Chapter 3 presents insights on the horticulture sector. The report concludes by presenting its conclusions and the way forward in Chapter 4.



The oil seed sector

2.1 SECTOR POSITION AND OUTLOOK

2.1.1 PROFILE AND CHARACTERISTICS

The NES lists the oilseeds sector among the three priority sectors in which Malawi has a potential comparative advantage (GoM, 2012). The sector includes raw and semi-raw oilseed commodities, as well as products derived from them. The four oilseeds identified in the NES as having a high export potential are sunflower, groundnuts, soy beans and cotton seeds. The products derived from them include cooking oil, soaps, lubricants, paints, varnishes, meals and flours, butter and cosmetics. The report does not include the cotton seed sector in its analysis, as it is considered a by-product of the cotton lint grown primarily for export.

i) General overview

Although the oilseeds industry in Malawi is still underdeveloped, the sector draws its comparative advantage from the production of primary produce on suitable land and in favourable climatic conditions (GoM, 2012). As such, the sector is oriented primarily to the domestic market, with 68 per cent of the oilseeds and oilseed products being sold and consumed locally (ILOOES, 2015). There are more than 10,100 workers in the Malawian oilseeds industry. Around 96.7 per cent of them work in large enterprises and 35 per cent are women. As global demand grows, Malawi is expected to increase its participation in global supply chains, thus benefiting from social as well as economic upgrading.⁹

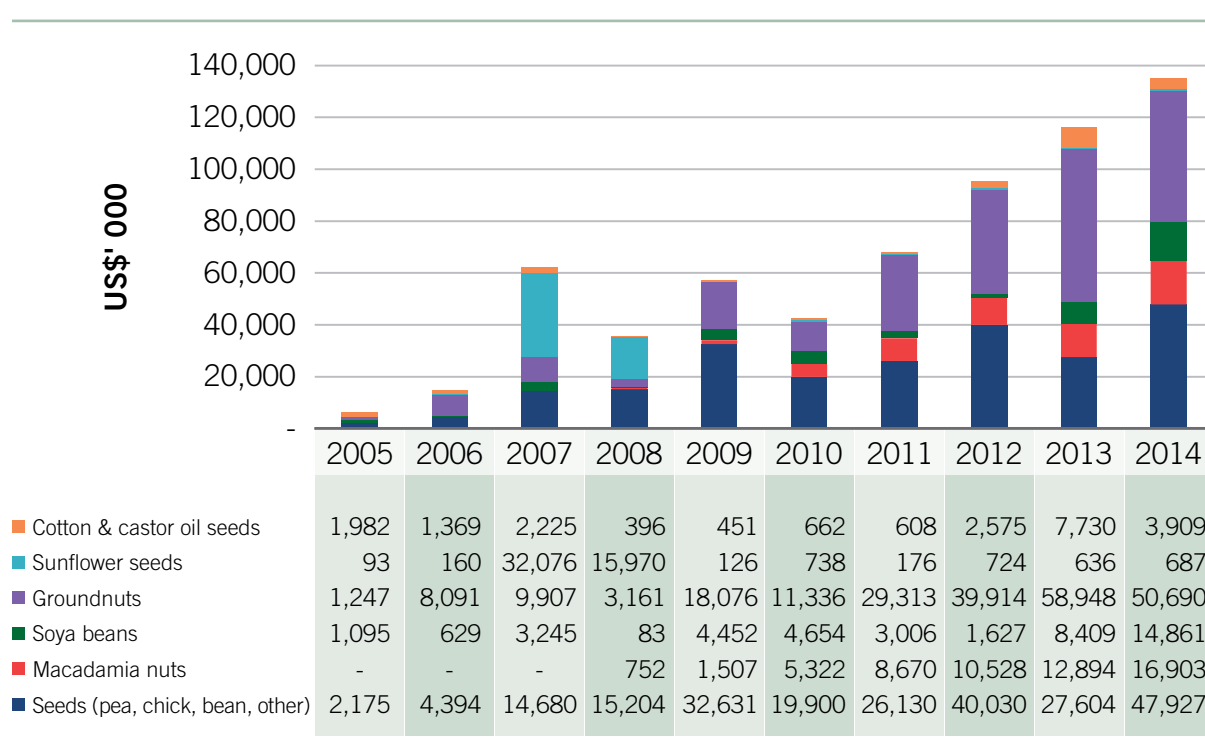
⁹ According to the report submitted to the 105th Session of the International Labour Conference (2016) on Global Supply Chains, economic upgrading is the process of suppliers moving to higher-value activities in supply chains, whereas social upgrading is the process of achieving decent work in supply chains. Available at: http://www.ilo.org/ilc/ILCSessions/105/reports/reports-to-the-conference/WCMS_468097/lang-en/index.htm [18 Jul. 2016].



ii) Trade patterns and trends

According to the Oilseeds Enterprise Survey (ILOOES, 2015), the share of domestic sales to total sales was about 50.0 per cent in 2014. As a share of Malawi's total exports, exports of oilseed products have also been increasing over the years, with their share of total exports increasing from an average of 3.1 per cent between 2006 and 2011 (World Bank, 2014b) to 9.2 per cent between 2012 and 2014 (NSO). In value terms, oilseed exports totalled MK 57.3 billion (US\$ 135.0 million) in 2014, representing 2.3 per cent of GDP. Exports were largely in raw form, reflecting Malawi's low level of manufacturing and/or agro-processing. Total imports of oilseed products amounted to MK 3.3 billion (US\$ 7.9 million) in 2014, representing 0.13 per cent of GDP. In contrast with Malawi's exports of these products, the imports were largely in processed form. Overall, Malawi ran an international trade surplus of MK 53.9 billion (US\$ 127.1 million) in oil seed products in 2014 (NSO).

Figure 3. Malawi's oilseed exports, 2005-2014



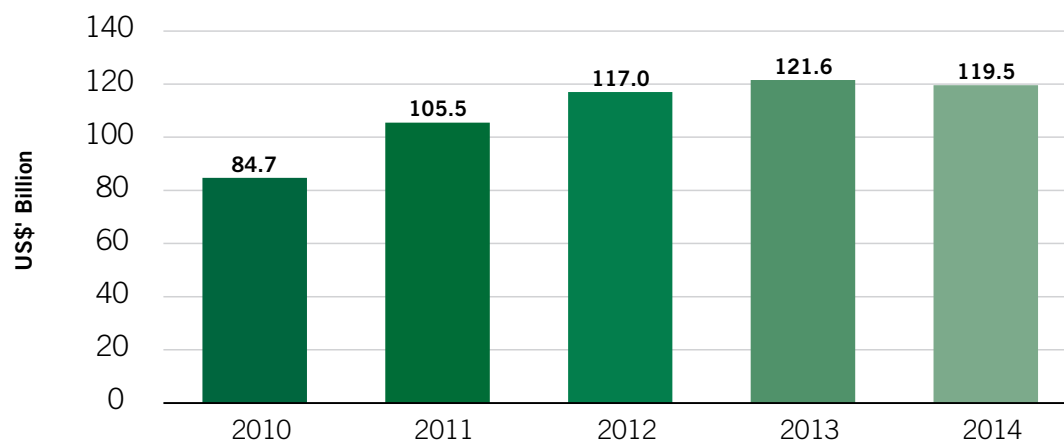
Source: NSO.

As shown in **Figure 3**, exports of seeds and groundnuts showed an upward trend between 2005 and 2014, although there were declines in some years. Exports of macadamia nuts and soya beans, although small compared to the contributions of groundnuts and seeds, have grown consistently. On the other hand, exports of sunflower seeds and cotton & castor oil seeds grew at a much slower rate during the period 2005-2014 and represent only a small proportion of exports.

Global demand for selected oilseed products has been increasing since 2010 (**Figure 4**). The BRICS¹⁰ together account for 24 per cent of global exports. Africa accounts for just 2.8 per cent, with African Growth and Opportunities Act (AGOA) countries accounting for 2.0 per cent, the Common Market for Eastern and Southern Africa (COMESA) for 1.2 per cent, and the Southern African Development Community (SADC) for 0.7 per cent. BRICS, COMESA and SADC all show increasing trends.¹¹

¹⁰ BRICS countries include Brazil, Russia, India, China and South Africa.

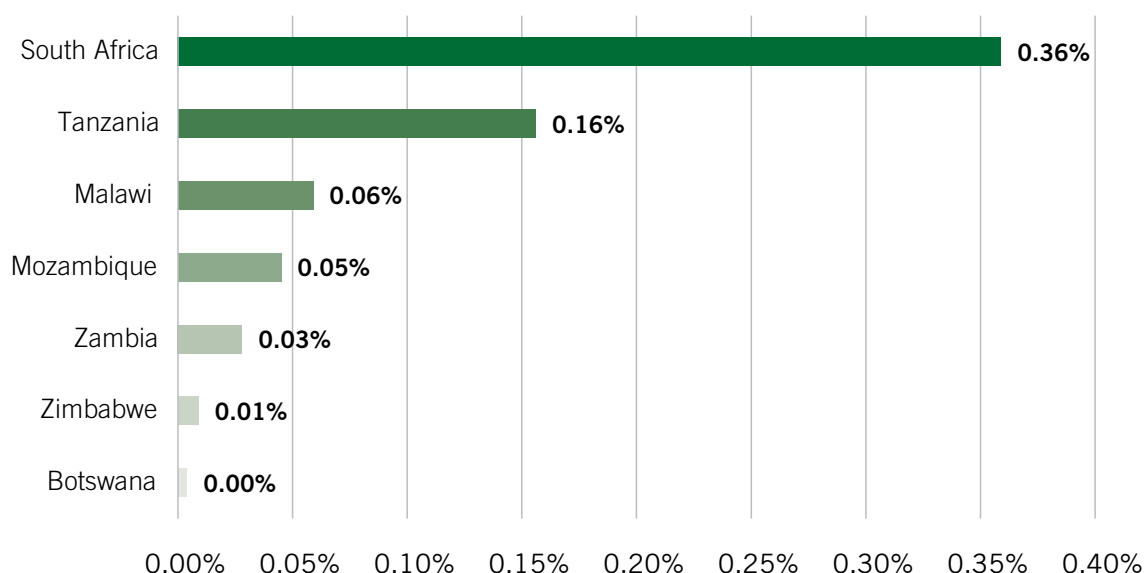
¹¹ Note that membership of some of these trading groups overlaps. Figures should therefore not be aggregated.

Figure 4. Global oilseed export trend, 2010-2014

Note: Oilseed products are defined according to the Harmonized System (HS) of product classification and include: 1508 (groundnut oil and its fractions); 12 (oilseeds and oleaginous fruits, grains, seeds and fruit, etc.); 1507 (soya-bean oil & its fractions); and 1512 (safflower, sunflower/cotton-seed oil and fractions).

Source: ITC Trade Map, 2015. Accessible at: www.trademap.org [18 Jul. 2016].

Figure 5 shows the share of world oilseed exports in the SADC Region. Among selected countries, Malawi (0.06 per cent) is in third position after South Africa (0.4 per cent) and Tanzania (0.2 per cent). While Malawi, Tanzania and Mozambique show steady increases since 2010, South Africa shows a steady decrease since 2012. Furthermore, while Zambia shows a steady increase up to 2013, Zimbabwe and Botswana show fluctuating trends.

Figure 5. Share of world oilseed exports in selected SADC economies

Source: ITC Trade Map, 2015. Accessible at: www.trademap.org [18 Jul. 2016].

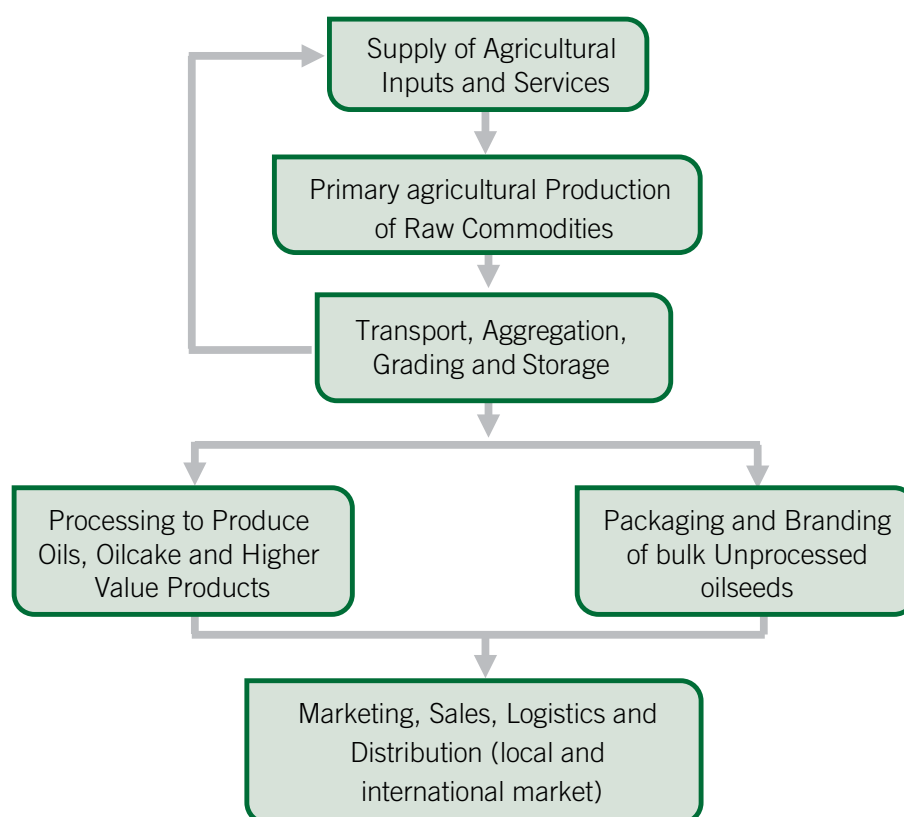


The Oilseed Enterprise Survey undertaken for this study shows that up to 52.6 per cent of the responding enterprises export their oilseed products.¹² Of these, 35.7 per cent export to the COMESA and SADC regions; 14.3 per cent to Asian countries; 7.1 per cent to the European Union; 7.1% to other African countries; and none to the United States. The key regional countries competing with local producers include South Africa, Mozambique and Tanzania.

iii) Malawi's oilseeds value chain

The NES categorization of oilseed products into raw or semi-raw commodities, packaged and branded commodities, oils, oilcake and higher-value products forms the basis for the schematic presentation of the oilseeds value chain shown in **Figure 6**. Characteristic of agro-food industries, the value chain is complex, including functional areas of supply of agricultural inputs for primary production, post-harvest handling, trade (covering transport, aggregation and storage) and processing, as well as marketing and sales. As value is added after agricultural production by processing, distribution, retail and marketing, the goods and services produced along the value chain are sold to markets as either intermediary or final products. The key actors therefore include suppliers of farm inputs and other services, small and large-scale primary producers, intermediate buyers, farmer associations, processors, wholesalers and retailers.

Figure 6. Malawi's oilseeds value chain



¹² For the purposes of this report, oilseeds enterprises are defined as trading and processing firms in the sector, including small, medium and large-scale farms.

Within this value chain, individual farmers either sell to intermediate buyers or directly to local markets. They do not act as players in modern value chains, which might provide space for higher value addition or give access to higher returns from international markets. They also often lack specific information on these value chains, given weak linkages between upstream and downstream actors. This often results in delays in getting the right type and quality of products. Some of the farmers also sell their produce as seed to NGOs. Farmers' groups also pool together their produce and sell to large buyers/companies. The companies that buy the produce for processing, packaging, distributing locally and exporting either use intermediate buyers to obtain supplies of their raw materials or send middlemen to buy products on their behalf. Other companies have contract agreements with farmers from whom they buy directly. The result of all this is a complex value chain with a number of disadvantages: poor delivery of business development services such as agricultural extension support services, high production costs, low productivity and low-quality primary end products.

Relative to other countries in the SADC, Malawi is not competitive in terms of the “cost of doing business” (World Bank, 2016). This partially explains the limited length of the domestic value chain and the low value added in this sector. An inadequate supply of complementary public or communal infrastructure, such as storage facilities, access roads and means of transport, makes for serious bottlenecks. Post-harvest handling, including grading, storage and packaging, is a critical challenge in the oilseed sector.

The dominance of domestic sales in the oilseed sector is not by design. It simply shows that the oilseed industry has yet to succeed in building export relationships and becoming part of global supply chains. Linking up with large international buyers is a major challenge for the industry, especially in the absence of joint ownership facilitating systems among firms. One company in the sector (23.8 per cent), and individual salespersons in target markets (23.8 per cent), dominate Malawi's export distribution channels (ILOOES, 2015). Other distribution channels include agents (14.3 per cent), major retail chains (4.8 per cent) and wholesalers (4.0 per cent).

In sum, the entire oilseed value chain in Malawi faces significant challenges. According to exporters in the country, high transport and handling costs, and unsophisticated pre-production, production and post-production techniques, result in sub-standard product quality, which hinders full exploitation of Malawi's oilseed export potential. Consequently, improving production techniques, storage and transportation is critical to improving the quality of products and boosting the country's export earnings.

iv) Characteristics of firms

The oilseed sector in Malawi numbers around 55 enterprises, some of which act as aggregators (ILOOES, 2015).¹³ Of the responding enterprises, the majority are locally owned (68 per cent) and are not part of larger groups (58 per cent). A significant proportion operate as family businesses (47 per cent). The majority of these enterprises are located in Blantyre, Mulanje, Karonga, Salima, Mchinji and Lilongwe. 38.9 per cent of the surveyed firms fall into the large-scale category, followed by 33.3 per cent in the medium-scale category and 27.8 per cent in the small-scale category.¹⁴

The results of the STED Oilseed Enterprise Survey (2015) indicate that export performance is positively correlated to firm size. A large proportion of exporters are large firms (44.4 per cent) followed by medium (33.3 per cent) and small-scale (22.2 per cent) enterprises. About 53 per cent of the enterprises surveyed export oilseed products. Of these, 45.5 per cent are steady exporters, 45.5 per cent export casually when the opportunity arises, and 9.1 per cent are occasional exporters (i.e. they have exported at least once before). For non-exporting enterprises, it is interesting to note that a large proportion (87.5 per cent) would be interested

¹³ For the purposes of this report, oilseeds enterprises are defined as trading and processing firms in the sector and medium to large-scale farms (cultivating 50 hectares or more of oilseeds).

¹⁴ According to the MSME Policy (GoM, 1999), which categorizes firm size by employment levels, an enterprise is considered micro if it employs 1-4 workers, small if it employs 5-20 workers, medium if it employs 21-100 workers and large if it employs more than 100 workers. No responses were received from micro-scale enterprises.



in exporting their products if they could achieve increased production of oilseeds, had more market information and had access to affordable credit to finance investment in machinery.

Large-scale enterprises collectively employ the majority of the workers employed by the firms surveyed (96.7 per cent), followed by medium-sized enterprises (2.5 per cent) and small-scale enterprises (0.8 per cent) (ILOES, 2015). Exporting firms employ more workers (94.8 per cent) than non-exporting firms. The total, number of workers in the enterprises surveyed was about 10,125, of whom 35 per cent were women. Core production staff accounted for 67 per cent, while the other 33 per cent worked in non-core activities. Only about 20 per cent were fully skilled, while 40 per cent were semi-skilled. The remaining 40 per cent were unskilled workers. The sector therefore faces serious shortages of appropriately trained workers.

2.1.2 BUSINESS ENVIRONMENT

i) Access to markets

Malawi's trading environment is characterized by several bilateral, regional and multilateral trade arrangements, which are intended to facilitate trade. In addition to Malawi's commitment to multilateral trading systems, its major trade arrangements are with the European Union (under the "Everything but Arms" (EBA) treaty), SADC, COMESA and the Tripartite Free Trade Area (TFTA).¹⁵ These four arrangements offer preferential treatment for goods originating in Malawi. In addition, Malawi is a beneficiary of the African Growth and Opportunity Act (AGOA), under which exports to the United States enjoy duty and quota-free status. The AGOA programme, initially planned to expire in September 2015, has been extended for another 15 years. Finally, Malawi has functional bilateral trade agreements with countries such as China, Zimbabwe, Japan, South Africa and Malaysia. Agricultural products can be processed and exported under trading arrangements that encompass SADC, COMESA, the Generalized System of Preferences (GSP) Scheme of the European Union's EBA Initiative, the AGOA programme, China General Tariff Preferential Treatment, India Preferential Trade Benefiting Least Developed Countries (LDCs) and the Japan Preferential Trade Arrangement Benefiting LDCs.

Malawi has a favourable trade tariff environment and faces the lowest tariff barriers in destination markets as compared with other countries in the region. The Global Enabling Trade Report (World Economic Forum, 2014) lists tariff barriers abroad as only the tenth factor limiting export trade in Malawi, while rules of origin requirements abroad are listed in twelfth position. For specific Malawian products and commodities, most regional countries (Zimbabwe, Zambia, South Africa, Tanzania, Mozambique, Botswana and Kenya) impose no tariffs or significant non-tariff barriers.

According to the Global Enabling Trade Report (World Economic Forum, 2014), poor access to markets is the third factor hindering Malawi's export trade. In addition, the Oilseed Enterprise Survey (I2015) indicates that firms in the sector regard the overall business environment (37 per cent) and national regulations (33 per cent) as issues that need to be addressed if they are to successfully penetrate Asian markets.

ii) Quality and standards

The Global Enabling Trade Report (World Economic Forum, 2014), indicates that meeting the quality and quantity requirements of export buyers is Malawi's fourth greatest obstacle to export trade, while difficulties in meeting technical requirements and standards abroad comes in eleventh position. Although all exporting firms in fact have their export products tested for conformity with international technical regulations before the products are shipped, 40 per cent of enterprises think that technical regulations on food products are burdensome due in part to procedural inefficiency (30 per cent), conformity assessments (30 per cent) and lack of information on technical requirements (20 per cent) and how to pass the conformity assessments

¹⁵ The COMESA-EAC-SADC Tripartite FTA comprises 26 countries and is expected to be the largest economic bloc on the continent once the Continental Free Trade Area (CFTA) is set up in 2017.

(20 per cent). Moreover, 10 per cent of exporting firms do not have staff who know which standards to follow in the case of products destined for export.

There is limited capacity at national level for analysing biological, chemical, heavy-metal and physical food hazards. The lack of an overarching food safety system in Malawi, coupled with a significant shortage of skilled manpower, testing equipment and facilities, is a major challenge (Nakhumwa and Peiris, 2009). Half of the enterprises surveyed indicated that they do not have a quality certificate and are not in the process of applying for one. 44.4 per cent of the exporting firms in the survey have quality certificates, such as ISO9001, ISO9002 or ISO1400, or certification under the Hazard Analysis Critical Control Point scheme, whereas only 33.3 per cent of non-exporting firms are certified.

Most small-scale producers in the country have not yet systematically adopted quality procedures and standards. This is partly due to the absence of relevant regulatory frameworks governing quality standards on the local market, inadequate training and extension services, weak market feedback systems, and a lack of enforcement capacity on the part of market players downstream in the value chain, who would benefit from better product standards. Even at the local level, therefore, the quality of agricultural products from smallholder farmers does not always meet the requirements of the lead firms. The majority of the exporting firms (90 per cent) find sourcing high quality primary products for their export business a big challenge.

iii) Logistics, transport and other infrastructure

Malawi's geography (the country is land-locked), and accompanying transport challenges such as high transport costs, adversely affects its competitiveness and access to export markets. According to the Global Enabling Trade Report (World Economic Forum, 2014), high costs or delays caused by domestic transportation are the second most challenging factor for attaining export competitiveness. The underdeveloped road networks which characterize Malawi's rural areas contribute to the high transaction costs associated with trading in these areas. Post-harvest losses due to lack of adequate storage facilities for crops such as soya beans, and poor storage techniques for crops such as sunflower, also account for low levels of production and poor supply of the raw products required for oilseed processing.

The energy challenges in Malawi are multifaceted. According to the Millennium Challenge Account (2010), the country faces a widening gap between electricity demand and supply due to economic development, population growth and urbanization. While demand has been growing consistently, there has been no corresponding increase in supply (GoM, 2010). This has greatly strained the existing power-generation infrastructure, resulting in frequent blackouts, constraining industrial production and to some extent deterring foreign investment.

The STED Oilseeds Enterprise Survey (2015) identified unreliable and intermittent power supply as one of the major challenges faced by the industry. Firms viewed stable energy supply as an important factor if they are to successfully penetrate the SADC (87.5 per cent), COMESA (85.8 per cent), other African (85.7 per cent), Asian (71.5 per cent), European Union and United States (60 per cent) markets.

The Government of Malawi is, however, working towards improving efficiency by engaging private subcontractors to carry out external connection works, thereby reducing the time it takes for applicants to get connected to the national grid.

vi) Access to finance

Access to financial services in Malawi is limited due to high interest rates, limited competition among providers of such services and a lack of information on potential borrowers (ILO, 2013). Large companies, MSMEs, cooperatives, producer associations and smallholder farmers all face similar financing bottlenecks. The Global Enabling Trade Report (World Economic Forum, 2014) lists access to trade finance as the first-ranking factor limiting Malawi's export trade. Value chain financing is an alternative mechanism available to smallholder farmers. This mechanism would enable local small-scale producers to link into the sector's value chain,



through which they could access more lucrative markets. The enterprises in the survey also highlighted access to the working capital needed to undertake export trade on an effective and sustainable basis as a serious challenge.

v) Access to business development services

There are few high-quality public and private-sector business development services. The uneven quality of the information on the services that are available also presents a challenge to the sector, as institutionalized systems for getting business development support are weak. Poor access to technical assistance for producers has been cited as one of the causes of the low productivity of crops such as soy beans. As a result of inefficient production techniques and practices, and water shortages, smallholder farmers typically end up with low yields. Enterprises cite agricultural extension services as one of the areas where access is a major challenge. In general, with its current focus on supply as opposed to demand, agricultural extension support is not delivered effectively and fails to respond to farmers' real needs in a timely manner. The sector needs to invest in business development and extension services which do not depend on government but on private-sector provision that offers win-win benefits for both providers and recipients of the services.

vi) Business regulatory environment

Another challenge to the competitiveness of Malawian exports is the adverse legal and regulatory environment. Compared to neighbouring SADC economies, Malawi does not provide a legal and regulatory framework conducive to business creation and growth. The regulatory environment is particularly unfavourable to small firms. The Doing Business Index ranking for Malawi worsened from 127 in 2008 to 171 in 2014 and 164 in 2015, behind Mozambique, Tanzania and Zambia. In addition, Malawi's performance where setting up a business is concerned (ranked 157 out of 189) is again below all of its neighbours, except Zimbabwe. According to the ILO assessment report on ease of doing business (ILO, 2013), one factor favouring informality was that entrepreneurs had to go in person to the only existing business registration centre in the country, in Blantyre, to register their businesses. This situation has, however, improved since the launch of the Malawi Business Registration System, in August 2015, which allows businesses to register online.

Malawi is price-competitive in the production of commodities such as soya, as the domestic price has consistently been lower than the international price over the years, but growth of soya exports has been uneven due to other issues: the cost and time required to complete the export process because of Malawi's geography and transport challenges, export procedures (International Trade Centre, 2012) and uncertainty over policy. 62 per cent of exporters surveyed by the International Trade Centre in 2012 reported administrative delays and complicated procedures as being the most burdensome challenge to exporting, more burdensome than high fees and charges, poor facilities and arbitrary behaviour by officials.

2.1.3 SECTOR ENVISIONING

The preferred scenario¹⁶ for the oilseeds sector, adopted by stakeholders at the STED Steering Committee meeting in July 2015, was for a sequential and incremental approach towards the sector's development. This approach would direct the sector's efforts towards producing and selling/exporting more of existing products to the same and similar markets in the short term, while ensuring an adequate supply of high-quality local raw materials for producing higher-value products and expanding into new markets over the medium and long terms. Building on this preferred scenario, this report recommends a specific vision for the oilseed sector, namely to:

“Raise the oilseeds sector's contribution to total exports from 9.5 per cent in 2014 (NSO) to 14.7 per cent in 2022.”

With total Malawian exports projected to reach \$4.067 billion by 2022 (GoM, 2012), the increase in the sector's contribution would translate into raising exports of oilseeds and oilseed products from USD 135.0 million (MK57.3 billion, NSO) in 2014 to USD 599 million in 2022.¹⁷ To achieve this target, exports will have to increase beyond the current 26 per cent annual growth rate to 29 per cent. Three key strategic elements are expected to promote this vision for the oilseed sector:

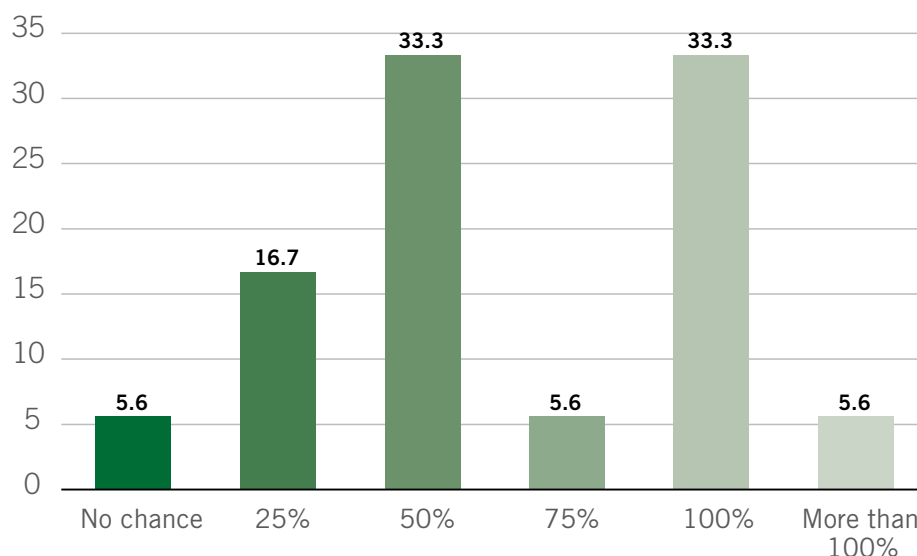
a) Shift sector production focus from domestic to export markets

In the short-term, it is expected that the sector will shift its focus from domestic to export markets. While scaling up production and improving the quality and pricing of existing oilseeds and products in the short term, focusing on both local (import substitution) and regional markets, the sector needs to embrace efforts to re-orient the industry from domestic to export markets. The idea is to take advantage of the interest that the majority of the non-exporting enterprises (87.5 per cent) have in exporting their products. The logic is that access to export markets offers opportunities for higher output and greater profitability, which in turn are necessary for adding value to new, higher-value products and generating more employment.

Scaling up production is possible in Malawi. For instance, Ministry of Agriculture estimates show that domestic soya production has increased steadily over the years at an average annual growth rate of 12.5 per cent. Growth in the production of sunflower, soya and groundnuts together averaged about 10 per cent between 2002/03 and 2012/13. Moreover, 78 per cent of respondent firms (Figure 6) reported the capacity to increase production immediately by at least 50 per cent, should they experience increased demand for their products (ILOOES, 2015) (Figure 7). Malawi would, however, benefit from more inclusive business models and new marketing approaches in order to increase its oilseed production. This might be achievable by linking farmers to processors and formally structured market channels through contract farming and the setting up of estate farms as part of an anchor-farm production model. As small-scale producers access higher-value markets and increase their incomes, they could make greater efforts to add value to their produce. This offers the opportunity for the rural population to move from subsistence to more market-oriented farming, thereby increasing supply to the local market.

¹⁶ The preferred scenario results from a combination of key features of the “same but more” and “sector upgrade” scenarios.

¹⁷ The NES target is to increase oilseed and oilseed-product exports to \$599 million by 2022, representing 14.7 per cent of total exports (forecast at \$4.067 billion) and 13.8 per cent of total imports (forecast at \$4.352 billion).

**Figure 7. Capacity to increase production to meet increased demand for products**

Source: ILOOES, 2015.

Current unmet demand for oilseeds in Malawi is substantial. This offers opportunities for increasing domestic production of soya beans, groundnuts and sunflower for the local market. For instance, sunflower demand is between 30,000 and 40,000 MT per year, while production in 2014 was only 17,000 MT.¹⁸ Local demand for soya increased by over 40 per cent between 2002 and 2013, with over 6 per cent of this demand met by imports between 2010 and 2013. National demand for groundnuts is estimated at more than 60 per cent of national production since 2002, with over 38 per cent of local demand met by imports between 2010 and 2013.

Survey information from enterprises (ILOOES, 2015) also highlights an unmet demand for oilseeds in regional markets, with over half of the respondents (57 per cent) acknowledging the existence of considerable export potential for Malawian oilseeds. For instance, regional demand for groundnuts grew by an average of 25 per cent between 2007 and 2011.¹⁹ Malawi supplies 99 per cent of both Tanzania's and Zambia's groundnut requirements and 64.5 per cent of South Africa's.²⁰ Exports of soya (and cotton) to Zambia, Botswana, Kenya, South Africa and Tanzania experienced average growth of 25 per cent between 2007 and 2011, and Malawi is now the greatest supplier to Zambia. This is consistent with the view among enterprises that there are opportunities for increasing exports of soya beans, groundnuts and sunflower to supply the regional market.

Malawi also has the opportunity to increase production to substitute imports of higher-value oilseed products, as processed products (oils, oilcake, etc.) account for more than half of total imports of such products. Local market demand for cooking oil and soaps is not yet covered by the country's own production.

b) Steadily growing demand to sustain the growth path in the medium-term

Beyond the local market, there is a sizable market for cooking oil in Tanzania and Egypt. There is also a large COMESA regional market for soaps, estimated to be worth around \$400 million²¹ (GoM, 2012). There are therefore also opportunities for increasing domestic production of higher-value products made from soya beans, groundnuts and sunflower for the regional market.

¹⁸ www.most.mw [18 Jul. 2016]

¹⁹ The SADC's groundnuts market is estimated at \$20 million.

²⁰ Malawian groundnuts face a 10 per cent import tariff in Tanzania but no tariff in South Africa.

²¹ 2011 estimate.

It is expected that Malawi will enjoy steady growth in demand for oilseed-sector exports in the medium term. However, to sustain the desired growth path, the country will need to take measures to cushion the impact of fluctuating demand in regional markets, and reduce its reliance on the small but growing local market, by exploring new markets. The idea is to take advantage of enterprises' existing plans to penetrate new markets beyond the current domestic and regional spheres, given that the majority of respondents (57.6 per cent) cited COMESA, SADC and the EU, followed by the United States and other African countries (30.8 per cent), and Asia (11.5 per cent), as potential future export markets (**Table 1**). For instance, there is a market for groundnuts in Rwanda which Malawi is not currently addressing. In addition, Egypt is one of the major importers of sunflower seeds within COMESA; Malawi could well tap this market, given that Egypt does not impose high import barriers on sunflower seeds.²² Furthermore, there are new regional markets for soaps in Zimbabwe, South Africa and the Democratic Republic of Congo. There are therefore also opportunities for increasing domestic production of higher-value products made from soya beans, groundnuts and sunflower to cater for new regional markets.

Table 1. Consideration of regional and international markets as future export markets

Country or economic region	Per cent
COMESA	19.2
SADC	19.2
European Union	19.2
United States	15.4
Other African countries	15.4
Asia	11.5

Source: ILOOES, 2015.

Beyond the regional market, there are opportunities for increasing domestic production of soya beans, groundnuts and sunflower for new export markets in developed and other non-regional countries. The international trade in soya beans is a huge business worth over USD 50 billion, with China and Japan as the largest importers and the United States, Brazil and Argentina as the main exporters. There is also increasing global demand for groundnuts (the nuts themselves), with the European Union and Mexico as the largest markets and Argentina, India, China and the United States as the main exporters. For sunflower, the largest markets are the European Union and the Russian Federation²³, while the European Union, Ukraine, China and the United States are the main exporters.

For oils, oilcake and higher-value products, the largest markets are the European Union and China, which are also the main exporters. There is also increasing global demand for high-value products made from groundnuts (especially groundnut oil), with the European Union and Mexico as the largest global markets and Argentina, India, China and the United States the main exporters. There are therefore opportunities for increasing domestic production of higher-value products made from soya beans, groundnuts and sunflower for export markets in developed and other non-regional countries.

It is envisioned that Malawi will effectively capitalize on her comparative advantage and adopt innovative channels for penetrating export markets. The country has a comparative advantage in the production of commodities such as groundnuts, and production can easily be scaled up since these crops are widely grown and adaptable to diverse local environments. At the regional level, the country has a comparative advantage

²² Only 2 per cent for those outside of its trading partnerships.

²³ Other global importers of sunflower include Turkey and China.



in terms of its productive capacity, proximity to regional markets and preferential trading arrangements within SADC, COMESA, the East African Community (EAC) and TFTA. In particular:

- Zimbabwe and Zambia are both natural trading partners for Malawi where soya and groundnuts are concerned, due to their geographic proximity.
- There are no tariffs or significant non-tariff barriers²⁴ on soya bean imports into Zimbabwe, Zambia, South Africa, Tanzania, Mozambique, Botswana and Kenya.
- There are no tariff barriers or significant non-tariff barriers on groundnut imports into Kenya, Zimbabwe, Rwanda, Zambia and South Africa.

At the international level, Malawi can take advantage of its status as a LDC through existing preferential trade arrangements such as:

- the Generalized System of Preferences (GSP) Scheme of the European Union EBA Initiative;
- AGOA – now extended for 15 years beyond 2015;
- China General Tariff Preferential Treatment;
- India Preferential Trade Benefiting LDCs;
- Japan Preferential Trade Arrangement Benefiting LDCs.

In addition, Malawi can take advantage of the following trade facilitation opportunities:

- Fairtrade Mark branding for exports of products such as soaps outside the region;²⁵
- Preferential access to the United States and Japanese groundnut markets, which impose high import tariffs on other competitors;
- Existing preferential trade arrangements within SADC, COMESA, EAC and TFTA; some of Malawi's competitors (e.g. Brazil and Argentina) face a 10 per cent tariff barrier on exports to South Africa.

Malawi can also exploit ways of penetrating the regional and international markets. For instance, given that South Africa supplies cooking oil to Zambia and Zimbabwe, bulk selling to South Africa for packaging and onward export to Zambia and Zimbabwe could link Malawi into the regional value chain. Given its low level of manufacturing and agro-processing, Malawi could begin by supplying raw and semi-processed products to food processing businesses in South Africa as a short-term measure. Further development of the processing industry would follow naturally as a result of Malawian enterprises' exposure to international processing value chains.

Sector players can also seek to secure partnerships and joint-enterprise ownership with international companies as a way of developing trading relations that will link them to export trade value chains across countries. This would help address what was identified by the Global Enabling Trade Report (World Economic Forum, 2014) as Malawi's third most challenging trade issue, namely the ability of local firms to identify potential export markets. There is a need to expose local producers to international markets through such mechanisms as enhanced facilitation of international trade deals and, possibly, the promotion of joint ventures between oilseed industry companies in Malawi and companies in targeted export markets. The Oilseed Enterprise Survey revealed which export markets were being targeted by the sector: the respondent enterprises mentioned the COMESA and SADC regions (61.6 per cent) as very important markets for their current products, followed by

²⁴ Non-Tariff Barriers (NTBs) are restrictions resulting from prohibitions, conditions, or specific market requirements that make the import or export of products difficult and/or costly. NTBs also include the unjustified and/or improper application of Non-Tariff Measures (NTMs), such as sanitary and phytosanitary (SPS) measures and other Technical Barriers to Trade (TBT). (<http://www.tradebarriers.org>)

²⁵ The Fairtrade Mark is an independent consumer label which appears on overseas products sold in the UK as a guarantee that they have been certified against internationally agreed fair trade standards. It means that internationally recognized fair trade rules have been met, as agreed with 20 other countries, working globally with producer networks as the Fairtrade Labelling Organizations International (FLO). Fairtrade products range from tea, coffee, fruit and chocolate to beauty items, gold and other jewellery, wine, cotton and clothing. However, products from Europe and North America are not eligible for Fairtrade status. The Fairtrade Mark indicates that the individual product has been certified as giving a better deal to the producers involved; it does not serve as an endorsement of an entire company's business practices.

Asian markets (23.1 per cent), other African countries (7.7 per cent), the European Union (3.8 per cent) and the United States (3.8 per cent). While 44.4 per cent wish or plan to export to the SADC and COMESA regions, 22.2 per cent wish or plan to export to both the European Union and United States markets. About 18.5 per cent wish or plan to export to Asian markets, with the remainder (14.8 per cent) focused on other African countries.

2.2 BUSINESS CAPABILITY GAPS

The oilseed sector in Malawi has the potential to meet the objectives of the vision presented above, with 78 per cent of the firms surveyed indicating that they have the capacity to increase production by at least 50 per cent in the short term (ILOOES, 2015). If they are to do so, several issues need to be addressed. In line with the Oilseed Enterprise Survey and analysis of the business environment, this report focuses on five main areas where there are capability gaps.

2.2.1 SUPPLY CAPABILITY

The development of the oilseeds value chain requires a strong base of suppliers of primary products. The capabilities of farmers need to be developed to enable them to scale up production and, at the same time, address quality issues so that they meet the requirements of both domestic and export markets.

Enterprises mentioned low levels of production as one of the problems faced by the industry. For the upstream value chain, the challenges include low productivity (soya, groundnuts) due to poor quality seed and use of inefficient production techniques by smallholder farmers. For example, the average crop yields of 800 kg/ha for groundnuts and 400-500 kg/ha for sunflower in Malawi are much lower than the potential yields of 4,000 kg/ha and 3,000 kg/ha respectively.²⁶ Low productivity is aggravated by a poorly developed contract farming system and extension systems, as well as limited mechanisation.

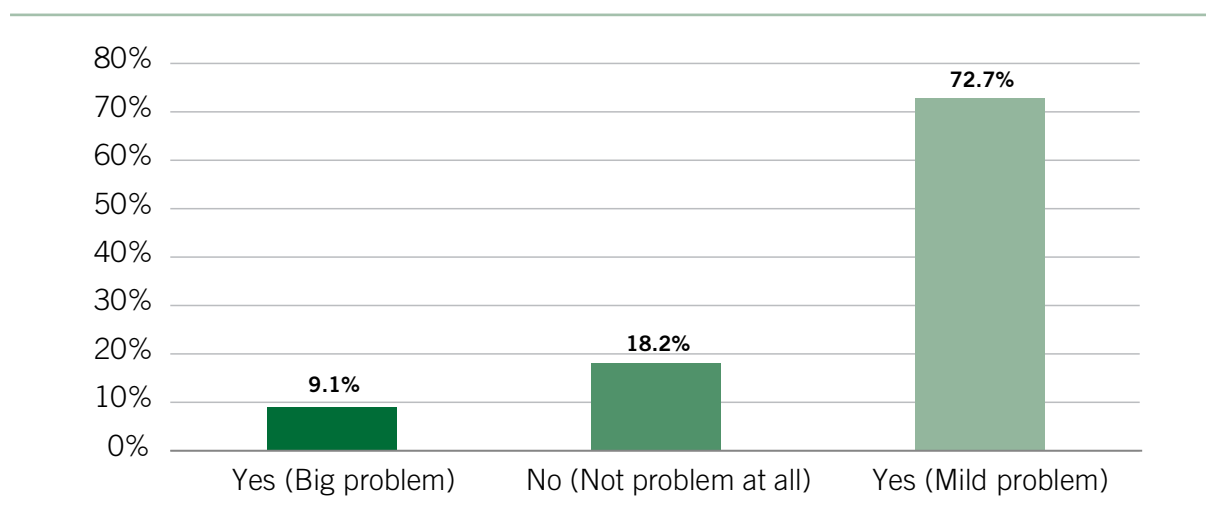
Enterprises engaged in contract agreements with farmers acknowledged difficulties in identifying qualified farmers to produce commodities of the required quality, pointing out that production levels and quality are often unsatisfactory, despite the fact that they provide farmers with such inputs as seeds and pesticides. This low productivity is explained partly by a poorly developed and supply-driven extension system. The system's current focus on supply as opposed to demand results in failures to meet the needs the upstream value chain at the appropriate times. Mechanization, meanwhile, is limited because of the small size of the plots of land available to smallholder producers. According to a recent soya value chain study by Deloitte (2012), 95 per cent of Malawi's soya is produced by farmers holding less than 3 hectares of land.

Many enterprises (81.8 per cent) indicated that sourcing high-quality raw products, including groundnuts, soybeans and sunflower, is a challenge when it comes to meeting the high quality requirements for exporting (**Figure 8**) (ILOOES, 2015). Other problems include aflatoxin in groundnuts, high moisture content, and foreign materials being found in products due to poor grading. According to exporters, sub-standard quality is the main factor that holds down the price of Malawian exports. This is due to unsophisticated pre-production, production and post-production techniques. Returns on exports are additionally reduced by high transport and handling costs.

²⁶ <http://www.cabi.org/gara>



Figure 8. Whether sourcing high-quality raw products is a challenge for exports business



Source: ILOOES, 2015.

The following aspects of agricultural production need to be addressed:

- The development and supply of appropriate and improved farm inputs, including new seed varieties;
- Proper access to technical assistance and the introduction of demand-driven extension services;
- Introduction of efficient production/farming techniques, including mechanization, to reduce drudgery and labour costs at small and large-scale production levels;
- Introduction of better techniques and appropriate technologies for harvesting, handling and storing crops;
- Incentivising the production of agricultural products, by appropriate pricing of agricultural inputs such as seeds, pesticides and fertilizers; offering attractive farm gate prices to farmers; and eliminating policy inconsistencies;
- Adequate linkages between farmers and processors, as well as coordination among farmers; and between farmer groups and potential trading partners.

2.2.2 PRODUCT DEVELOPMENT

For Malawi to be able to substitute imports of high-value products, and penetrate new regional and international markets, it is necessary to improve existing products and develop the capacity to produce new ones domestically. This requires knowledge of what the markets require in terms of type of products, prices and quality, as well as product development, innovation and investment to translate market requirements into appropriate products. All the firms that responded to the STED Oilseed Enterprise Survey acknowledged that technical assistance was needed in R&D and innovation, and the majority (80 per cent) also said they needed technical assistance in order to understand end users.

2.2.3 QUALITY AND STANDARDS

For the sake of protecting health and for other reasons, importing countries specify rules and regulations governing the standards and quality of the products they import. Some of these rules and regulations translate into testing, packaging and labelling requirements. Beyond international and national standards, compliance is required with standards set by the private sector, including enterprises and industry associations. In recent years, the need to comply with standards requiring the monitoring and reporting of labour conditions has also become increasingly common²⁷.

As indicated above, meeting the quality/quantity requirements of buyers remains one of the top four factors limiting Malawi's export trade (World Economic Forum, 2014). Especially salient is the case of groundnuts. These are often rejected in international markets due to non-compliance with quality standards, associated mainly with breaches of the maximum permitted aflatoxin levels. Therefore, if Malawi's groundnuts and other oilseeds²⁸ exports are to become competitive, an effective system of aflatoxin control and management is needed. This must cover the entire value chain, starting from where the problems arise – primarily on the farm and continuing throughout the buying, grading, storage and exporting process (Emmott and Stephans, 2012).

Capacity for analysing biological, chemical, heavy-metal and physical food hazards in Malawi is limited. The country also lacks an overarching food safety system, and there is a significant shortage of skilled manpower, testing equipment and facilities. About 9.1 per cent of the exporting firms surveyed reported that their staff did not understand the standards to be followed in the case of products destined for export (ILOOES, 2015). There is poor regulatory enforcement and sometimes no relevant regulatory framework governing quality and standards in local markets. 50 per cent of the enterprises surveyed did not have a quality certificate, and 48 per cent reported that products destined for exports were not tested for conformity with international technical regulations before shipping. One out of three firms thought that technical regulations on food products were burdensome due to procedural inefficiency, the high cost of conformity assessments, and lack of information on technical requirements and how to pass conformity assessments. With all these gaps, it is not surprising that sub-standard quality constrains the prices commanded by Malawian exports. Enterprises consistently mentioned quality assurance and control, laboratory technicians and food safety as areas in which there will be a demand for skilled personnel in the coming five years. All the enterprises surveyed felt they were in need of technical assistance in quality assurance, safety and hygiene, as well as international testing and certification. Additionally, 75 per cent said they required technical assistance in domestic regulatory compliance.

For the vision to be realized, it is imperative that Malawi position itself to comply with the quality and standards requirements of existing markets, as well as new regional and international markets. Regulatory bodies must conduct regular inspections and facilitate complementary technical support to enable producers to meet international standards. Simultaneously, Malawi should start requiring that quality certificates be obtained for oilseed exports.

27 For a detailed account of labour governance in Global Supply Chains, consult the report submitted to the 105th Session of the International Labour Conference (2016). Available at: http://www.ilo.org/ilc/ILCSessions/105/reports/reports-to-the-conference/WCMS_468097/lang-en/index.htm [18 Jul. 2016].

28 Birdseye chilies, paprika, maize, etc.



2.2.4 LOGISTICS, TRANSPORT AND OTHER INFRASTRUCTURE

Improvements to public and municipal infrastructure, including storage facilities, access roads and means of transport, is essential for the emergence and efficient functioning of value chains. This is an area in which Malawi suffers from serious bottlenecks. As Malawi is landlocked, high transport costs adversely affect the country's competitiveness and access to export markets. The Global Enabling Trade Report (World Economic Forum, 2014) lists high cost or delays caused by domestic transportation as the second most challenging factor for exporters. The costs and time required to complete the export process, arising from Malawi's geography and accompanying transport problems and export procedures, remain key challenges. 62 per cent of exporters surveyed by the International Trade Centre in 2012 reported difficulties due to administrative delays and complicated procedures (ITC, 2012).

Underdeveloped road networks characterize Malawi's rural areas and contribute to high transaction costs.²⁹ Investment in building and rehabilitating road infrastructure, upgrading and maintenance would generate positive effects across the supply chain. Linking rural areas to urban areas, and rural areas one to another, would connect farmers to regional and sub-regional markets, improving their sales and productivity. In addition, road network development in non-rural areas would further lower transport costs and ease access to international road networks, leading to greater economic activity.

Post-harvest losses suffered by smallholder farmers due to lack of storage facilities are particularly acute in the case of soya beans, whereas losses in sunflower production are due mainly to poor storage techniques. Both contribute to the existing low levels of production, which in turn affects the supply of the raw oilseed products required for oilseed processing. Proper handling, storage and packaging are required, including the provision of adequate facilities. Enterprises also mentioned unreliable and intermittent power supply as one of the main problems faced by the industry.

2.2.5 MARKETING AND SALES SERVICES

As noted above, the Malawian oilseed sector has not yet succeeded in building export relationships so as to become part of global supply chains. The oilseed industry in Malawi does not include firms with joint ownership, and few have a direct contractual relationship with leading global firms in the sector. Identifying potential buyers and/or investment partners with a view to accessing export markets remains a challenge.³⁰ Exposure of local producers to international markets might however be explored by facilitating international trade and possibly by promoting direct foreign investment by MNEs. Direct ownership of subsidiaries by MNEs, or joint ventures with Malawian companies in the sector, could increase sales in international markets, while facilitating skills development and technology transfer.

In order to become more attractive to international markets, Malawi needs to reduce the cost and time required to complete the export process. These costs and time delays are associated with geography and the accompanying transport challenges, as well as complicated export procedures and policy uncertainty.³¹ The enterprises taking part in the survey identified strict national regulations and high transport (freight) costs as major hindrances to increasing exports to the European Union and the United States. Exporters need assistance in the form of information on interested international buyers in order to sell their products to new markets.

²⁹ Malawi has a public road network running to 15,451 km, as well as 9,478 km of undesignated roads serving rural communities. Only 28 per cent of the public road network is paved. Source: Malawi Roads Authority (2012), Roads Authority 2012 Annual Report. Available at: <http://www.ra.org.mw/wp-content/uploads/2014/12/Roads-Authority-Annual-Report-2012.pdf>

³⁰ This is the third-ranking factor hindering Malawi's export trade (World Economic Forum, 2014).

³¹ International Trade Centre. (2012). Malawi Company Perspectives: An ITC Series on Non-Tariff Measures.

2.3 IMPLICATIONS FOR SKILLS TYPES

In order to bridge these capability gaps, it is necessary to address the implications where skills needs are concerned.³² This section presents the skills aspects of the measures that need to be taken.

The Skills Scoping Study (2014) indicates that the oilseeds sector needs expertise at three occupational levels: the professional and specialist level (including managers); the technician level; and the operative and artisan level. At the professional and specialist level, the sector needs agri-business or farm managers (multi-skilled in crop and livestock management), mechanical engineers (with skills in plant installation and maintenance), electrical engineers, process engineers, and monitoring and evaluation experts. At technician level, the sector needs food technologists, farm scouts³³ and supervisors, quality assurance supervisors, mechanical engineering technicians (with skills in tool machining), laboratory technicians and electrical engineering technicians. At the operative and artisan level, the sector needs expeller machine³⁴ operators, electricians, turners, plumbers, general fitters and farm assistants (skilled in irrigation, and crop and livestock management).

2.3.1 TYPES OF SKILLS FOR SUPPLY CAPABILITY

Farmers need a wide array of production and handling skills in order to upgrade their production process and make it more efficient. Given the multitude of farmers, they could be trained locally via demand-driven extension services in the use of right agriculture inputs, efficient production techniques, choice of crops according to appropriate agro-ecological zones and post-harvest handling techniques. There is therefore a need for expertise in agriculture extension services³⁵, agri-business and quality management. Specific requirements include skills in crop production and management (farm assistants), farm scouting, farm mechanization and engineering (including plant installation and maintenance), agri-business management (farm managers), and leadership and management.

2.3.2 TYPES OF SKILLS FOR PRODUCT DEVELOPMENT

Product differentiation and development occurs where more advanced product types with enhanced features are introduced, requiring a more highly skilled workforce. This calls for expertise in R&D and innovation, quality management and food technology, including cooking-oil and essential-oils technology. For the actual production work, expertise is required in process engineering, product mixing, mechanical and electrical engineering (including tool-machining skills), solvent plant engineering and machine operations.

2.3.3 TYPES OF SKILLS FOR QUALITY AND STANDARDS

Compliance with quality and standards requirements is needed if firms are to access the oilseed supply chain. This requires skills in the analysis and laboratory testing for biological, chemical, heavy-metal and physical food hazards; quality certification and enforcement; quality assurance and control; and standards and compliance documentation. Skills are required at both firm and regulatory system levels. At the latter level, it is also important to ensure that senior staff have the leadership and management skills needed to withstand inertial pressures against a culture of enforcing quality and standards compliance.

32 All the firms surveyed in the Oilseeds Enterprise Survey (2015) agreed that the recruitment of graduates with appropriate skills was important for their penetration of regional and international export markets such as COMESA, SADC and the EU. A large majority of the firms also agreed that recruitment of graduates with the appropriate skills was important for if they were to penetrate other African (85.7 per cent), United States (83.3 per cent) and Asian (75 per cent) markets.

33 Crop scouts assess pressure on crops from disease and pests, and assess crop performance.

34 An expeller machine is used to extract oil from oilseeds.

35 There is high vacancy rate for extension staff positions and available staff lack knowledge on growing oilseed crops under irrigation (Wiyo and Nyekanyeka, 2014)



2.3.4 TYPES OF SKILLS FOR LOGISTICS, TRANSPORT AND OTHER INFRASTRUCTURE

Inbound and outbound logistics are critical in linking upstream producers and suppliers with downstream processors and exporters. Efficiency in logistics requires expertise in supply-chain development and management. It also demands expertise in understanding and applying export regulations. While upstream producers and suppliers require expertise in post-harvest handling and storage, downstream actors need expertise in packaging. On the part of regulators, it requires expertise in efficient administration and the facilitation of compliance with export procedures and processes, so as to reduce unnecessary delays and costs, and develop the ability of firms to comply with national and international regulations and standards.

2.3.5 TYPES OF SKILLS FOR MARKETING AND SALES

To penetrate regional and international markets, as well as different product markets, the industry needs people skilled in establishing international marketing strategies and operations; establishing, building and sustaining export relationships with various players (retailers, agents, distributors, joint international partners); facilitating international trade deals; ensuring that packaging and labelling designs are suitable; and compliance with export process requirements.

2.4 DEMAND FOR WORKERS BY SKILLS TYPE

2.4.1 SIMPLE MODEL FOR PROJECTING LABOUR DEMAND BY OCCUPATION

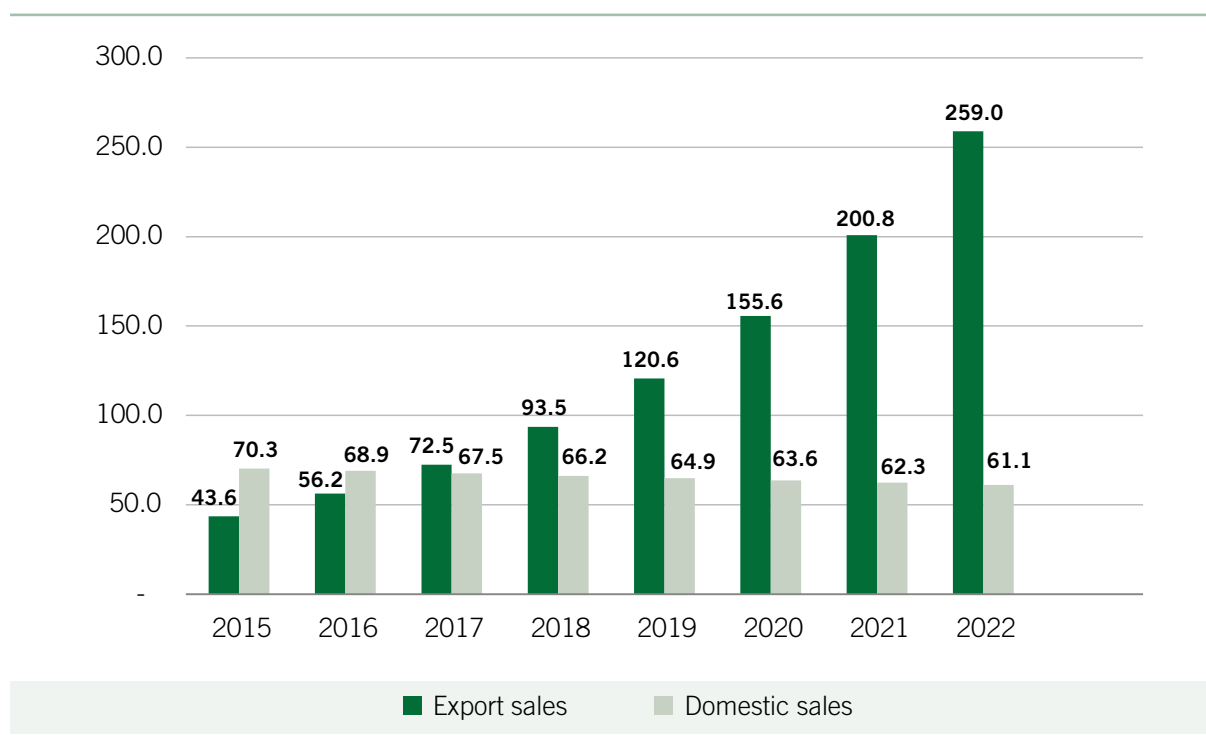
The Malawi Labour Force Survey (GoM, 2013) presents the national occupational structure in Malawi.³⁶ The Skills Scoping Study (2014) further specifies the occupational structure of the oilseed sector, identifying three main levels: the professional and specialist level (including managers); the technician level; and the operative and artisan level. There is, however, no historical data for making a quantitative analysis and modelling skills requirements for these occupational categories. This report therefore uses a simple quantitative model to examine the demand for workers, but in a qualitative way, so as to provide a reality check. The model uses the current occupation profile of the oilseed sector, as obtained from the Oilseeds Enterprise Survey (ILO, 2015) to project labour demand by occupation. It should be noted that the occupational demand projections produced by the model may not exactly reflect actual demand. The projections nevertheless represent the approximate scale of demand, within the limitations of the systematic and logical approach of the following simple model.



Stage 1: Linking trade to output

The link between trade and output is based on a projection of oilseed exports increasing from MK 57.3 billion in 2014 (NSO) to MK259 billion in 2022, in line with the vision outlined above. Secondly, consistent with the objective of re-orienting the industry from domestic to export markets in the short term, it is possible to project domestic sales and total sales/output of oilseeds on the basis of a decrease in domestic sales from 70 per cent of total sales in 2013 to 68 per cent in 2014, and an increase in export sales from 28 per cent of total sales in 2013 to 30 per cent in 2014 (see **Figure 9**).

³⁶ Occupations include managers, professionals, technical and associate professionals, clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machinery operators and assemblers, and elementary occupations.

Figure 9. Oilseed sales projections, 2015-2022

Note: Information for the year 2015 was provided by respondents. Sales between 2016 and 2022 are projected figures.

Source: Authors calculations based on ILOOES (2015).



Stage 2: Linking total sales to employment

According to the ILO Oilseeds Enterprise Survey (2015), there were 10,125 workers in the oilseeds and oilseed products industry in Malawi.³⁷ To establish a link between total sales, as project above, and employment, we must first compute labour productivity.³⁸ Secondly, from the computed base level of output per worker of MK8.44 million in 2015, the link assumes an annual growth rate of 3 per cent in output per worker. Assuming no changes in total sales, an increase in productivity as a result of increased automation or improvements in human capital would have a negative effect on employment levels. However, if total sales increase and producers and processors access more lucrative export markets, employment will rise, assuming that labour productivity stays the same. Based on GDP growth in 2015/16, it is assumed that employment will grow by the same GDP real growth rate of 7 per cent.³⁹ The net effect of the reduction in employment due to the increase in productivity, and the increase in employment due to greater production resulting from better access to more lucrative export markets, is presented in **Figure 9**.

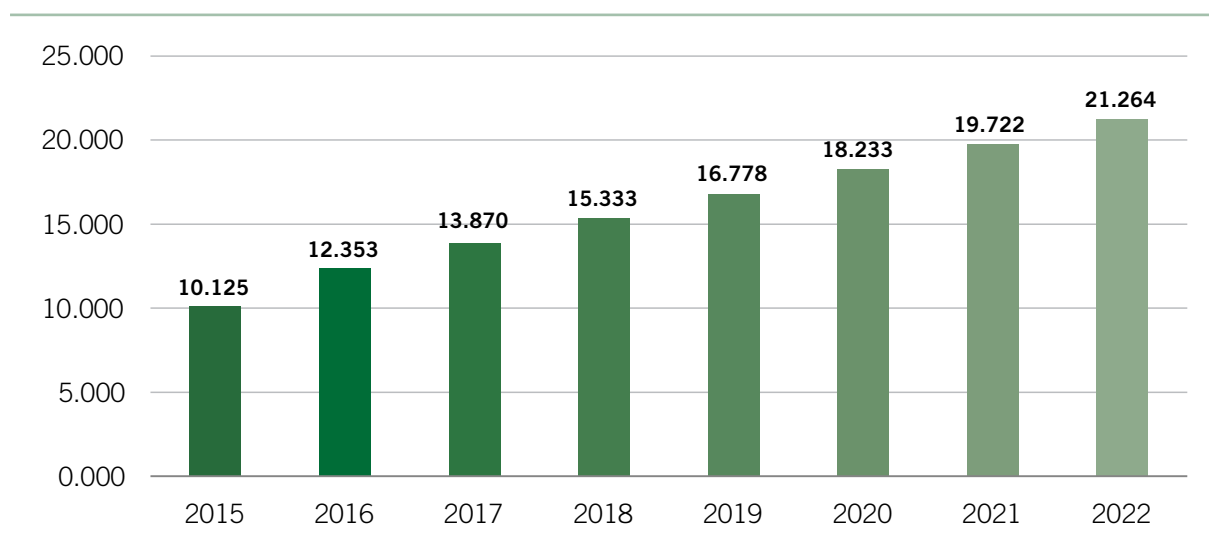
³⁷ The figure is estimated by adding together the numbers of workers employed by the enterprises which participated in the Oilseed Enterprise Survey (2015). It includes growing, processing and distributing companies but does not include intermediaries and transport enterprises. The estimate does not include small enterprises, which are difficult to trace, and many enterprises in the informal sector.

³⁸ Labour productivity is defined as output per unit of labour input. In this case, it is the result of dividing total sales for 2015 (MK114 billion) by the number of workers involved (13,500 workers), which gives MK8.44 million per worker.

³⁹ Minister of Finance, Economic Planning and Development. Honourable Goodall E. Gondwe. 2015-16 Budget Statement. Delivered at the National Assembly of the Republic of Malawi. Available at: http://www.finance.gov.mw/index.php?option=com_docman&task=doc_download&gid=199&Itemid=55



Figure 10. Net projected employment levels in the oilseed sector, 2015-2022



Note: The employment figures for 2015 were estimated by adding the workforce numbers of participants in the Oilseeds Enterprise Survey (2015). The employment figures for the years 2016 to 2022 are projections.
Source: Author's calculations based on ILOOES (2015).

2.4.2 RESULTING EMPLOYMENT WITH LABOUR DEMAND BY OCCUPATION

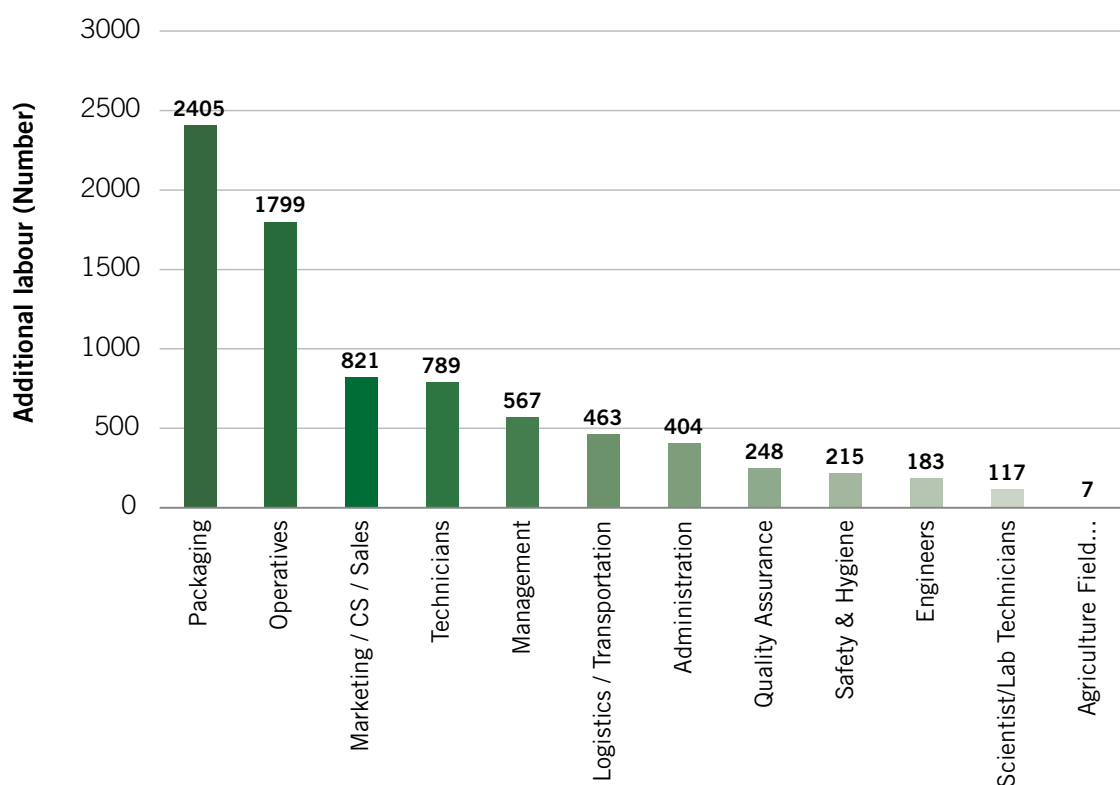
The result of the projection is a total additional labour requirement of approximately 11,139 workers by 2022. Taking into account the 218 additional workers already needed at the time of the Skills Scoping Study (ILO, 2015), the total additional labour demand amounts to 11,357 workers, which represents a 16.02 per cent increase per annum.⁴⁰ However, it should be noted that additional labour demand arising from retirement or workers leaving the sector is not accounted for.

Combining this with a projection of the increase in employment by occupation based on the current occupation profile of the Oilseeds Enterprise Survey (2015) produces the projection of additional employment by occupational area shown in **Figure 11**.⁴¹

40 [18 Jul. 2016]. The Skills Scoping Study (2014) identified a shortfall of 218 workers in the following areas: 115 operatives, 33 in marketing and sales, 22 in packaging, 22 in management, 17 in logistics/transportation and 6 in safety and hygiene.

41 Additional demand due to workers retiring or shifting to other sectors is not accounted for.

Figure 11. Projected additional labour requirements by occupation area in oilseed sector in 2022



Source: Author's calculations based on ILOOES (2015).

Although the Skills Scoping Study (2014) had a short-term horizon in estimating additional labour demand, the skills gaps in the areas of marketing and production were also highlighted in the Oilseeds Enterprise Survey (2015). Management, transport/logistics and quality/safety & hygiene occupations were also reported as areas of significant shortage. Enterprises consistently mentioned packaging, production management, marketing/international trade marketing, laboratory technicians, quality assurance and control and food safety as areas in which there will be a demand for workers in the coming years in Malawi.

2.5 THE SKILLS SUPPLY GAP

Significant shortages are apparent in the oilseed sector, in terms of both numbers of workers and quality of skills. Firms encounter difficulties in filling important positions with qualified workers. The Oilseeds Enterprise Survey (2015) indicates that firms currently find it difficult to recruit engineers (75 per cent), scientists and laboratory technicians (67 per cent), technicians (50 per cent), operatives (27 per cent), packaging workers (18 per cent), managers (17 per cent) and administrators (8 per cent). In addition, some firms are not satisfied with the qualifications of their current workers, in particular technicians (20 per cent), engineers (13 per cent) and administrators (8 per cent). In terms of the capacity of training institutions and the quality of the graduates they produce, 9.1 per cent of firms are not satisfied with the competency of operatives and packaging workers at the time of recruitment, while around 10 per cent are dissatisfied with the competency of newly recruited technicians and scientists/laboratory technicians. 52.7 per cent of firms disagree that university graduates have the knowledge and skills they need, while 68.4 per cent disagree that newly recruited technical school graduates have the required knowledge and skills. Consequently, the projected increase in employment from



about 10,125 workers to 21,300 workers in various occupations in the oilseed sector needs to be addressed in terms of both numbers and quality.

In Malawi, there are 52 registered institutions that provide technical, entrepreneurial and vocational education and training and 18 higher education institutions or universities, including four public universities. The Skills Scoping Study (2014) revealed that no training institution was producing graduates with skills in occupations such as food technology (including oils technology). The study also revealed that training institutions were not training enough graduates – and those that were trained did not have the adequate skills – in occupations such as farm assistants (irrigation, crop and livestock management), farm scouts, machine operators (with skills in new technology), fabricators, agri-business supervisors, agri-business managers (farm managers) multi-skilled in both crop and livestock management, mechanical engineering technicians (with tool-machining skills), mechanical engineers (with skills in plant installation and maintenance), hybrid (electrical and electronics) technicians, electrical engineers, process engineers, procurement specialists, occupational health and safety specialists, preventive maintenance specialists, experts – including financial experts – and managers. There are therefore significant gaps in skills supply within the existing workforce.

According to the Skills Scoping Study (2014), existing training institutions have the capacity to train the additional 8,018 workers projected to be required by the industry by 2022. For instance, according to **Table 2**, with enrolment levels of approximately 5,500 students, training institutions will be able to form at least 3,500 graduates annually by 2022. However, the assessment of employers is that the quality of these graduates is not adequate.⁴²

⁴² *ibid.*

Table 2. Types of training programmes relevant to the oilseeds sector offered by training institutions, with numbers of students enrolled and graduates produced

Type of Training programme	Enrollment	Graduates
Seed & seedling multiplication	175	152
Farming & crop husbandry	563	553
Farm management & agribusiness	717	681
Irrigation technology	165	151
Pesticides, chemicals & toxic management	494	494
Quality management & standards & product certification	360	N/A
Food safety & hygiene	512	404
Production & processing management	424	336
Occupational health & safety	646	566
Product development & innovation	70	N/A
Specialized processing technology (e.g. essential oils processing)	46	N/A
Export marketing & export regulations	310	N/A
Quality management & international product standards	360	N/A
Laboratory technology	48	40
Metal fabrication & turning technicians	35	29
Technical technology (incl. plant installation & maintenance)	85	76
Electrical & electronics technicians	100	55
General fitting	N/A	N/A
Marketing	32	N/A
Banking & finance	51	N/A
Business administration	97	N/A
Economics	171	N/A
Food security & nutrition	N/A	N/A
Food processing & hotel management	N/A	N/A
Machine operators	N/A	N/A
Total	5,461	3,537

Source: ILO Skills Scoping Study (2014).



2.6 PROPOSED RESPONSES TO IDENTIFIED CHALLENGES

The research has identified and highlighted a number of sector capability gaps and related skills shortages affecting the performance of the oilseeds sector. Practical solutions and concerted efforts are needed to effectively address these challenges and to ensure that the sector has access to the full range of skills and competencies needed to foster its competitiveness. Below are some of the interventions recommended to address the sector's skills needs:

i) Design and implement tailor-made short-term skills upgrading programmes

The enterprises surveyed in the oilseed sector highlighted the need for technical training in R&D and innovation, quality assurance, safety and hygiene, and international testing and certification (ILO Oilseed Sector Survey, 2015). Eighty per cent of the firms mentioned the need for technical assistance in order to gain a better understanding of international distribution channels. In addition, 75 per cent require technical assistance in domestic regulatory compliance. It is therefore recommended that sector-specific short-term training programmes be implemented to facilitate skills development in these areas.

ii) Design and implement enterprise-based training for existing workers

Design and implement enterprise-based training to facilitate the up-skilling of existing workers in the oilseeds sector. The sector should take advantage of the training levy fund to design sector-standardized skills upgrading programmes for workers in the industry. This will help to ensure that the sector as a whole has access to workers with similar skills levels.

iii) Introduce an apprenticeship programme for the oilseeds sector

Enterprises themselves are often best placed to provide practical technical training, as they normally have more modern equipment than training Institutions. It is therefore recommended that formalized internships and attachment arrangements between enterprises and training institutions be organized in the short term so that training institutions and students have access to up-to-date sector technologies and equipment.

iv) Strengthen the capacity of higher learning institutions

There is already a significant level of value addition happening in the Malawi oilseeds sector. Higher-level processing capacity will however require more advanced skills levels and a greater capacity for utilizing technology-based processing solutions. To achieve this capacity, it will be necessary to:

- introduce sandwich-type degree programmes in selected courses at Lilongwe University of Agriculture and Natural Resources (LUANAR) and Malawi University of Science and Technology (MUST) in order to improve the quality and relevancy of the skills acquired by graduate students;
- design and implement industry-specific training in laboratory technology, an area in which the sector faces a critical shortage of skilled workers;
- facilitate twinning partnerships between MUST / LUANAR and international universities working effectively in similar fields, with a view to exposing the Malawian universities to international good practice in high-level agriculture and agro-processing training.

i) Other sources of skills

In the short term, the sector needs to look beyond the local training system to source qualified and skilled workers to complement the existing labour supply. This may also involve recruiting foreign workers.



The horticulture sector

3.1 SECTOR POSITION AND OUTLOOK

3.1.1 PROFILE AND CHARACTERIZATION

The horticulture sector has considerable economic significance worldwide as it contributes directly and indirectly to national income and employment opportunities for small farmers and agricultural workers, as well as workers in the agro-processing, packaging and distribution sectors. The NES includes the horticultural sector among the sectors on which Malawi should focus its exporting efforts in the coming years. While the NES includes horticulture within the agro-processing component of the manufactures export cluster, it does not provide a definition of what the horticulture sector itself includes. Nonetheless, the horticulture sector is said to include fruits, vegetables, flowers (including ornamental and cut-flowers), tree nuts, spices and herbs (Kachule and Franzel, 2009). For the purposes of this report, the horticulture sector includes raw and semi-raw fruits, vegetables and flowers, as well as their intermediate and processed products.⁴³ Processed fruit products include juices, jams, jellies and marmalades. Processed vegetable products include semi-raw products, such as dried peas, and composite products, such as ready meals or canned products. Value-added flower products include flower cuttings⁴⁴, cut flowers for bouquets, flower-based health products and perfumes.

⁴³ Examples of value-addition processes include refrigeration, freezing, drying, canning, pickling, packaging, irradiation, storage and cooking.

⁴⁴ Cuttings are partially grown stems of flowers or pot plants. Although they are intermediate products, they are more light-weight and delicate than flowers and can have higher unit prices (Evers, Amoding and Krishnan, 2014).



i) General overview

The NES acknowledges Malawi's potential to develop an integrated supply chain for the beverage and agro-processing industry, given that agricultural and (including horticultural) products grow well in the country. Malawi's varied climatic conditions, which range from tropical to semi-temperate, offer the opportunity to grow a wide variety of horticultural crops. Some of these crops can be grown under diverse climatic conditions and are grown in almost every part of the country. According to the Horticulture Enterprise Survey (2015), enterprises in the sector mostly grow tomatoes (15.3 per cent), onions (10.2 per cent), cucumbers (10.2 per cent), peppers (6.8 per cent), lettuce (5.1 per cent), cabbage (5.1 per cent) and carrots (5.1 per cent). Crops produced on a smaller scale include spinach (3.4 per cent), turnips – also known as Chinese in Malawi (3.4 per cent), mint (3.4 per cent), cauliflower (3.4 per cent) and broccoli (3.4 per cent).⁴⁵ Enterprises also produce small quantities of mango puree, banana puree, celery, artichoke, leeks, egg plants, flowers, roses, rosemary, peas, legumes, green beans, apples, oranges and beetroot (1.7 per cent of enterprises in each case). The sector is still undeveloped and has yet to make a significant impact on export markets.

ii) Trade patterns and trends

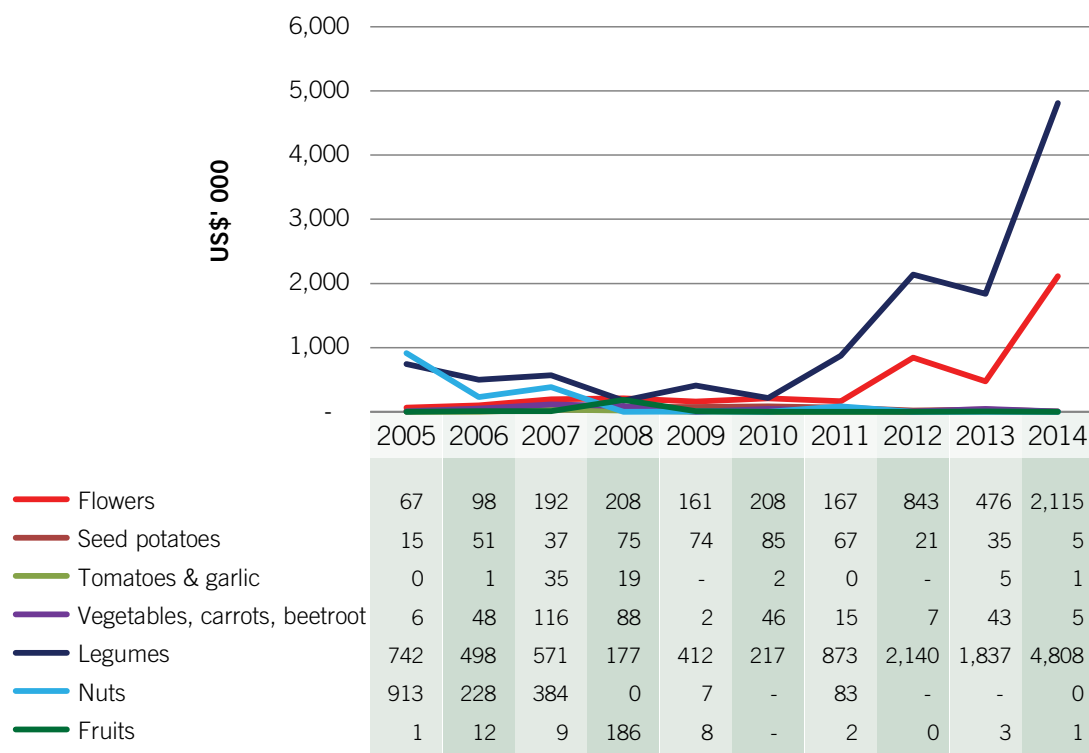
Aggregate production figures for horticulture products in different parts of the country and at national level are difficult to obtain, due to the unsystematic way in which production estimates are made. As a result, production data for specific fruits and other horticultural products are often not available.

The Horticulture Enterprise Survey (2015) was unable to establish trade patterns and trends in domestic and export sales due to the respondents' unwillingness to disclose sales figures. However, previous research estimated that domestic sales account for 60 per cent of total sales, with export sales (directly and indirectly) accounting for about 40 per cent.

As a share of Malawi's total exports, exports of horticultural products increased from 0.1 per cent in 2010/2011 to 0.3 per cent in 2014 (NSO). In value terms, horticulture exports were worth MK2.9 billion in 2014, equivalent to 0.12 per cent of GDP. Total imports of horticultural products amounted to MK1.7 billion in 2014, representing 0.14 per cent of Malawi's total import bill and equivalent to 0.07 per cent of GDP. In sum, Malawi ran a trade deficit of MK 1.3 in horticultural products, which suggests that there is potential for import substitution.

From the evidence of **Figure 13**, it is clear that exports of legumes and flowers have picked up in the last five years. If the trend continues, these commodities could potentially provide good alternative sources of foreign exchange.

⁴⁵ Other products and derived products produced by the Malawian horticulture sector include fruits such as apples, oranges, mango puree and banana puree; vegetables such as celery, artichokes, leeks, peas, legumes, green beans, beetroots and eggplants; flowers such as roses; and herbs such as rosemary.

Figure 13. Malawi's horticultural exports, 2005-2014

Source: NSO.

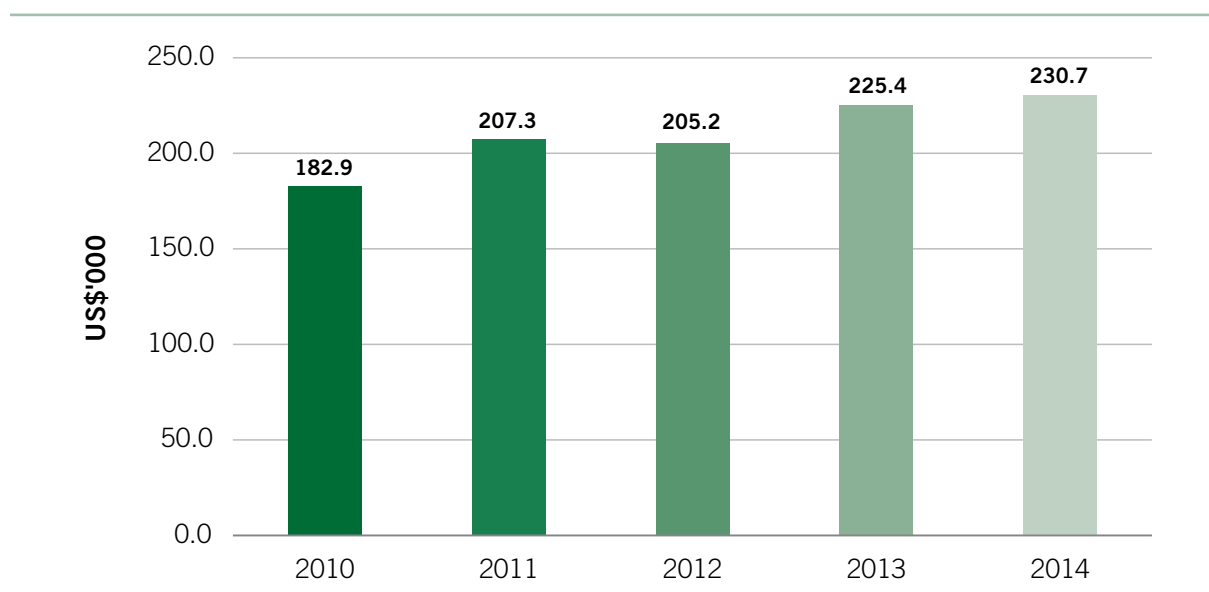
Global demand for selected horticultural products has been increasing since 2010 (Figure 14).⁴⁶ The BRICS countries (13.6 per cent), Africa (5.3 per cent), AGOA exporting countries (3 per cent), SADC (1.9 per cent) and COMESA (1.8 per cent) are the main exporting regions, with Africa, COMESA and SADC showing increasing trends since 2012.⁴⁷

⁴⁶ Product 08: Edible fruit, nuts, peel of citrus fruit, melons; Product 07: Edible vegetables and certain roots and tubers; and Product 20: Vegetable, fruit, nut, etc. food preparations.

⁴⁷ Note that membership of some of these trading groups overlaps. Figures should therefore not be aggregated.



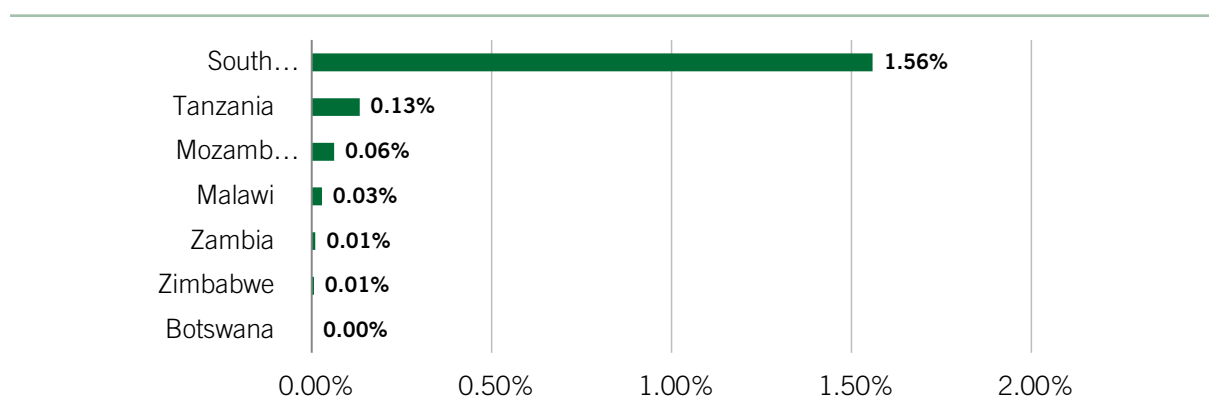
Figure 14. Global trend in horticultural exports, 2010-2014



Source: ITC, *International Trade Map*. Available at: www.trademap.org [18 Jul. 2016].

Among selected SADC countries, Malawi (0.03 per cent of world exports) is in fourth position, after South Africa (1.2 per cent), Tanzania (0.13 per cent) and Mozambique (0.06 per cent) (**Figure 15**). While Malawi and South Africa show steady increases, and Mozambique's exports have increased since 2012, Zambia, Zimbabwe and Botswana exhibit fluctuating trends.

Figure 15. Share of world horticultural exports by selected SADC economies, 2015



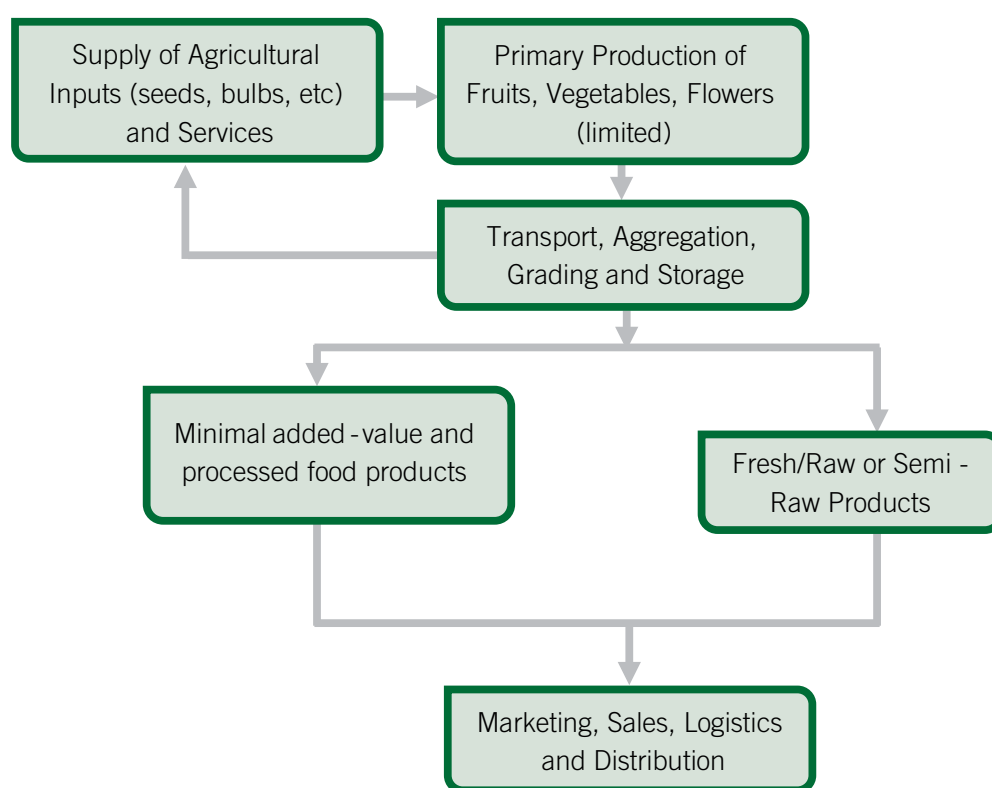
Source: ITC, *International Trade Map*. Available at: www.trademap.org [18 Jul. 2016].

iii) Malawi's horticultural value chain

The horticulture value chain varies from one crop type to another. Fruits produced in Malawi can be classified into raw and semi-raw commodities, as well as value-added and processed products.⁴⁸ Vegetables are mostly sold fresh/raw, or in some cases in semi-raw forms (for example, dried peas). However, as many of the vegetables grown in Malawi are potentially suitable for additional processing, it is better to think of vegetable value chains as potentially extending to value-added and processed products. Cut flowers in Malawi are exported fresh.

The value-chain analysis in this research is specific to fruits but can equally be applied to vegetables and flowers. A generic value chain is represented in **Figure 16**.

Figure 16. Malawi's horticultural value chain



The reality of value chains is very varied. Packaging activities may take place at any point between the farm and the final retailer, or products may be sold in bulk. Depending on the product and market, there may be intermediaries and/or cooperative organizations at various points along the value chain that are not depicted above.

Sales of fresh/raw and semi-raw products to final consumers on the domestic market take place in a wide variety of contexts: sales to neighbours or in local markets, sales through Malawian retailers, sales through international (i.e. South African) retail chains operating in the country. Products may also reach consumers through food-service businesses. Sales to final consumers internationally may be through any of a wide range of retailers or food-service providers.

⁴⁸ Examples of value-added fruit products include juices, jams, jellies and marmalades.



Cut flowers are exceptional among the horticultural sector's products, as they are produced to international quality standards, harvested and flown mainly to the Netherlands over short time-scales, then traded and distributed from the Netherlands alongside similar products from many other countries.

It is hard to define a single value-chain type in the floriculture industry in terms of the relationships, coordination and power of the actors at the different levels of the chain. There are stark differences between the cut-flower and ornamental-plants supply chains. The main difference is that some flowers can lose 15 per cent of their value every day after being cut if they are not delivered promptly to the customer, whereas, if treated adequately, ornamental plants are almost non-perishable (Van der Vorst, Bloemhof and de Keizer, 2012). Where flower supply chains are concerned, fast delivery to final consumers is essential. Flowers need to be shipped rapidly by air, with extremely efficient packaging and logistics. Costs are generally very high, with the air freight costs from Nairobi to Amsterdam estimated at a third of the auction price (Wijnands et al. 2007).

Industry actors can be conditionally divided into suppliers (plant-breeding companies), growers, mediators (auctioneers), traders (wholesalers, exporters), logistics service providers and outlets/retailers (florists, supermarkets, garden centres). Good relations between these actors are a key factor of industry success. In the case of the ornamental-plant supply chain, the problems are associated with the high degree of product and geographic specialization and the large number of primary and supporting actors. Here, the role of garden centres and lumber yards is more important than in the cut-flower chain (Van der Vorst, Bloemhof and de Keizer, 2012). This explains, at least in part, why the ornamental-plants industry is less developed than the flower industry.

Supermarket-quality fruits and vegetables are also exceptional, as it is necessary for growers in Malawi to meet international standards of product quality, reliability of supply and responsiveness in order to gain access to foreign-owned supermarket chains operating in the country. There is an immediate opportunity to grow sales through import substitution, and a longer-term opportunity to sell into export markets within the region serviced by the same supermarket chains.

Aside from basic processing such as drying, the processing of fruits is more extended than the processing of vegetables and flowers. However, it is likely that bulk exports of vegetables (such as dried peas) are used as food-processing inputs in other countries, as well as being retailed without further processing. Vegetables are mostly consumed within the producer household and rarely reach local and export markets. In all, industry actors can be conditionally divided into suppliers of agricultural inputs such as seeds and pesticides, growers, and traders in the homestead, local and export markets.

The horticulture value chain is diverse and complex, which to a large extent explains the weaknesses of the industry and the challenges it faces. Other problems related to the supply chain include: (i) low and irregular levels of fruit and vegetable production; (ii) the low quality of agricultural inputs such as farming equipment, seeds and fertilizers; (iii) the high cost of financial services; (iv) lack of access to high-value markets; and (v) lack of adequate storage infrastructure and packaging facilities.

Production of fruit and vegetables is irregular. Most of Malawi's fruits and vegetables cannot be adequately preserved and therefore go to waste in the peak season. In addition, although favourable climatic conditions make it possible to grow vegetables widely in the country, they are in short supply during certain times of the year. The erratic supply of vegetables creates shortfalls, which encourages imports from neighbouring countries such as South Africa. Similarly, since medium-scale fruit juice manufacturers require machinery with a processing capacity of 3,000 kilograms of fruit per hour if they are to take advantage of economies of scale, the poor supply of fruits precludes them from processing fresh fruits directly. (The current practice is rather to dilute imported concentrates to make various brands of fruit juices). In the specific case of bananas, low production is due to attacks by the banana bushy top virus (BBTV), which has caused significant losses in production and has forced Malawi to import bananas from Tanzania.

The quality of agricultural inputs, such as farming equipment, seeds and fertilizers, is also poor. 66.7 per cent of the firms surveyed reported that sourcing high-value agricultural inputs was a problem and detrimental to

their exporting activities (ILO, 2015). Specifically, issues with the high fibre and seed content in Malawi's fruit exports have been commonly reported, as fruit farmers lack access to high-quality seeds and planting materials (Nakhumwa and Peiris, 2009).

Smallholders are not linked to high-value markets. They lack market information, as well as supportive producer/buyer relationships and partnerships. They are not organised to sell in bulk to wholesalers and streamline their marketing channels so as to increase returns and reduce the involvement of middlemen. Processors and exporters lack exposure to international markets, as well as the capacity to comply with international quality standards. The Horticulture Enterprise Survey indicates that 66.7 per cent of firms find technical regulations burdensome when exporting food products, citing restrictive technical requirements (50.0 per cent), lack of information on technical requirements (25.0 per cent) and procedural obstacles or inefficiencies (25.0 per cent).

Finally, the horticulture sector lacks complementary infrastructure and packaging methods, affecting the quality of products before they reach consumers. Complementary infrastructure would include market collection centres with such necessary facilities as cold rooms for handling and storing horticultural products. The packaging of horticultural products is poor, especially among smallholder processors. Improvements in labelling would allow processors and customers to identify products in terms of type as well as origin.

Given the above-mentioned weaknesses and challenges, it is no surprise that 60 per cent of enterprises in the sector consider export business risky (ILOHES, 2015). Export distribution channels are dominated by a single foreign export/import company. 37 per cent of firms in the sector export through this company. Other channels include sales persons in target markets, major retail chains, agents and a Malawian export/import company.

iv) Characteristics of firms

The horticulture sector in Malawi numbers around 32 enterprises, of which 11 were interviewed in the Horticulture Enterprise Survey (2015). Many of these rely on aggregating the outputs of micro and small agricultural enterprises for part or all of their output. The majority of the enterprises interviewed are entirely locally owned (73 per cent), 18 per cent have joint local and foreign ownership, while 9 per cent are entirely foreign owned. The majority are stand-alone enterprises (82 per cent) and operate largely as family businesses (64 per cent).

The Horticulture Enterprise Survey (2015) made it possible to profile firms in the horticulture sector by employment and export status. The majority of the firms surveyed can be classified as small enterprises (54.5 per cent); followed by medium (18.2 per cent), micro (18.2 per cent) and large-scale enterprises (9.1 per cent).⁴⁹ About 27.7 per cent of the firms surveyed are engaged in export business. Of these, two-thirds are small enterprises and a third large enterprises. In contrast with the oilseed sector, therefore, exporting status in the horticulture sector is not proportional to size of firm. Only a third of all exporters surveyed are steady exporters; the rest export when the opportunity arises. Export products include mango puree, banana puree, onions, peas, Irish potatoes, pineapples and avocados (ILOHES, 2015). Although 91 per cent of the enterprises are not engaged in export business, a similar proportion believe there is enough export demand for Malawian horticulture products to make export trade economically viable. 44.4 per cent of the enterprises surveyed are interested in exporting once impediments are addressed.⁵⁰

The horticulture industry employs at least 1,020 workers directly (not including small farmers' suppliers), the majority of whom are employed by large enterprises (84.5 per cent), followed by medium (8.5 per cent), small (6.4 per cent) and micro (0.6 per cent) enterprises. Women, whose participation in the sector remains low (15 per cent), generally perform tasks that require low skills levels. Overall, only 15 per cent are core production

49 According to the MSME Policy (GoM, 1999) which categorizes firm size by employment levels, an enterprise is considered "micro" if it employs 1-4 workers, "small" if it employs 5-20 workers, "medium" if it employs 21-100 workers and "large" if it employs above 100 workers.

50 A detailed account of impediments to exporting is included below.



staff. The majority of the workers (89 per cent) are classified by firms as semi-skilled; only 11 per cent are classified as fully skilled. The sector is facing serious shortages of appropriately trained labour. The exporting firms employ more workers (87 per cent) than non-exporting firms.

Domestic and export sales of fruits are underdeveloped relative to other countries in the region, such as Kenya, South Africa and Zimbabwe. There are two types of fruit producers in Malawi, small-scale and medium-scale, each with distinctive production methods and fruit sources. Small-scale fruit producers make fruit juices⁵¹ using simple, hand-operated processing machines developed locally, with limited efficiency and throughput. Medium-scale juice manufactures do not source Malawian fruits but simply dilute nectar concentrates imported from South Africa into various types of fruit juices, including orange, guava, peach, granadilla (passion fruit) and cocopine (Kachule and Franzel, 2009).

3.1.2 BUSINESS ENVIRONMENT

The business environment described for the oilseed sector also applies, in large part, to the horticulture sector. The business environment is considered to be the most important factor for penetrating the COMESA, SADC and Asian markets (according to 66.7 per cent of the horticultural enterprises that responded to the survey), whereas compliance with national regulations is regarded as the most important factor for penetrating the European Union and United States markets (according to 50 per cent).

i) Quality and standards

Where quality and standards are concerned, 66.7 per cent of the firms in the survey reported difficulty in sourcing horticultural products of the quality expected internationally when exporting. Issues of high fibre and high seed content in Malawi's fruit exports have been commonly reported. Two thirds of the firms surveyed said they found technical regulations burdensome when exporting food products. 60 per cent consider export business risky. 66.7 per cent indicated that their products are tested for conformity with international technical regulations before they are shipped, with large firms more likely and small firms less likely to do so. Since tests conducted locally are generally not recognized on the international market, the larger exporters have to procure testing services from internationally accredited standards bodies such as the South African Standards Board, incurring the time and transport costs this entails. 66.7 per cent of the exporting firms indicated that their staff do not know which standards to follow when working with products destined for export. None of the firms in the survey, whether exporters or not, hold or are in the process of applying for quality certification from the International Standards Organization (ISO9001, ISO9002 or ISO1400) or under the Hazard Analysis Critical Control Point (HACCP) scheme.

ii) Logistics, transport and other infrastructure

Effective logistics, transport and infrastructure systems are key in a coordinated value chain. Transport infrastructure and cold-chain management are essential to the horticulture sector, in particular when dealing with perishable goods. The sector requires affordable cold storage, relevant transport infrastructure and cleaning and grading facilities. These are often unavailable, which leads to substantial post-harvest losses and irregular quality of goods. Unreliable electricity supply adds to the problem and further increases costs, as firms are forced to use generators.⁵²

Products such as cut flowers need to be shipped very rapidly by air, and require extremely efficient packaging and logistics⁵³. In such cases, trade facilitation – including customs clearance and trade licensing – is very important.

51 Juices are produced mainly from citrus fruits, mango, guava, baobab and tamarind, while fruits such as guava, baobab and tomato are processed into jam.

52 Half of the enterprises surveyed in the Horticulture Enterprise Survey (ILO, 2015) consider energy to be a very important factor in export market penetration.

53 As explained above, flowers, once cut, lose 15 per cent of their value each day (Van der Vorst, Bloemhof and de Keizer, 2012).

According to the Enabling Trade Index (World Economic Forum, 2014), which measures the factors, policies and services facilitating the free flow of goods over borders and to destination, Malawi does not perform well in this respect. Malawi's overall performance in 2014 was below that of all the selected SADC countries, except Zimbabwe. In terms of border administration, and the efficiency, transparency and costs associated with importing and exporting goods, Malawi's overall performance in 2014 was also below that of all the selected countries, except Zimbabwe. This is not surprising, given that corruption is a major challenge in Malawi (ILO, 2013). Interestingly, according to the Global Enabling Trade Report (World Economic Forum, 2014), while corruption at the border was identified as the second most challenging factor for importing, corruption at foreign borders was the seventh most challenging factor hindering export trade in Malawi.

3.1.3 SECTOR ENVISIONING

The vision for the future of the horticulture sector in Malawi is based on the preferred scenario⁵⁴ adopted at the Steering Committee meeting of July 2015. In the absence of detailed information regarding horticultural production and value chains in the NES (2012), translation of the preferred scenario into a specific objective is based on horticulture export percentages in 2014, as related to those of oilseed exports. The specific objective for the horticulture sector is therefore as follows:

“ To raise the cluster's horticulture sector's contribution to the total volume of exports from 0.5 per cent in 2014 (NSO) to around 1.4 per cent in 2022 ”

In absolute terms, the vision translates into raising horticulture exports from USD 6.9 million (MK2.94 billion, NSO) in 2014 to USD 55.5 million in 2022, implying an average growth rate of 29 per cent per year. While this is an optimistic growth estimate when compared with the 18 per cent average growth in total sales in 2014, it is a modest one when compared with the 66 per cent average increase in horticulture exports between 2013 and 2014. Three key strategic elements are expected to anchor this vision for the horticulture sector: shifting the production focus from domestic to export markets; growing demand in the medium-term; and exploiting and building on existing competitive advantages.

Firstly, it is envisioned that firms will shift their focus from domestic to export markets in the short term. Although the majority of the firms are non-exporting enterprises, around 44 per cent of them expressed an interest in exporting. Moreover, about 90 per cent believe that there is enough export demand for Malawian horticulture products to make export trade economically viable. Again, the fundamental principle is that access to export markets offers opportunities for lucrative prices and profitability, which in turn will facilitate value addition in new and higher-value products, and generate more and better employment.

While most enterprises have the capacity to adapt to minimal increases in demand, substantial increases in the demand for horticulture products would require the scaling-up of current production capacities. There is already increasing local demand, particularly for high-quality products within the hospitality industry. There is also growing demand for horticultural products in the growing urban areas of neighbouring countries, in particular Lusaka, Tete, Nacala, Harare and Mbeya. There is therefore scope for increasing production to meet both local (import substitution) and regional demand (export production).

Secondly, as production capacity increases, it is anticipated that firms will begin to explore and penetrate new export markets in the medium term. This will reduce the sector's dependence on the fluctuating demand from

⁵⁴ The preferred scenario results from a combination of key features of the “same but more” and “sector upgrade” scenarios.



regional markets and the small but growing demand from local markets. Potential target markets include Kenya, the United Arab Emirates, South Africa, the UK and Scandinavia. According to the NES, there is already great potential for exports of pulp. Finally, it is expected that firms will exploit Malawi's existing comparative advantages, namely:

1. varied climatic conditions that allow various horticultural crops to be grown in almost every part of the country (national level);
2. proximity to regional markets, and participation in preferential trade arrangements (regional level); and
3. least-developed-country status in the context of existing preferential trade arrangements (international level).

In penetrating regional and international markets, Malawi needs to cement existing trade relations with targeted regional markets such as South Africa. Firms might seek to secure partnerships, and possibly joint enterprise ownership, with international companies as a way of developing trading relations that would link them to export value chains across countries; at present, 18 per cent of firms are under joint local and foreign ownership. As well as boosting trade in export markets, this would facilitate technology and skills spill-overs. The Horticulture Enterprise Survey revealed that 50 per cent of the exporting firms consider the SADC region to be the most important current market, followed by the European Union (25 per cent) and Asia (25 per cent). The remaining markets (COMESA, other African countries and the United States) were not ranked at all as important current markets. In the coming years, however, firms plan to direct their exporting efforts towards COMESA, SADC, the European Union, and other African and Asian countries.

3.2 BUSINESS CAPABILITY GAPS

3.2.1 SUPPLY CAPABILITY

To develop agro-processing, the horticulture industry requires a strong base of suppliers of primary products, which is non-existent at the present time. According to the Horticulture Enterprise Survey (2015), 40 per cent of firms lack the capacity to expand production, due to lack of skills and to post-harvest waste and losses.

Key informant interviews with selected end-market firms along the value chain indicate a general lack of skills in irrigation and greenhouse management (ILOHES, 2015)⁵⁵. Open-field irrigation and greenhouse management skills are of vital importance in Malawi, given increasing fluctuations in water supply. Post-harvest waste and losses is another factor limiting production, resulting from limited expertise in the post-harvest handling of horticultural products and a lack of capacity for storing vegetable and fruit products during seasonal peaks. 66.7 per cent of the respondent firms said that they had difficulty in sourcing raw materials for their export businesses, as these factors affects both the quantity and quality of final horticultural products.

In the case of Malawi's fruit juice market, insufficient production hampers the development of processing enterprises. As a result, suppliers of fruit juices to Malawi's domestic market rely mainly on imported concentrates. The farmer/producer disconnect, which includes information asymmetry in the supply and demand for horticultural products (NES, 2012), further deprives smallholder producers of the price incentives necessary for scaling up production.

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3.2.2 QUALITY AND STANDARDS

Another challenge is to enhance the quality of products to meet international standards. Meeting the quality requirements of buyers is Malawi's fourth most serious obstacle to export trade (World Economic Forum, 2014). High fibre and seed content have been commonly reported as reducing the attractiveness of Malawi's fruit exports. The non-certification of processed products is another constraint on exports of fruit-based products, such as the fruit juices and jams produced by cottage industries. Very few cottage-industry products are certified by the relevant regulatory bodies. While 66.7 per cent of enterprises indicated that their products are tested for conformity with international technical regulations before shipping, half of the small-scale exporting enterprises do not have their products tested. Moreover, none of the firms in the survey, whether exporting or not, hold or are in the process of applying for quality certification by the International Standards Organization (ISO9001, ISO9002 or ISO1400) or under the Hazard Analysis Critical Control Point (HACCP) scheme.

The marketing of uncertified products, whether fresh or processed, is often limited to the areas in which they are produced. As a result, these products cannot find their way into chain stores. Firms supplying the Malawi-based operations of international supermarket chains with fruits and vegetables indicated that they have difficulty in sourcing high-grade supplies in sufficient quantity and on a consistent basis. They see a great opportunity for replacing imports, and exploiting success in supplying Malawi supermarket operations as a platform for exporting to the same supermarket chains in other countries in the region, notably South Africa.

The low-quality packaging and labelling of horticulture products is another obstacle to exporting, especially among smallholder processors. Product quality is also hampered by the limited use of high-quality raw materials. Other factors affecting quality include a significant shortage of workers specialized in product quality control and a lack of adequate testing equipment and facilities.⁵⁶ There is sometimes no relevant regulatory framework governing local markets, resulting in poor enforcement of quality standards. In the absence of an effective accreditation system, it is costly to test products using internationally accredited standards procedures, such as those provided by the South African Standards Board. Around 66.7 per cent of the horticultural firms surveyed reported that the found technical regulations to be burdensome when exporting food products, citing (i) restrictive technical requirements (50 per cent), (ii) lack of information on technical requirements (25 per cent) and (iii) procedural obstacles or inefficiencies (25 per cent). While all the exporting enterprises called for technical assistance in overall horticulture management, many indicated a need for technical assistance in domestic requirement compliance, international testing and certification, understanding end-users, local marketing and distribution, food safety, sourcing of high-quality inputs, quality, branding and managing distribution channels. Finally, key informant interviews conducted with selected end-market firms along the value chain indicated a general lack of skills in product grading (ILOHES, 2015).

3.2.3 LOGISTICS, TRANSPORT AND OTHER INFRASTRUCTURE

If horticultural enterprises are to participate in global supply chains, it is essential that their products be transported to end consumers quickly and arrive in good condition. Adequate transport infrastructure and storage systems enhance the competitive advantage of a country. In Malawi, there is serious lack of cold-chain infrastructure, ranging from cold rooms and relevant transport infrastructure to cleaning and grading facilities. This is particularly important for the horticulture sector. In addition, the existing storage, processing, grading and transport infrastructure is poor, constraining the marketing of fruits, fruit products and supermarket-quality vegetables. Smallholder groups suffer particularly from lack of cold-chain access. Most refrigerated trucks serve the commercial sector. Smallholder farmers rely on open trucks for transporting fruits. The poor transport infrastructure renders the fruits more prone to physical damage, as well as shrinkage from exposure to harsh conditions. There are no established market collection centres with the necessary facilities for handling

⁵⁶ For instance, 66.7 per cent of exporting firms surveyed indicated that their staff did not know which technical standards apply to products destined for export.



horticultural products. Key informant interviews conducted with selected end-market firms along the value chain indicated a general lack of skills in both cold-chain and supply chain-management, and weaknesses in logistical skills (ILO, 2015).

3.2.4 MARKETING AND SALES SERVICES

Expertise in the marketing of horticultural products is limited in Malawi. There is also a lack of strong relationships between farmers and processors, and between producers and buyers, which precludes commodity producers at farm level from accessing high-value markets. Farmers are not organised to collect and sell in bulk to wholesalers, and lack access to trading systems that might give them direct access to formal markets. Fruits and other horticultural products are sold in heaps, without any packaging or labelling. In open public markets, fruits are exposed to heat/sun, rain, dust, light and other harsh conditions, to the detriment of quality.

Suitable packaging is required if goods are reach their point of sale unspoiled, undamaged, fit for their intended purpose and attractive to the buyer. Good packaging contains and protects the product, facilitates its handling and promotes its sale. The other aspect of packaging is labelling, to allow customers to identify the product in terms of type, as well as origin. The packaging of horticultural products in Malawi needs improving, particularly among smallholder processors.

Processors and many exporters lack good exposure to international markets. According to the Horticulture Enterprise Survey (2015), 60 per cent of firms consider export business to be risky. This is consistent with the assessment that identifying buyers in specific potential export markets is the third most serious obstacle to Malawi's export trade (World Economic Forum, 2014). Malawian flower producers are in competition with producers in other African countries (Kenya, Tanzania, South Africa and Uganda), whose production of cut flowers – mainly roses – has increased rapidly over the last few decades.

3.3 IMPLICATIONS FOR SKILLS TYPES

All the firms surveyed in the Horticulture Enterprise Survey (2015) agree that the skills levels of the college graduates they employ have an impact on their ability to export. This section presents the skills aspects of the measures that need to be taken.

3.3.1 TYPES OF SKILLS FOR SUPPLY CAPABILITY

Horticulturalists need a wide array of skills in the areas of production, handling (including cleaning and grading) and marketing. Expertise in agri-business and quality management is essential. Most importantly, there is a need to enhance skills in irrigation and green house management. Other requirements include skills in horticultural crop production and management (farm assistants), agri-business management (farm managers), administration and general management. It is important that staff providing agricultural extension services should have the capacity to develop these skills among their clients.

3.3.2 TYPES OF SKILLS FOR QUALITY AND STANDARDS

Skills in food safety and hygiene are of vital importance throughout the value chain. There is also a more specialized need for quality assurance technicians, and for supervisors capable of ensuring safety and hygiene along the value chain. Skills in the areas of certification, packaging and labelling are important. The sector also needs scientists for work relating to quality and standards (including laboratory work) and laboratory technicians. Skills in agricultural and horticultural science are also required in research to improve productivity and enhance the value of products as perceived by the market.

3.3.4 TYPES OF SKILLS FOR LOGISTICS, TRANSPORT AND OTHER INFRASTRUCTURE

In the area of logistics, skills and expertise are required in supply-chain development and management, mechanical engineering, technical laboratory work and electrical engineering (refrigeration). Expertise in understanding export regulatory requirements is also important. There is a need for skills in packaging at a range of levels, from manual skills upwards. At the institutional level, there is a need for expertise in efficient administration and compliance with export procedures and processes, so as to reduce unnecessary delays and costs.

3.3.5 TYPES OF SKILLS FOR MARKETING AND SALES

Skills are required in market facilitation, packaging and labelling. To penetrate regional and international markets, the industry needs skills in international marketing strategies and operations; in establishing, building and sustaining export relationships with various players (retailers, agents, distributors, joint international partners); in facilitating international trade deals; and in ensuring that the packaging and labelling of products is in compliance with export process requirements.

3.4 DEMAND FOR WORKERS BY SKILLS TYPE

3.4.1 SIMPLE MODEL FOR PROJECTING LABOUR DEMAND BY OCCUPATION

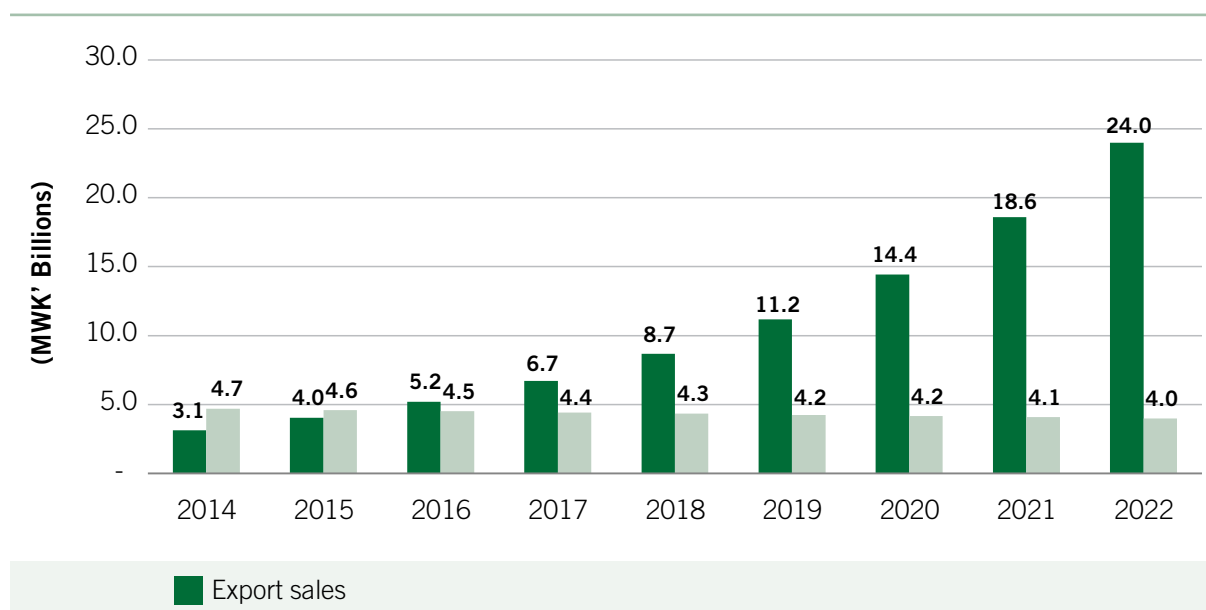
In this section, a simple quantitative model is used to project labour demand in the horticulture sector, taking into account the current occupational structure. The occupational profile of the horticulture sector is based on the Horticulture Enterprise Survey (2015) and is divided into three main levels: the professional and specialist level (including managers); the technician level; and the operative and artisan level⁵⁷. While the occupational demand projections using the simple model may not reflect actual demand, they are better than unstructured guesses and certainly represent the approximate scale of demand, given the model's systematic and logical approach.



Stage 1: Linking trade to output

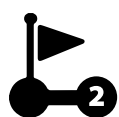
The link between trade and outputs is based on a projected increase in horticulture exports from MK2.94 billion in 2014 (NSO) to MK23.9 billion in 2022, in line with the objective outlined above. Secondly, consistent with the stated objective of reorienting the industry from domestic to export markets in the short-term, domestic and total sales of horticultural products are projected to develop as shown in **Figure 17** below. The decreasing trend of domestic sales assumes an annual two-percentage-points reduction in the share of domestic sales as a percentage of total sales, and a corresponding two-percentage-point increase in the share of export sales as a percentage of total sales.

⁵⁷ Occupations include managers, professionals, technical and associate professionals, clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machinery operators and assemblers, and elementary occupations.

**Figure 17. Sales projections for horticultural products, 2014-2022**

Note: Information for the years 2014 and 2015 was provided by respondents. The sales figures for the years between 2016 and 2022 are projections.

Source: Author's calculations based on ILOHES (2015).

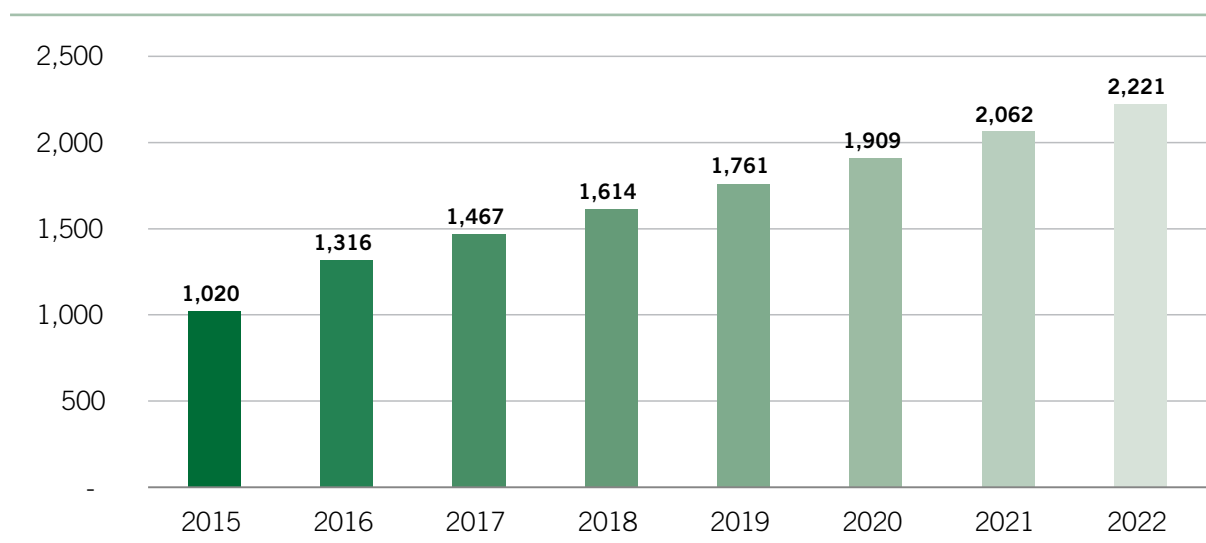


Stage 2: Linking total sales to employment

According to the Horticulture Enterprise Survey (2015), there are at 1,020 workers in the Malawian horticulture sector.⁵⁸ To establish a link between total sales and employment, we need first to compute output per worker (productivity), based on total sales of about MK8.64 billion in 2015, which gives a base level of output per worker of MK 6.17 million. We then assume an annual growth rate of 3 per cent in output per worker. If there were no labour replacements, the increase in productivity would have a negative effect on employment levels. However, as total sales increase and producers and processors access more lucrative export markets, it is also assumed that employment is likely to increase. Thus, based on GDP growth in 2015/16, it is assumed that employment will grow by the same GDP growth rate of 7 per cent.⁵⁹ The net effect of the reduction in employment due to higher productivity and the increase in employment due to higher production resulting from better access to more lucrative export markets is presented in **Figure 18**.

⁵⁸ This figure is arrived at by adding together the numbers of workers employed in the enterprises which participated in the Horticulture Enterprise Survey (2015). This is a conservative estimate as it does not include small enterprises, which are difficult to trace, and enterprises in the informal sector.

⁵⁹ 2015/16 budget statement.

Figure 18. Net projected employment levels in the horticulture sector, 2015-2022

The horticulture sector

Note: The employment figures for 2015 were arrived at by adding the workforce figures provided by participants in the Horticulture Enterprise Survey (2015). The employment figures for the years 2016 to 2022 are projections. Note that the employment data and projections do not include employment on independent farms that supply horticultural enterprises, so the total impact on employment is likely to be greater.

Source: Author's calculations based on ILOHES (2015).

3.4.2 RESULTING EMPLOYMENT WITH LABOUR DEMAND BY OCCUPATION

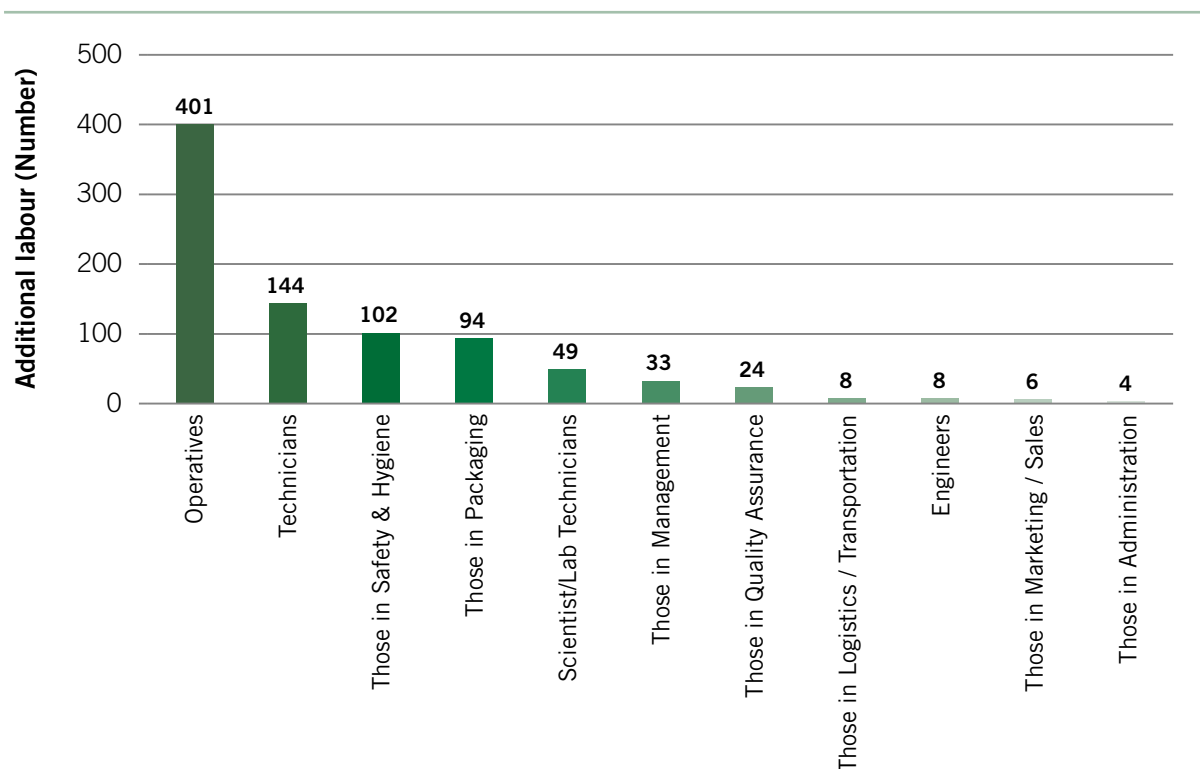
The result of the projection is an additional labour requirement of approximately 1,201 workers by 2022. Taking into account the additional 57 workers already needed when the enterprise survey was conducted⁶⁰, the total additional labour requirement amounts to 1,258 workers⁶¹, which represents an increase of 17.6 per cent per annum. **Figure 19** presents the projected total additional employment requirement by occupational area. It should be noted that additional labour demand due to workers retiring or leaving the sector is not accounted for.

⁶⁰ The Skills Scoping Study (2014) identified a labour force shortage of 57 workers in the following areas: 20 operatives, 8 technicians, 15 packaging workers, 3 managers, 1 administrator, 6 workers with skills in marketing, consumer services and sales, and 4 in logistics and transport.

⁶¹ This estimate does not include smallholder farmers and growers who supply the industry.



Figure 19. Projected additional labour requirements by occupational area in the horticulture sector in 2022



Source: Author's calculations based on ILOHES (2015).

Where the projected increase in employment is concerned, the emphasis is on occupations requiring production and quality skills, followed by those requiring skills in management, transport and logistics. The low emphasis on marketing specialists reflects the importance of relational factors in the horticultural industry, whereby managers and entrepreneurs tend to relate directly with value-chain partners.

3.5 SKILLS SUPPLY GAP

The research identified significant labour supply shortages in the horticulture sector, in terms of both numbers of workers and quality of skills. Firms encounter difficulties in filling important positions with qualified workers. The Horticulture Enterprise Survey (2015) indicates that firms currently find it most difficult to recruit managerial and technical workers. While all enterprises find it difficult to recruit managers, 60 per cent of them find it difficult to recruit qualified workers for general operations and packaging. Enterprises also face problems when trying to recruit workers in logistics and transportation (43 per cent), marketing, customer service and sales (29 per cent) and administration (25 per cent).

Some firms are not satisfied with the qualifications of existing employees working in occupations such as logistics and transport (57 per cent of those surveyed), marketing, customer service and sales (43 per cent), and general operations and packaging (30 per cent). Moreover, where the capacity of training institutions and the quality of graduates is concerned, 90 per cent of firms are not satisfied with the competency of newly recruited operatives; 80 per cent are dissatisfied with the skills levels of workers involved in packaging; and around 71 per cent are dissatisfied with the competence of recently graduated workers involved in marketing, customer service and sales, as well as in logistics and transport. Sixty per cent of the firms surveyed said that university graduates do not have the required knowledge and skills, while 64 per cent said the same of newly

recruited technical school graduates. The envisaged increase in employment from around 1,020 workers to 2,221 in various occupations in the horticulture sector by 2022 therefore needs to be addressed in terms of both numbers and quality.

According to the Skills Supply-Side Mapping and Analysis Survey (ILOSSMS, 2015), existing training institutions have the capacity to produce the required numbers. **Table 3** below presents the annual numbers of students enrolled and graduating in areas relevant to the horticulture sector. With enrolment levels of approximately 5,800, at least 4,800 students graduate each year. However, according to employers, the quality of many of these graduates is not adequate.

Table 3. Training programmes offered by training institutions relevant to horticulture sector

Type of Training programme	Enrollment	Graduates
Seed & seedling multiplication	175	152
Farming & crop husbandry	563	553
Organic farming	228	150
Farm management & agribusiness	717	681
Irrigation technology	165	151
Pesticides, chemicals & toxic management	494	494
Quality management & standards & product certification	360	N/A
Food safety & hygiene	512	404
Refrigeration & cold chain management	42	N/A
Production & processing management	424	336
Occupational health & safety	646	566
Product development & innovation	70	N/A
Specialized processing technology (e.g. essential oils processing)	46	N/A
Export marketing & export regulations	310	N/A
Quality management & international product standards	360	N/A
Laboratory technology	48	40
Metal fabrication & turning technicians	35	29
Technical technology (incl. plant installation & maintenance)	85	76
Electrical & electronics technicians	100	55
Horticultural crop production	50	N/A
General fitting	N/A	N/A
Marketing	32	N/A
Banking & finance	51	N/A
Business administration	97	N/A
Economics	171	N/A
Sciences	N/A	N/A
Horticulture & landscape development	N/A	N/A
Machine operators	N/A	N/A



Type of Training programme	Enrollment	Graduates
Specialized agro-processing	N/A	N/A
Management	N/A	N/A
Total	5,781	4,765

Source: ILO Skills Scoping Study (2014).

3.6 PROPOSED RESPONSES TO IDENTIFIED SKILLS CHALLENGES IN THE HORTICULTURE SECTOR

The research has clearly highlighted the skills and capability gaps that need to be addressed if the sector is to operate more competitively. Prominent among them is the limited knowledge and skills of small-scale farmers in areas such as modern approaches to farming and plant disease management. Other key players along the horticulture value chain also lack the skills required to process and consistently supply large volumes of high-quality horticultural products. The limited capacity of institutions involved in horticulture-related agricultural training is also a major weakness, as is the poor capacity of enterprises to upgrade the skills of existing employees. This is particularly true of the high-value vegetable subsector, which imports most products to meet the demand shortfall.

Considering that Malawi's climatic conditions are well suited to vegetable production, the high-value vegetable sub sector is an area in which the country could very easily achieve self-sufficiency and import substitution. The STED research recommends the following skills development interventions to address the underlying causes of the low quality and inconsistency of supply to the end market:

i) Immediate rapid-impact interventions

- Support the TEVET system and key sector players in designing and implementing value-chain-focused skills training for the high-value vegetable subsector by developing tailor-made Work Integrated Learning (WIL) programmes which meet industry competency needs. Such programmes can be developed as pilots and later be refined and integrated into mainstream TEVET programmes.

Work Integrated Learning (WIL) Programme

Work-integrated Learning (WIL) is a practical training strategy that produces graduates with the hands-on skills to meet industry competency needs.

The Malawi WIL programme was developed for the vegetable subsector of the horticulture industry as a response to the skills gaps identified by the STED research.

The WIL curriculum has been developed as a value-chain-based skills upgrading intervention. It consists of four interrelated modules targeting TEVET graduates and young entrepreneurs interested in starting vegetable farming businesses. The modules are designed to be delivered as hands-on work-based training courses involving 75% practical and 25% theoretical work. The programme comprises five modules: a) Nursery Establishment, b) Protected Cultivation, c) Harvesting and Post-harvest Handling, and d) Supply Chain Management.

The objective of the WIL skills upgrading training, targeting young women and men, is to enhance the performance of the vegetable value chain by up-skilling TEVET graduates, with a view to addressing industry competency demands and improving the employability of the young people concerned.

- Support Research Institutions and the VET system in developing and implementing productivity, disease and pest control training programmes for small-scale vegetable farmers. This will help ensure that, when farmers access new markets, they are able to manage the plant diseases and pests that are currently a cause of their low productivity levels and their inability to supply existing markets effectively.
- Design and pilot supply-chain (including cold-chain) management training for aggregator companies with a view to improving logistics and enabling farmers to get their products to market more efficiently.
- Support selected VET-level agricultural training institutions and business associations in designing and implementing post-harvest handling and packaging training for small-scale producers

ii) Long-term skills development interventions

Support the TEVET system in developing a fully-fledged horticultural production training curriculum and integrating it into mainstream TEVET training.

There is currently no locally recognized TEVET-level qualification for the agricultural sector. Students who undergo general TEVET-level agricultural training in a few selected institutions are certified through City and Guilds, an international certification system which is delivered at high cost to the students, which of course limits training opportunities.



Cross-sector recommendations

for tackling skills shortages in the oilseed and horticulture sectors

Chapter

4

In addition to sector-specific interventions to address the skills gaps affecting the individual sectors' productive capacities and competitiveness, a number of broader interventions are also recommended. These go beyond core-skills development and have three different objectives:

- (i) To strengthen dialogue and collaboration between policy-makers, the industry and training institutions with a view to enhancing needs-based skills development;
- (ii) To strengthen the capacity of training institutions involved in agriculture and agro-processing to deliver demand-led skills training;
- (iii) To support firms in the oilseed and horticulture sectors in improving their export competitiveness and enhance the competency levels of their existing workers.



4.1 STRENGTHEN DIALOGUE AND COLLABORATION BETWEEN POLICY-MAKERS, THE INDUSTRY AND TRAINING INSTITUTIONS WITH A VIEW TO ENHANCING NEEDS-BASED SKILLS DEVELOPMENT

A process should be established that brings policy-makers, training institutions, the industry and other key players together in structured dialogue to improve the coordination and responsiveness of training provision in the agricultural sector, particularly at the TEVET level.

The majority of the training institutions surveyed in Malawi (63.2 per cent) were not familiar with the national skills-development agenda set out in the NES. With the exception of the Natural Resources College (NRC), the various institutions had heard of the NES only through the radio or newspaper reports, and the majority had not accessed the document itself. It is for other reasons that 50% of the training institutions run programmes and courses relating to the oilseed sector. Links between the policy arm of government and training institutions therefore need to be reinforced.

TEVETA is the institution with responsibility for developing, assessing and approving the curricula of registered technical education and training institutions. It therefore plays a central role in implementing policy changes approved by the Government. However, with a multiplicity of private and public providers, the TEVET system in Malawi remains highly diverse, fragmented and uncoordinated. As a result, the range of training programmes is still biased towards traditional technical trades, even after the institutionalization of the NES. Skills anticipation could nevertheless be incorporated on an ongoing basis at the upper policy levels of government, with the focus on particular sectors, such as the oilseeds. The results of these exercises could then be communicated to implementing organizations, such as training institutions, and promoted through policy and legal instruments vested in TEVETA. It is essential that the skills assessments required to inform skills anticipation should involve all industry players, including employers' and workers' organizations, and providers of education and training.

The main suppliers of skills training in Malawi are the technical and tertiary education institutions. According to TEVETA and the Ministry of Labour and Manpower Development, there are 52 registered institutions that provide technical, entrepreneurial and vocational education and training. Additionally, there are 18 higher education institutions or universities, including four public universities. While very few of the TEVET and higher education institutions provide training programmes relating to agro-processing, horticulture and oilseeds, the numbers are adequate to meet the anticipated demand in the oilseed sector with some re-organisation and re-orientation.

Recommended policy-specific actions include:

- (i) supporting relevant government Ministries in establishing a formalized dialogue platform where decision-makers from the training system, the horticulture and oilseeds sectors, and other key stakeholders, can meet to agree on the strategies and programmes needed to effectively address the sector's skills gaps and identify future skill requirements;
- (ii) building the capacities of the department responsible for TEVET at the Ministry of Labour, the TEVETA and the Employers' Association of Malawi in general skills anticipation, and supporting the institutionalization of sector-related skills anticipation practices in the TEVET system.

4.2 STRENGTHEN THE CAPACITY OF TRAINING INSTITUTIONS INVOLVED IN AGRICULTURE AND AGRO-PROCESSING TRAINING TO DELIVER DEMAND-LED SKILLS DEVELOPMENT PROGRAMMES

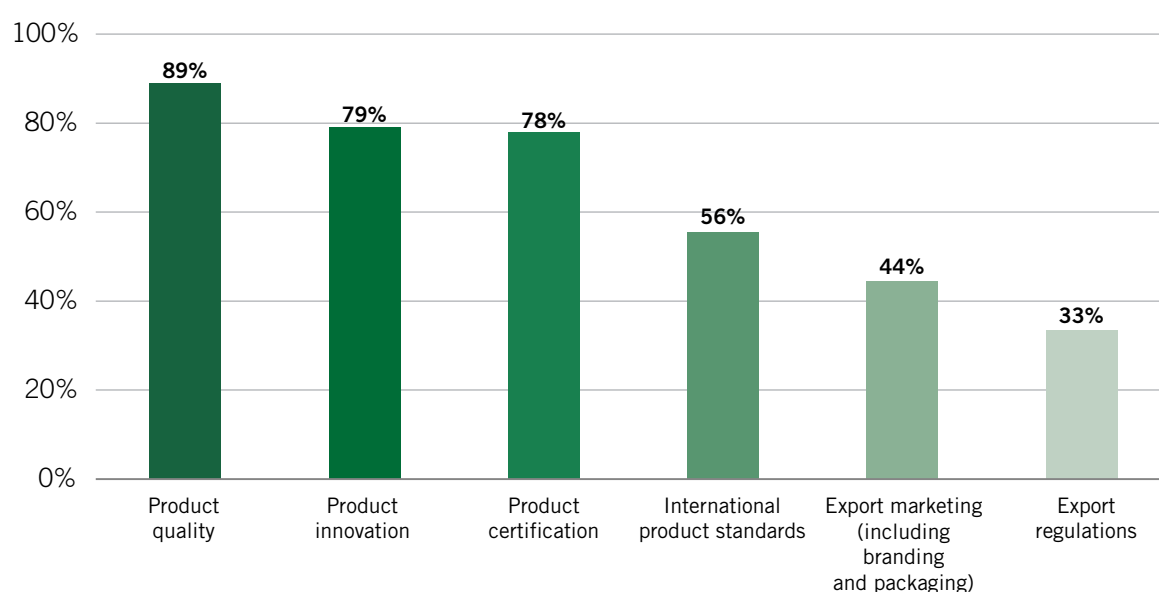
i) Enhancing the skills of training staff

A significant proportion of training staff (48 per cent) only have diploma-level qualifications at most. Not surprisingly, then, 32 per cent of the training institutions said they do not have staff with adequate qualifications to produce graduates with the competencies required by the industry. It is therefore necessary to upgrade the qualifications of training staff to degree and higher levels. The capacity gaps of training staff could be plugged by hiring guest lecturers from within the industry and visiting international experts. In addition, training programmes could also include international exchanges through partnerships with international training providers.

ii) Minimizing the skills mismatch through training needs assessments

The Skills Scoping Study (ILO, 2015) revealed that no training institution was supplying skills in occupations such as food technology and graduate-level monitoring and evaluation. As indicated above, skills in marketing and production, as well as in management, transport and logistics, quality control and safety & hygiene, will be much in demand in the coming years. Yet, as shown in **Figure 12**, the current training programmes tend not to adequately cover international product standards, export marketing and regulation. In addition, there is a degree of mismatch between enrolment and industry demand in areas such as marketing. It is therefore necessary to re-orient training programs and courses towards industry needs. This re-orientation cannot be sustained unless training institutions undertake training needs assessments on a regular basis.

Figure 12. Current course orientation towards export trade competencies



Source: ILO Skills Scoping Study (2014).



Overall, 20 per cent of the training institutions surveyed do not carry out assessments of training needs at all and a significant proportion (37.5 per cent) do so only irregularly. Training institutions should therefore be encouraged to undertake assessments on a regular basis through curriculum review, since they are useful in aligning courses with industry requirements and identifying staff training needs. 23.5 per cent of the training institutions surveyed have never revised the curriculum of the courses they offer and, of those that have done so, 26.3 per cent have never involved employers in curriculum development. There is also need to introduce new courses in areas such as food technology. Training institutions should also note that enterprises are demanding new training content in international testing and certification (57.1 per cent), domestic regulatory compliance (50 per cent) and understanding end users (22.2 per cent). To meet these demands, the introduction of new courses and the revision of existing curricula are both valid options.

iii) Increasing the employability of graduates through tracer studies

Only 21.1 per cent of the training institutions surveyed do not conduct tracer studies. Aimed at ascertaining the employability of graduates, tracer studies provide information on the medium and long-term effects of their programmes on employment, and reveal which programmes and approaches help students perform better in the labour market. Moreover, 42.1 per cent of the training institutions indicated that employers do not recruit graduates directly from their institution. This is partially due to the disconnect between the courses training institutions offer and the skills enterprises need. To improve this situation, training institutions – in consultation with employers – should implement tracer studies on a regular basis, and adjust their courses where such studies point towards the low employability of their graduates.

A transformative change in the quality and quantity of the skills required to boost the competitiveness of the two sectors will come about only if systemic weaknesses in the training institutions involved in agriculture and agro-processing are adequately addressed. Specific responses to address some of the weaknesses identified by the STED research should include:

- (i) enhancing the skills and competency levels of lecturers through exposure to international best practice in training approaches to agriculture, agro-processing and related fields by:
 - developing and implementing a guest-lecturer programme in subject areas where there are weaknesses;
 - developing and implementing a placement programme for lecturers from TEVET colleges training students in agriculture and agro-processing;
 - introducing international visiting lecturers/industry experts in selected subject areas;
 - developing and implementing training for extension workers in plant-disease management, pest control and post-harvest handling;
 - raising awareness within the training system of the provisions of government economic frameworks and policies, and their implications for skills development.
- (ii) developing the capacities of selected agriculture and technology-related training institutions by:
 - designing and implementing capacity-building training for a number of selected TEVET colleges (especially those involved in agriculture and agro-processing), in particular in training needs assessment and tracer studies.

4.3 SUPPORT FIRMS IN IMPROVING THE COMPETENCY LEVELS OF EXISTING WORKERS TO ENHANCE THE EXPORT COMPETITIVENESS OF THE TWO SECTORS

Enterprises have a central role to play in enhanced the skills of their workers. They already acknowledge the implications of skills shortages and the need to retrain or up-skill their workforce. The enterprises surveyed agreed that in-house training should focus on areas such as international testing and certification (55.5 per cent), domestic regulatory compliance (50.0 per cent) and understanding end users (77.8 per cent) (ILOOES, 2015). However, only 21.1 per cent said that they regularly retrain or up-skill their employees, while the vast majority (63.2 per cent) reported that they do so only occasionally, or that they rarely provide training (5.3 per cent), or that they never do so (10.5 per cent). Firms could therefore enhance their retraining and up-skilling activities as part of their human resource policies, taking into account the skills needed to promote exports.

In both sectors, most firms have not succeeded in building the export relations needed to become part of international value chains. According to the Global Enabling Trade Report (World Economic Forum, 2014), identifying potential markets and buyers is the third most serious obstacle to Malawi's export trade. This, coupled with the fact that almost 50 percent of the enterprises do not have quality certification for their products, implies that there is great need to improve skills and competencies at enterprise level. Such weaknesses affect the capacity of firms in the oilseeds and horticulture sectors to venture into the exporting field and needs to tackled through both short and long-term measures.

(i) In the short term by:

- supporting institutions such as the Malawi Bureau of Standards, the Employers' Consultative Association of Malawi and the TEVETA in designing and implementing short-term skills upgrading courses in food safety, regulatory compliance, and national and international standards for agriculture and agro-processing products;
- supporting the Ministry of Industry and Trade, the Employers' Association of Malawi, and the Malawi Chamber of Commerce and Industry in designing and implementing Export Readiness Training Programmes for potential exporters and business associations.

(ii) In the long term by:

- encouraging the TEVETA and other relevant organizations to collaborate with MCTU and ECAM in implementing an RPL certification programme for skilled employees in the oilseeds and horticulture sectors who do not have any recognized skills certification.



Conclusion

Chapter 5

The STED Research Report has provided evidence that corroborates the growth potential of the oilseed and horticulture sectors. Both sectors present significant opportunities for responding to Malawi's long term strategic imperative of reversing the ever-widening trade imbalance through value chain upgrading. The report sets out the actions required to address the existing skills shortages, exploit export growth potential and increase the contribution of the two sectors to national income, as well as to economic and employment growth.

The choice of these two sectors was based on strategic considerations. Since both are agricultural in nature, the envisioning for the future is similar in each case, enabling the country to adopt similar approaches to addressing the business capability gaps. While there are minor differences in terms of types of skills and numbers of workers, both require significant skills improvement for developing business capabilities in supplies, product development, quality and compliance with standards, logistics, transport and marketing.

Existing education and training institutions have the capacity to train the required numbers of workers to meet the growth targets envisioned in this report. However, the skills acquired by graduates remain a challenge. Re-organisation and re-orientation of training programmes is required to improve the quality of graduates in the short to medium term. To this end, training institutions need to improve the quality of training infrastructure and equipment, as well as the skills of training staff. They should also re-orient the course they offer towards the needs of the industry, as identified through training needs assessments and tracer studies. In the short term, training institutions could address capacity gaps in training by hiring guest lecturers from within the industry and, ideally, international experts.

A deliberate policy is needed to ensure that training and education institutions implement the national aspirations outlined in the National Export Strategy (GoM, 2012) and to shift the skills focus from traditional trades towards the skills needs in export sectors, which include oilseeds and horticulture. The country could also exploit other existing sources of skills supply, for instance by adopting a well-structured technical assistance programme.



Finally, the firms themselves have a critical role to play in retraining and up-skilling, to ensure that their workforces have the skills they require.

The report has identified and anticipated the skills needed to improve productivity, trade performance and employment in the two targeted sectors. It is expected that the results produced by implementation of the recommended solutions will inspire similar work in the other sectors prioritized in the National Export Strategy (GoM, 2012).



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