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**Globalization and Changes in the Structure of the
Agrarian sector in Namibia**

Master Thesis

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Declaration

I Michael Uerikua, hereby confirm and declare that this master thesis titled “Globalization and Changes in the Structure of the Agrarian sector in Namibia” is the original work and results of my own, with the cited references. I agree that the work can be used by the Czech University of Life Science in Prague Library for further research and educational purposes.

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Abstract

The interconnectedness and integration of communities and countries referred to as “globalization” causes changes in political, environmental, social and cultural systems. Globalization is a phenomenon that presents benefits to industries like agriculture, whereby through integration of a country’s agricultural sector into the global economy enable producers of agricultural products to expand their markets and get access to new technological innovations while consumers are made better off by increases in product variety. Namibia’s agrarian sector is characterized by livestock production rather than crop production as it is in many countries, which is caused by the country’s aridity and the occurrence of natural disasters such as droughts and floods. As a developing country Namibia is heavily depended on agriculture and it forms around 10% of the country’s GDP annually, while employing around 27% of the total employed people. The aim of the study was to examine the economic changes in the agricultural sector as a result of Globalization in 13 years from year 2000 to 2012. Such an examination is determined by two criteria known as Level of International Trade (LIT) index and the Integration of International Trade (IIT) index. Important data was collected in Namibia from the meat board of Namibia, which is the main body responsible for the trade of livestock and livestock products. The indices uses import, export and the industry’s production to determine how globalized the sector is. In the early years like 2000 to 2003 the sector was fully integrated into international trade with high percentages of both exports and imports which was indicated by the IIT index results. The sector was more categorized as a transitional multi-domestic industry in the period from 2004 to 2009 where the ratio of import to export halved (50%). With the increase in export quantities in the following years the sector was moving towards a simple global industry as indicated by the IIT index, while the LIT index proved international trade to be an important aspect in the agricultural sector of Namibia in the same period (2009) with a trade to production comparison of 50%. The results of the study can be used in strengthening agricultural research, while agricultural planners and decision makers can use the results to make decisions with regard to trade and its benefits.

Key words: Agricultural sector, Globalization, Integration, Livestock, Trade, Total output

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List of abbreviations

GDP =	Gross Domestic Product
LIT =	Level of International Trade
IIT =	Integration of International Trade
FAO =	Food and Agriculture Organization
ARDCs =	Agricultural and Rural Development Centers
NPC =	Namibia Planning Commission
R&D =	Research and Development
FSRE =	Farming System Research and Extension
MAWF =	Ministry of Agriculture, Water and Forestry
NAP =	Namibia Agricultural Policy
MSP =	Market Share Promotion
EU =	European Union
SAFEX =	South African Foreign Exchange
FDI =	Foreign Direct Investment
NIC =	Namibia Investment Centre
WTO =	World Trade Organization
SACU =	Southern African Customs Union
SADC =	Southern African Development Communities

Introduction

Globalization is referred to changes through the spread of ideas, information and perceptions which in turns lead to cultural, political, environmental and social changes. Such changes relates to the increasing interconnectivity of communities and countries. It therefore provides the right conditions for companies and countries to exploit economies of scale and a better division of labour caused by a globally integrated economy which has the potential to boost productivity and improve the living standards. With the ability to cause changes in institutional and policy regimes at the international and national levels, globalization has both positive and negative impacts on development.

Globalization can greatly enhance the role of agriculture as an engine of growth in low-income countries by making it possible for agriculture to grow considerably faster than domestic consumption. It also increases the potential for agriculture to increase food security through enlarged multipliers to the massive, employment-intensive, non-tradable rural non-farm sector. With such potential benefits, it is important to understand what is required for participation and to ensure that the poor and hungry are lifted out of poverty and hunger by these processes.

It is known that large portions of the population in most developing countries are employed in the agricultural sector. Thus, in developing countries including Namibia, agricultural commodities represent a large proportion of exported goods and the main raw materials for manufactured products (Mellor, 2002). The agricultural sector is the supplier of food for the people in the developing countries, hence making it the key to poverty reduction and food security. The sector contributed 5% of the country's Gross Domestic Product (GDP) in 2012, ranking it sixth after government services; mining; finance; real estate and services; wholesale and retail trade; and manufacturing (FAO, 2014). Mendelsohn (2006), highlighted several reasons to a decline in the proportion of the sector's contribution to the national economy as high production by other sectors especially services and mining; low agricultural capacity due to poor soils and the aridity and most importantly poor market demands domestically as well as elsewhere. The agricultural sector remains the backbone to the lives of the majority of the population accounting for over 70%, despite its marginal contribution to the GDP (FAO, 2014). It is unsurprising as Anderson (1987) highlighted that it is likely for countries with growing economies to have declines in the agricultural sector. Such countries experience changes in consumption patterns (the slow growth in consumption of farm products and, in middle-income countries, the move away from

grains and other staples and towards livestock and horticultural products), thus altering trade situation of countries.

Globalization, in the sense of rapid transmission of the impact of technology to all areas in the country will accelerate. This will help the country to experience growth and increase in prices for the agricultural commodities, caused by heavy spending on research and technology dissemination and upgrading of rural infrastructure as well as reducing transaction costs. It is therefore important to determine the impact that globalization have had on the country's agrarian sector so far, in order to draw conclusions as to what will be required to be set in place to make sure that agricultural produce increases and the market widens. Such findings are realized with the help of different techniques that measure the extent to which globalization have affected a sector. The first criterion (technique) is the Level of International Trade (LIT) which determines the expansion of international communication in an industry, another criterion determines the global integration of an industry, it is known as the Integration of International Trade, which have been provided by Herbert Grubel and Peter Lloyd (1975) and are standard to different sectors or the economy (Grubel et al., 1975).

With the focus on the influence of globalization to Namibia's agricultural sector, the research can assist policy makers in the agricultural sector, as well as other agricultural development agencies by providing analysis of the impact of globalization on the sector. The analysis and findings will aid in extending and strengthening agricultural research by agricultural agencies and the government.

Literature Review

2.1 Country Background

2.1.1 Early Trade and Colonialism

As most countries in the third world; Namibia was colonized by the Germans, but the Germans were not the first Europeans to settle in the country. In the 15th century the Portuguese erected crosses at the coast of Namibia as prove of their presence in the country (Ejikeme, 2011). The Portuguese found the coast inhospitable and to get inland it meant they had to move through the Namib Desert. Furthermore, in the 19th century the presence of missionaries from Europe was noticed, to be precise they were the London Mission Society, the German Rhenish Society and the Finnish Lutheran Mission Society (Williams, 2015). The main aim of the missionaries as it is known was to preach and spread the gospel, but due to conflicts between indigenous tribal groups within the country, the missionaries also provided weapons mainly guns and ammunition (particularly bullets) as well as providing Tobacco and lead as highlighted by Williams (2015). Advantageous to the semi-nomadic people of South West Africa (now Namibia) was the building of churches by missionaries and the agricultural development in the form of cultivation and producing stable food. Though this was much of advantage to the communities with which the missionaries lived at the time, it later spread to all other communities.

The beginning of trade in the country started with the Dutch farmers in the Cape (Neighboring South Africa) and the missionaries in the southern part of Namibia. Trading routes were established and the trade was open to other communities around. However, long-distance roads were established for trade between communities in the north and those in the south. Local rulers took control of the long-distance trade and they were responsible for welcoming new traders into the trading system in place. They controlled the trade of important goods like horses and guns (weapons) which gave them more confidence on supremacy. This was done by the placing of higher taxes on such goods as a way to limit the resource ownership by rival communities. This in turn led to the domination of rulers (chiefs and headmen) and having more power due to their possession of such important resources and it on the other hand led to insecurity in inferior resource-less communities (Williams, 2015). Trading was not only limited to the resources; hunters and traders from Europe were also invading the country in search of adventure and making profits (McIntyre, 2004). Mostly hunted were elephants for their ivory as well as ostriches for

their feathers, which were both highly priced resources in Europe.

The attainment of wealth and important resources by communities led to conflicts between two big tribes that were settled in the central to southern parts of the country, the Hereros and the Namas. These conflicts led to many unfinished wars between the two tribes and made them enemies for a long time. Towards the end of the 19th century the Germans arrived, with the most known being Adolf Luderitz who was a trader and a businessman. Luderitz carried a lot of negotiations with the Herero chief whereby they formed allies and helped to defeat the Namas and pushing the further south. The division of these two tribes created a gap large enough to allow the spread of the colonizing Germans as they started buying pieces of land and expanding (McIntyre, 2004). Over the years troops of Germans kept flocking through the coastal towns (mainly Luderitz, which was named after Adolf Luderitz) and settled in the central part of the country (Windhoek, now the capital city) and led to colonization in 1884.

2.1.2 Independence and its impact on Agriculture

The colonial era under the Germans lasted until the end of the First World War and in 1919 following the erection of the League of Nations after the treaty of Versailles. The League gave a mandatory to the British to take control of the governance of Namibia, which was to be managed by South Africa on behalf of Britain in 1921 (Williams, 2015). Following the takeover of power by the South African government, exploitation of Namibia's resources started, with the allocation of land to white (Germans mainly) settlers in particular and shifting the black natives to reserve lands of poor grazing. Williams (2015) highlighted the exact hectares of land that was taken by the new owners as 12,000,000 ha followed by another 11,800,000 ha of land a couple of years later. The government built bore-holes (for water), provided fences for protection and also provided cash credit as well as access to marketing and supply institutions to the new farmers, which was viewed to be unfair by the native black communities. Protests by the affected communities led to conflicts between the governing white South Africans and the indigenous people of Namibia. Due to the unfairness and a new policy of creating segregation between the blacks and whites in the country known as apartheid, several political organizations were formed to represent the population of the black citizens as to oppose the apartheid government. The attempts of opposing was done through demonstrations and protests all over the country and it led to

multiple arrests of political leaders and many those in action (Williams, 2015). As oppression by the South African government continued, most noticed was the neglect of the government on the black communal farmers and most benefits were targeting the white commercial farmers. Political, social as well as economic development was impeded for the rural communities and was the main target for the opposite commercial farmers whereby opportunities were presented for them (FAO, 1995). The rural communal areas consisted of the black communities and the arable land was owned by the white farmers consisting both German settlers and the South Africans who moved after the mandate. Over the years as highlighted in the FAO report (1995), the important services not only agricultural support such as extension and veterinary services, but the health services, sanitation and water supply and most importantly education was offered differently and financed separately in the differing races and ethnic groups. The indigenous people of Namibia could not have access to credit services, neither agricultural inputs nor marketing services. Though there was a Land and Agriculture Bank that helped farmers in acquiring finance for land and agricultural inputs, it favored the white farmers and neglected or paid little attention to the communal farmers (FAO, 1995). Due to all these factors of unfairness and many others, series of negotiations took place with the United Nations between 1966 and the 1970s to free Namibia as Namibians claimed that the governance of Namibia by South Africa was illegal in a case submitted by the Namibian political party SWAPO to the International Court of Justice. Towards the late 80s the United Nations accepted the ruling by its council for South Africa to hand over power back to the Namibians, for a better transition the United Nations Transitional Government was set in place to foresee a smooth transition to independence and in 1990 Namibia gained independence (FAO, 1995). Following independence it meant that Namibia was free as a country and could appoint their own government and a constitution. Forming a new government led to erecting the Ministry of Agriculture, Water and Rural Development, which came up with the establishment of Agricultural and Rural Development Centres (ARDC's) that could make the access of agricultural services possible to all farmers without considering race or ethnicity (FAO, 1995). Since most of the data records, processing, interpreting and dissemination were done and kept in South Africa before independence, this data was just done on the commercial sector and did not represent the whole country, and research was just done for commercial farmers. In an attempt to include all farmers the official

information system for food and agriculture was established, which would ensure the decision makers and planners that they get the reliable figures and information on agricultural production, land holding and livestock numbers (NPC, 1997). Pre-independence, the old government had established a directorate of veterinary services, which also had statistics on livestock numbers and productivity, but since it did not pay much attention to the communal sector and also using their own district subdivisions, it was necessary to come up with the new information system for decision makers and planners in agriculture. A good example on the differences in numbers of livestock collected by the information system for food and agriculture and the Directorate of Veterinary Services is shown in table 1.

The government started doing agricultural research and development (R&D) program for subsistence farmers and the capacity level and investments in this program increased rapidly (Beintema et al., 1994). The fundamental reason of the agricultural research program was to conduct research on agricultural crops and livestock in both communal and commercial sectors which will improve the living conditions of the population by increasing productivity through research results (MAWF 2010). Since education was also restricted, post-independence benefits noticed were the establishments of agricultural institutes to provide training and knowledge to the farmers and students to enroll and become experts in agriculture (FAO, 1995).

Table 1: The differences in livestock numbers (1994/5) recorded by National Planning Commission in the new system and the Directorate of Veterinary Services (provided by the NPC, 1997)

Livestock	New System	Vet Services
Cattle	1,005,898	1,000,975
Sheep	158,042	255,527
Goats	1,391,373	981,810
Ostriches	3,686	2,559
Pigs	66,062	6,700
Poultry	800,158	168,279
Horses	19,886	29,271
Donkeys	106,336	151,153

2.2 Agriculture

2.2.1 Namibia's Agriculture and its contribution to the GDP

Namibia's agriculture is characterized by two distinctive sectors regarded as dual agricultural practices namely; the communal and the commercial sectors, both of which arise as a legacy of the apartheid government pre independence as highlighted in the early chapter. The homogenous part or the similarity of the both sectors is that they comprise of crop farming and animal farming, whereby the animal production adds to over 70% and crop production adds about 24% of total agricultural output (NTA, 2013). The proportion of the total agricultural output in terms of monetary value is demonstrated in table 2, which was recorded for the year 2004, which gives a broader view of how the commercial and communal sectors differ in terms of both livestock and crop production.

Table 2: Agricultural output at current prices (Million N\$) (Source: Agricultural Statistics Billetin, 2009)

		Commercial sector	Communal sector
	Livestock	1,878.1	31.4
	Crop	366.3	111.9
Total output		2,512.7	174.3

The commercial sector is highly developed and have been the main target of development for years pre-independence where commercial farmers had access to subsidies, credit and market opportunities, they improved their economy of scale and it made them better off in relation to the communal farmers who were rather neglected and rejected. But since independence the two sectors continued being distinct even though efforts by the government have been in place to include most small-scale producing communal farmers into the financially motivated system of farming. The best result so far was to move most communal farmers from being just communal to being subsistence farmers, whereby they can increase their produce for the families (mostly extended) and sell the surplus for profits in the market (Elkan et al., 1992). The commercial sector is run by 10% of the total population, whereas the communal sector comprises of over 60% of the country's population. But the important aspect of all is the total contribution of the sector to the total agricultural output, whereby the commercial sector for example has coverage of 70% of the total output of livestock production (NTA, 2013). The fundamental reason to the disparity in production volumes is due to land issues, whereby the most of the agricultural friendly land is in the hands of the commercial farmers, the commercial farmlands covers around 48% of the total land area, as well as other factors of technological advancement, population size, farming reasons (farming for profit requires high volumes than non-profit oriented farming). The communal farmers tend not to pay attention on profit maximization by increasing their output as a result of increased external output (seeds, fertilizers, feed stuff and supplements) as well as the use of technology in farm practices. Their main aim is for family satisfaction by producing for the family rather than for cash income, they rather depend on non-farm sources of income such as jobs and remittances (NTA,

2013). Though it might be small, the arable land in Namibia is in the hands of the commercial farmers and it create a big disparity in the total output of crops whether for consumption or for income purposes as compared to the communal farmers. The total arable land is approximately 1% of the total area, making it clear that the country is an arid to semi-arid, with only 8% of the total area receiving rainfall of 500mm per annum (NTA, 2013). The government has a hand in increasing the percentage of arable land as soon as after independence, which is shown in figure 1 (and should be viewed as an impact of decolonization or independence on agriculture). The increase in hectars of cultivation have been due to appraisal and projects targeting to improve self-sufficiency and increase total production, which will be tackled in coming chapters.

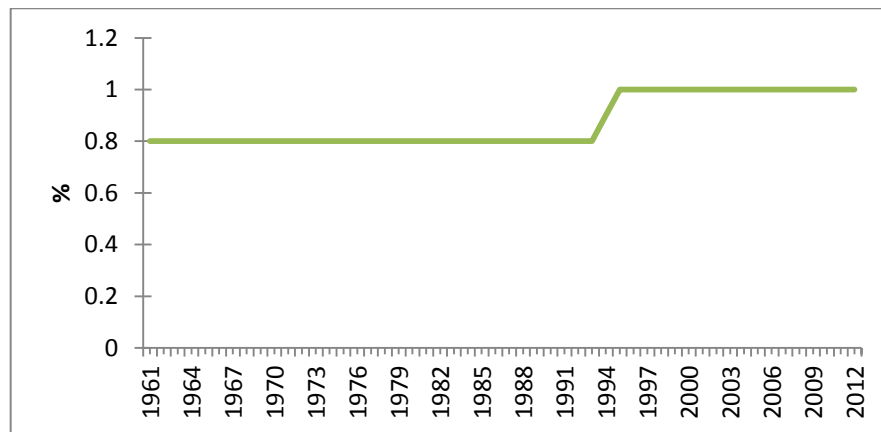


Figure 1: The Percentage (%) of arable land in Namibia over the years (Source; World Bank, 2014)

According to the FAO, Arable is land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Logic determines that from the figure above; there is little land for crop production and therefore animal production remains the backbone of the total agricultural output.

Namibia is considered as an upper middle-income country due to its per capita income of around 4,600 USD (Trading Economics, 2013). But according to the trading economic indicators (2013), the GDP is exactly 12.58 USD, with agriculture, mining and industry and services (which mostly includes tourism) as the main sectors. The proportions of their contributions to the GDP are shown in figure 2 below.

■ Agriculture ■ Mining and Industry ■ Services

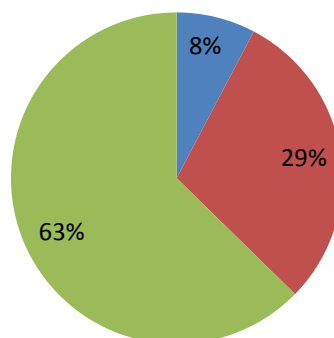


Figure 2: The share of the main sectors on the GDP of Namibia (CIA, 2013)

Though its contribution to the country's GDP, agriculture remains important to the people of the country by employing around 27% of the total employed people (UN, 2012). More than 60% of the population is directly or indirectly depended on agriculture for survival, with 48% of rural households being subsistence farmers (NDP, 2012).

2.2.2 Agricultural development

Through development in agriculture, agricultural production will be increased and this will cause improvements in the livelihoods of the population. Though according to its mission, the agricultural ministry (Ministry of Agriculture, Water and Forestry) believe that the wellbeing of the Namibian people and the improvements of their living standards can be a reality though promoting efficient and sustainable socio-economic development. However, since agricultural prosperity is of benefit to all, its achievement should be a responsibility of all stakeholders. It means that the private sector and the farmers who are directly involved with production are supposed to participate and cooperate in order for the government (ministry) to achieve the mission of agricultural development. The private sector, non-governmental agencies and community based organizations have been encouraged and their numbers have been increasing in the contribution and participation in agricultural development activities over the years (NAP, 1995). Furthermore, in order to realize their development in agriculture, the government has encouraged the rural farming population to participate and put efforts in agricultural practices and not wait on the government to provide for them.

In order to increase livestock and crop production, research stations have been established in the communal areas with overcrowded farmlands and poor technology use and poor access to information. These research stations increase farm productivity in rural areas and improve human resource capacity and skills which will ensure the sustainability of the agricultural sector (Ipinge, 2011). With such an objective in mind, the agricultural ministry established the Directorate of agricultural development in the early 90 with two distinct divisions for training and another for research (MAWF, 2010). Research is done on new practices and new innovations at a smaller scale and then transferred to the target farming community with the help of extension services, which are also run by the ministry of agriculture, water and forestry. The improved agricultural practices and technologies are then adopted by the farmers in order to increase their yields and improve their living standards. The development strategy used to ensure the flow of information between the stakeholders mainly farmers, research centers and the extension agents is the use of the Farming System Research and Extension (FSRE), which is based on participatory, multidisciplinary and problem solving approach. The education ministry makes intensive investments in the training of both agricultural development research staff and the training of extension agents be it through in-service training or through formal education at the established agricultural colleges (Ipinge, 2011).

Qualified human resource alone is not enough to ensure agricultural development; the government therefore keeps updating the key agricultural policies and strategies as well as strengthening their planning and implementation. On the other hand, the production process is facilitated by the efforts of encouraging crop and livestock farmers especially in rural communal areas to be active and participate in farmers' organizations, visit extension agencies to get key information concerning new markets, prices and veterinary affairs as well as reducing post-harvest losses and to promote the small grains processing industry.

Agricultural development in a country can be most defined by programs and projects that support agriculture and their contribution in the measure of output and intangible life-changing benefits. The agricultural ministry encourages different organizations to come up with projects that concentrate on improving food security and food self-sufficiency and funds such projects. Though most projects target farmers that produce cash crops for commercial purposes with an aim of high incomes, several others concentrate on improving the living standards and raising the income of communal rural farmers by acting as intermediates between farmers and processing companies especially in crop production

(MAWF, 2010). Projects such as the Irrigated Grain Storage Management build Silos in the grain producing regions and motivate grain producers to produce surplus and sell their surplus to the project. These grains are stored and processed for national consumption, thus contributing to the national food security. One of the notable projects is the Kalimbeza Rice project, which promote the commercial establishment of rice production to make the country self-reliant in rice production (NAB, 2011). This project train farmers on rice production practices and stores the rice sold by these farmers as well as its own produce for national consumption as it is know that Namibia imports all the rice consumed annually (estimated is 7,500 tons). This contributes to farmers' income and improves their living conditions as well as contributing to the total national output. Another notable project that is conducted and fully funded by the government is the Green Scheme project. The project contributes to the GDP by encouraging the development of irrigation based agronomic production and increase crop and horticulture production. What they have in common all the above-mentioned projects is their contribution to the country's GDP and total agricultural output, increase in food security and increasing farm income to improve the living standards (MAWF, 2010). It is therefore of high expectations that Namibia as an arid dry country will be greener due to the irrigation projects and crop developments, which will cause benefits to the people.

2.2.3 Government Agricultural policies

Agricultural policies provide measures that target economic sustainability and encourage the development of new or diversified economic activities for farmers. In other words, the agricultural policies are important for the preservation of rural economies, while promoting sustainability and improving food security (EC, 2014). Being regarded as the backbone of the Namibian economy due to employment creation and food provision to the country's population, the agricultural sector is one of the priority sectors in the National Development Plans (NDPs). For the increase of employment creation, income equality and the attainment of high and sustained economic growth, the sector have been identified as a top priority by in the fourth National Development Plan (NDP 4) that will last from 2012 to 2017 (NAP, 2013). The sector is expected by the end of the program to bring the needed socio-economic development and improve the living standards of especially the people.

The National Agricultural Policy was therefore formulated to activate the Agricultural sector's objective of:

- Food safety and security
- High and sustained economic growth
- Employment creation
- Integrating formal agriculture into the mainstream of national economy
- Fair competition and increase income equality and industrial development

The main objectives of the policy are to:

- Create a common understanding among national and international stakeholders and investors about the government's agricultural development's vision
- Create a framework that will enable streamlines efforts by all stakeholders in Namibia's agricultural sector and its downstream industries towards common development goals
- Promote the development of the national agricultural sector across the value chain and;
- Serve as a basis for drafting new and aligning pieces of relevant legislation through amendments.

The government take the responsibility of foreseeing the stipulated objectives by putting them into activities at different levels of production and different agricultural sub-sectors such as livestock, crop, plant and animal health, agro-industry, food safety, domestic and international marketing, research and development as well as financing (NAP, 2013).

Most importantly and stated in the National Agricultural Policy (NAP) document (2013) is the responsibility of the government on agricultural production, whereby the government try to build capacity and develop technical skills for the agricultural sector by:

- Contacting training needs assessments for the agricultural sector
- Providing resources for capacity building and skills development
- Collaborating with private institutions and development partners that support training and skills development
- Developing financial management practices amongst farmers

Through the formulation of the agricultural policy, opportunities are realized to combat the threats to the agricultural sector such as droughts, floods and outbreaks of animal and plant diseases and pests, as well as the surge of cheap imports of raw and finished agricultural

products with similarity to the ones produced in the country. The opportunities can be realized by the agricultural sector's stakeholders' efforts to develop the available underdeveloped arable land, efforts to increase rangeland capacity, developing water desalination technology and water harvesting techniques. The government therefore encourages the private sector to put efforts in developing new crop and livestock production techniques, efforts in developing specific financial products for agricultural production and efforts in developing national standards for all products in the agrarian sector (NAP, 2013).

The highlighted efforts can help the sector achieve the goal of increasing agricultural productivity and stabilizing agricultural production for food self-reliance. If all stakeholders and especially the private sector take the policy objectives into account, important comparative advantages will be discovered and the competitiveness of agriculture both in domestic and global markets will become a reality.

2.2.4 Expansion of industrialized agriculture

Export for income is the main driver to the establishment of bureaucratic intensive practices in agriculture. Namibia is and has been exporting meat to the lucrative European market as well as the neighboring South Africa due to its well established quality controls as well as producing meat in accordance with the highest technical, ethical, social and environmental practices (Meatco, 2013). However, the country's agricultural processing and value addition industry is not well established. Processed and value added products are too few for global and local markets and the main export products are in the form of semi-processed if not raw products. In the end, the returns are not to their potential as it would be if exports were in the form of finished products. The National Agricultural Policy report (NAP) (2013) highlighted some of the factors that cause under-development of industrialized agriculture as inadequate entrepreneurs for agricultural industry, expensive foreign technology, limited technical skills and lack of domestic capacity to manufacture agro-processing technology. One of the main causes of a stagnant growth of agricultural industry in Namibia is the import of cheaper agricultural products from foreign subsidized industries, which make local agro-industry entrepreneurs to close down their structures due to low returns.

The highlighted factors have only partly been limitations, because the country still produce and process agricultural products locally with its developed infrastructure for agricultural industrial development like abattoirs, meat processing facilities, dairy processing facilities, milling facilities, fresh produce hubs, skin and leather processing facilities, wood carving and non-timber forest processing facilities, well developed and standard laboratories. All these facilities and the increase in agricultural production especially in primary products can make the agricultural industry to expand and contribute heavily to the national economy.

Though crop production is not much industrialized, the country opt to increase and industrialize the sector and put it on the export market by promoting irrigation schemes to enable all-year-round crop production.

Agro-industry entrepreneurs are expected to take the availability of such facilities and other public infrastructure as an opportunity for them to develop and produce more agricultural products for export markets.

The existence and expansion of agricultural industry is aided by the government act of promoting investments in agro-industries and setting policy instruments that promote the industries.

2.3 Agricultural Trade

2.3.1 Agricultural products

The country produces under harsh arid and semi-arid conditions of poor rainfall, drought and situations of pests and disease outbreaks. The agricultural products are treated, produced and traded differently in terms of being animal or crop products, which are produced in communal areas or poor inputs, rather extensive and traditionally or produced in commercial areas of high technology, export-oriented and intensively managed.

Livestock products are:

- Beef; with the total livestock units of 425 388 available for marketing in 2013
- Mutton (sheep) and goats
- Pelts (mainly from the karakul sheep)
- Pork; whose production units have been increasing due to new establishment of pug farms, making a decrease in the import units of pork meat

- Poultry
- Ostriches (including eggs, feathers); whose numbers have been increasing since 2004 following the draught in the previous years

These products are marketed locally or taken for export markets in Africa and in the European Union (much of this will be highlighted in the following sub-sections). The total livestock units of the above mentioned products are shown in figure 3 in the percentage proportion as presented in the Agricultural bulleting of Namibia in 2005.

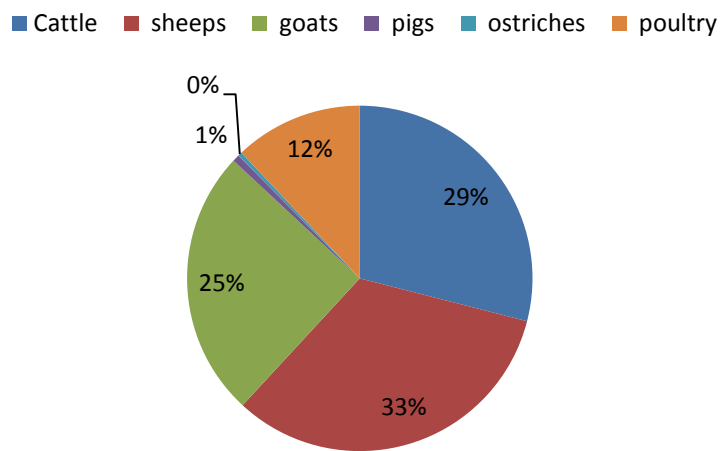


Figure 3: Number Livestock units in percentage (source: Directorate of Veterinary Services, Ministry of Agriculture, Water and Forestry, 2010)

In the livestock sector, beef production and small stock production are the most important activities and their output is the most exported, thus contributing highly to the national agricultural sector. Game meat is also produced mainly on commercial basis, but it is consumed locally and marketed through local retailers. Cattle do not only produce beef, but other important dairy products such as milk, butter, cheese, yoghurt etc. which are also consumed locally than being produced for export purposes. To a less extend pork meat is also produced and consumed, with a recorded number of 39 149 pigs slaughtered for local consumption in 2013 (Meat Board, 2015)

Livestock production contribute about 70% of the total agricultural output, the other part is covered by crop production which is also important for the livelihood of the people in the country both in food provision and income generation.

The main crops produced in Namibia are: Maize, Millet (Mahangu), Wheat, as well as

horticultural products such as Onions, Potatoes, Tomatoes, Bananas, Cabbages, Butternuts, Watermelons, Carrots and others. There are also other non-controlled crops planted at a smaller scale such as cotton, sorghum, lucerne, sunflower and groundnuts

Maize is regarded as a staple food crop in Namibia and usually have a production of 45 000-53 000 tons a year in a normal production year (NAP, 2010). Some of the produce is done under irrigation projects in the Hardap and the Kavango regions as well as the Etunda project in the north, another way of production is without irrigation as most farmers cannot be able to afford the irrigation implements and the irrigation system management, and it is done in the dry-land production area, which is situated between three towns namely; Grootfontein, Otavi and Tsumeb which is referred to The Maize Triangle. The country receives its rainfall in the summer, the period from November to February which some years extends to March, this force the growing of wheat to be done only under irrigation projects also in the earlier mentioned regions as well as other projects in Okavango regions such as Shitemo, Musese, Vungu Vungu, Mashare and Shadi Kongoro and some farmers that afford irrigation facilities in farms new the maize triangle. This is because the growing period for wheat is May to June and at that time of the year there is no rainfall. In the 2 314 hectors planted in June/July 2012, a tonnage of 14 819t were produced and marketed (NAP, 2013). Following the harvest of maize in the end of summer, Pearl Millet (known as Mahangu in Namibia) is planted also under irrigation, and it is one of the most important stable crops in the country. Mahangu is both exported (as floor) and imported (as grains), but most of the production is marketed locally. Its total production in 2012 was recorded as 55 900 tons of mahangu (NAP, 2013).

The horticultural products are protected by the Namibian Market Share Promotion (MSP), which in the end see to it that the producers will be able to increase their production and the industry will grow. MSP have an agreement with all registered horticulture fresh produce importers that they will buy a specific minimum percentage of the horticultural products produced locally, and failure to do so will lead to consequences (NAB, 2013). The percentage that importers had to buy was 5% at the initial stage in 2005 when the MSP was implemented, due to the increase in production and the number of producers, this percentage was increased to 39% and it is expected to increase to 60% in the near future which will see a huge growth in the horticultural industry. The horticultural products are shown in figure 4, which basically show the names of the products as well as their production quantities in 2013.

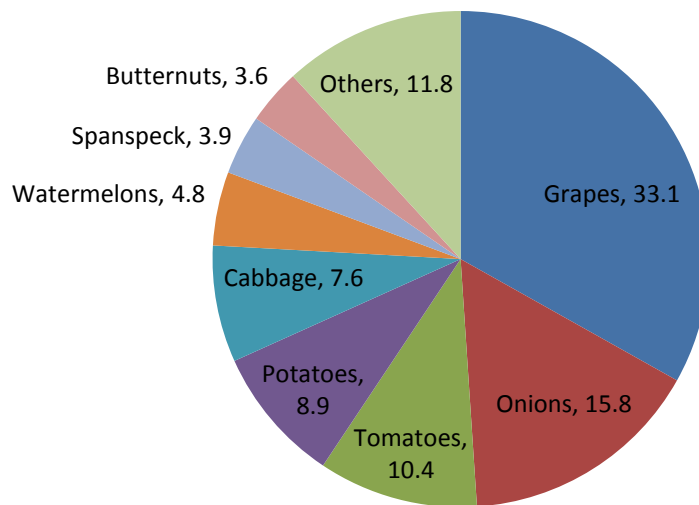


Figure 4: Local production of horticultural products in terms of weight (tons) expressed in percentage (2013) (source: NAB, 2013)

Other possible reasons that drive the growth in the horticultural production is the increasing demand of fresh fruits and vegetables by traders, whereby the traders and the producers make a pre-planting arrangement to ensure the sale of their produce in the end of the production season through the help of MSP. Also influencing the growth in horticulture industry is the National Horticulture Day hosted by the Namibia Agronomic Board (NAB), whereby producers and traders of the year are recognized and awarded for their efforts in ensuring the increase in fruits and vegetable production, which also play a role in the growth of the economy (NAB, 2013).

2.3.2 Agricultural exports

The main agricultural export product is beef, which is exported to the EU and Norway markets and also to African markets (mainly the neighboring South Africa and Angola). The animals are slaughtered at the EU-approved export abattoirs in Windhoek and Okahandja Meatco as well as the Witvlei abattoir. Some cattle are also exported to South Africa on hoof (as live animals) and a number of 262 929 livestock units were exported in

2013 alone according to the meat board of Namibia (2015). Small stock is also exported by the meat board to the EU and South Africa, with 427 240 livestock units of goats and sheep exported to South Africa at more or less equal proportions.

Another livestock product mainly regarded as Namibia's black diamonds is the Karakul pelts, which are auction twice every year in the International market in Copenhagen in Denmark in April and again in September. The pelt products are marketed as Swakara by the Swakara board of Namibia fetching millions of dollars for the country. According to the Swakara Board (2014) country produces around 140 000 pelts every year and they are all auctioned, with average price of N\$599.04 (US\$ 49.92) per pelt in 2014. The highest price of pelt recorded in the 2014 auction was N\$2 405.60 for white pelt to a Greek national and a black pelt to a Russia, though the highest for the black pelt was N\$2 964.00 (US\$ 247.02).

Maize is an exported agricultural product and it is marketed in the period between May and October, whereby the borders for imports are closed until the local harvest is bought and partially milled. The closing of the borders allow millers, producers and the NAB to make their purchase as agreed in a framework of mutual agreement which also indicates the reference price (price of floor) based on the South African Futures Exchange (SAFEX) adjusted with inflation. The export of white maize over the previous few years is shown in table 3, as well as other important data on white maize trade related aspects (NAP, 2013). The meal highlighted as exported tonnage is approximately 10% less than un-milled grain, in order to conclude a realistic total consumption.

Table 3: Local production, imports, exports, total consumption and prices of maize (2004-2013) (Source: NAP, 2013)

Financial year	Local production (t)	Grain imports (t)	Grain exports (t)	Meal exports (t)	Meal exports in equivalent of grain (t)*	Netto domestic consumption (t)	Floor prices (N\$/t)
2004-2005	55 935	87 434	5 960	200	180	137 229	1 755.00
2005-2006	44 365	76 534	4 000	-		116 899	1 824.00
2006-2007	53 296	48 247	3 000	-		98 543	1 760.00
2007-2008	44 642	60 141	300	610	549	103 934	2 006.16
2008-2009	51 832	111 714	3 150	35 078	31 571	128 825	2 030.93
2009-2010	49 566	83 903	230	13 678	12 311	120 928	2 780.49
2010-2011	47 961	81,111	-	6 309	5 679	123 393	2 614.00
2011-2012	63 228	55 305		2 192	1 973	116 488	2 831.37
2012-2013	72 438	105 742	-	11 124	10 012	168 168	2 998.00

The closing and opening of trade borders at the end of the marketing period is seen as a factor contributing to the increase in production as producers are guaranteed of their sale. Another crop product exported is wheat, which is exported as flour from the millers by the Agronomic board, with a recorded 11 124 tons in 2013 (NAP, 2013).

2.3.3 Agricultural imports

Though the government through various organizations and elected boards control the import of agricultural products as a strategy to encourage local producers and support their growth, the country still need to import most of the agricultural good because it is not producing sufficient enough to feed the whole population.

Both agricultural crops highlighted to be produced and exported are also imported, be it in the form of grain or flour. The locally produced and imported wheat grain quantities in tons over the years are shown in table 4. The price of wheat is determined by the SAFEX pricing. The quantities of maize important have been shown in the previous table with its export and production values. Mahangu is imported in granular form in times of poor harvest locally (NAB, 2013).

A range of horticultural products imported have also been recorded and highlighted in figure 5, which compares their import value versus the value of locally produced products.

Table 4: Local production and imported quantities in tons from 2005-2013 (Source: NAB, 2013)

Financial year	Local production (t)	Grain imports (t)
2005–2006	12 987	73 411
2006–2007	12 312	58 227
2007–2008	12 163	61 665
2008–2009	14 581	51 014
2009–2010	12 448	64 661
2010–2011	11 511	69 519
2011 - 2012	11 930	84 543
2012 - 2013	14 819	87 726

Potatoes account for 25.8% of the imported tonnage, while onions and tomatoes account for 10.3 and 5.7%, respectively and their import quantities are controlled by the MSP as highlighted in the previous sub-section (NAB, 2013). The control strategy increases the sale of fruits and vegetables by the local producers, which results in income increases, horticultural industry growth and improvement of living standards.

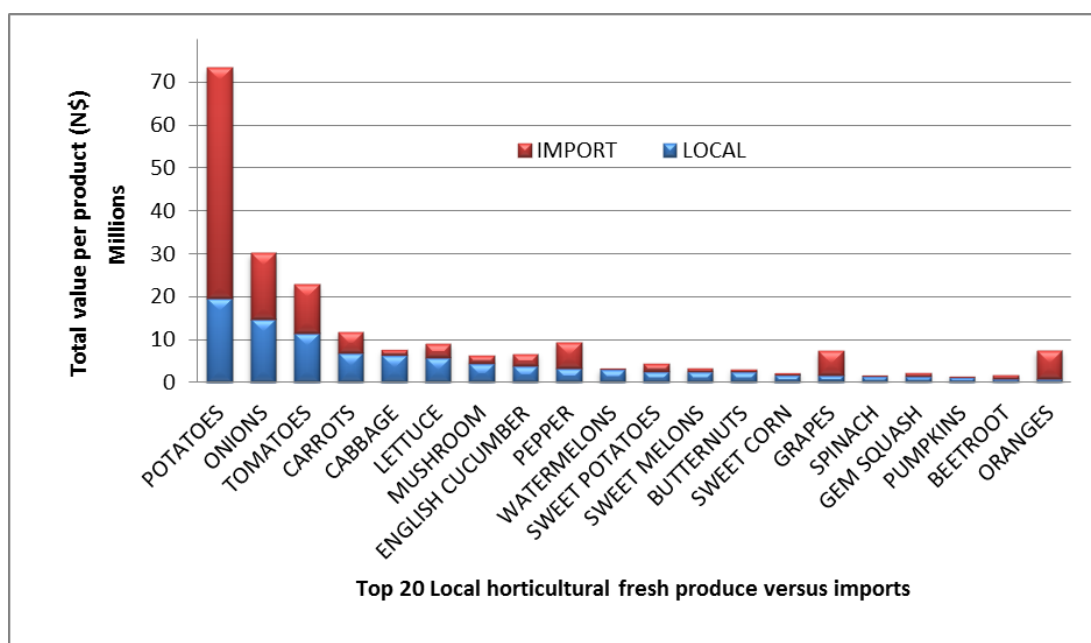


Figure 5: Top 20 local horticultural produce versus imports in Namibian Dollars (N\$) (April 2012 to March 2013) (source; NAP, 2013)

Livestock is the main export product, but the country also imports livestock products from developed countries such as Canada, South Africa, Netherlands, China, Spain and others. The export of meat is either as live animal mainly to South Africa, Angola and a few other African countries or as semi-processed cuts, but the imported meat products are processed or either material for processing such as sheep casings used for processing meat into sausages and other end products. Pork is imported as a whole carcass due to low production in the country, or else exported pork products are pork trimming, fats and specific cuts. All importers are registered with the meat board of Namibia, which is a statutory body facilitating export and import of livestock products under the meat Industry

Act of 1981 (Act no. 12 of 1981) (Meat Board, 2015). The different livestock or animal products imported through the Meat Board of Namibia are discussed and their imported quantities (in kg) are shown in table 5 to give a view of the most imported to the least imported products.

Table 5: Livestock imports and imported quantities in 2012 (Meatco, 2013)

Imported products	Imported quantities (kg)
Beef	5,217
Sheep	53,600
Pork	2,060,990
Processed Meat	2,672,913

- Beef is imported in the form of beef cuts, mainly from South Africa, but in small amounts, because the beef production industry is well established in Namibia and all the processing is made within the borders.
- On the small stock, its only sheep products that are imported such as Sheep carcasses mostly frozen, sheep cuts, casings and offal. As presented in Figure 3 in the production sub-section, small stock and beef are produced in high quantities; therefore there is little need to import them.
- Pork is the most imported animal product since the country does not have well established pig farms, the pork meat products imported are carcasses, offal, fats, and specific parts as well as casings mainly from China.
- Processed meat of different animals is also imported to a large extent as it was highlighted that the high technology, processing industry is still developing. The imported processed meat products are tinned meat balls, dried meat for direct consumption, smoked beef, cooked or uncooked pork and processed pork.

2.3.4 Agricultural infrastructure

Infrastructure refers to all installed facilities such as transmission lines for water, sewer and energy, telecommunications and transportation systems like roads, ports and rails, as well as irrigation infrastructure in internal agriculture. Most important to agriculture is transport system, mostly roads in a developing country like Namibia because of the role they play in the distribution network. Producers have poor access to supply markets as they have to import most of their agricultural inputs. Improved infrastructure, especially transportation system sees to it that producers obtain their inputs efficiently and be able to gain profits due to reduced transportation costs as well as quick access to the market. As already highlighted the demand for perishable horticultural products have been increasing and the production is also improving, but better roads aid producers to provide their highly perishable products in high quality as quick as possible to the market.

Improvements in rural infrastructure especially roads have been the main target for most development institutions including the government. A study has been made, which considered the link between road connectivity and agricultural production in developing countries, particularly Sub-Saharan Africa. The study aimed at estimating a long-term relationship between market access and agricultural production. The conclusion was that agricultural production is highly correlated with proximity to urban markets, which is measured by time used in transporting the goods to the market. This means that the reduction in transportation time to major urban markets has significant effects on agricultural productivity in sub-Saharan Africa (Ulimwengu et al., 2009)

Several other studies came with almost if not similar conclusions, that farm households would not pursue sustainable intensification in the presence of socio-economic conditions such as high transaction costs, including transport costs, unavailability of agricultural services (extension and ancillary services) (Woelcke, 2006).

The Ministry of Agriculture, Water and Forestry (MAWF) have established and maintained the use of extension services to cause an increase in productivity and improvement of farming level. The extension services do so by facilitating the adoption of new agricultural and resource management practices and new inputs that can sustainably increase agricultural productivity and reduce rural poverty. The availability of road infrastructure helps extension officers to achieve more efficient coverage of their areas of responsibility and deliver more regular and reliable services (MAWF, 2010). Poorly established infrastructure makes it difficult for farmers especially in the northern parts of the country

to get such information that could otherwise be vital for their prosperity. In other words, though information on new agricultural practices is available to the extension agents, without properly established systems such as roads, their work will be inefficient as the target farmers will not have access to information (Okoboi & Barungi, 2012).

The country (Namibia) has one of the best and well developed infrastructure in the African continent, it has highly developed energy and water network infrastructure (SARC, 2014). Road network is well developed especially connecting the urban cities, as well as between countries such as Angola, Botswana and South Africa where a large portion of agricultural trade is pronounced.

2.4 Globalization of Namibia's Agriculture

2.4.1 General Impact of Globalization

As highlighted in the introductory sub-section, globalization is basically the worldwide integration of nations in subjects of politics, economical and socio-cultural. It involves the exchange of ideas and values in those aspects and is aided by the improved core links like infrastructure, communication in particular. Economies of developing countries are partially integrated in the world economy or the global system (Feldstein, 2000). Globalization is characterized by the increase in international trade in goods and services, as well as the movement of capital and labor within and across countries. It is a process that encompasses international migration of labor, foreign direct investment as well as short-term capital flows (Feldstein, 2000). Though globalization is perceived as one of the major contributor towards increased socio-economic inequalities in the globe and other negativities, it is expected to have more benefits that can overcome such negativities (Lukas, 2000). Improvements in technological know-how, increased productivity and economic growth are the expected results of globalization in developing countries (Bigman, 2002). According to Bigman (2002), the integration, especially of the economic is more initiated by the International Organizations such as the World Bank, International Monetary Fund, the World Trade Organization and most of the richer countries.

In Agriculture, globalization can be regarded as the process that bring changes that cause development especially through the possibility of increase in trade, enlargement of markets for producers and investments (Lukas, 2000). There are assumptions that trade liberalization and other issues of world integration such as globalization have caused a

boom of several developing countries, especially in Asia (Bigman, 2002). The World Bank report (1999) on the other hand highlighted views from advocates in the developing countries, who claim that through trade with Western developed countries and their investments causes an exploitation of their resources and causes an increase in poverty. That is so viewed because liberalized trade aided by the World Trade Organization contains rules that are governed and set by members of the developed western countries. It is claimed to be the cause of booms of western economies. However, positive assumptions reflects that through trade liberalization initiated by the International Organization allocates resources more efficiently in developing countries due to the expand of markets and lower production cost due to lower labor costs especially in labor intensive industries and this can cause economic growth.

Trade barriers that existed before globalization saw countries that had the potential of surplus production limit their production to a smaller number of consumers. Through interdependence and integration and the removal of trade barriers bilaterally or regionally, globalization is seen to have caused an expansion of the consumer market (Bigman, 2002). Producers in developing countries got access to a wider range of consumers and their produce gained much higher revenues. This large international market aided by the removal of trade barriers saw small producers in developing countries develop new technologies and produce new products.

For the sake of this paper and Agriculture; globalization measures such as trade openness are regarded catalysts in improving people's welfare. This measure of globalization foresees an existence of trade within an industry referred to as intra-industry trade. The Heckscher-Ohlin Theorem accepted worldwide highlights that a nation will export the commodity in which it have less intensive use of the abundant resources for production and the same country will import a commodity that requires intensive use of resources that are scarce or rather expensive (Mohamed and Motinga, 2002). In the case of Namibia, the country export more of the good that are produced at a relatively lower cost which is beef and other livestock products and import processed meat products and other agricultural products that are not locally produced in high amount due to resource scarcity and lack of knowhow. Though as previously discussed Namibia is an arid country, natural vegetation allows livestock production to thrive and importers of livestock products prefer naturally fed animals' products (Meatco, 2013). The presence of international trade in this manner increase the welfare provided that the resources are distributed equally.

2.4.2 Foreign Direct Investment

Foreign direct investment (FDI) can be defined as an investment by a foreign investor into the enterprise in another economy, which involve a long-term relationship and reflects a lasting interest and control by this foreign investor in the enterprise (OECD, 1996). This investment can be in the form of three distinctive components namely; equity capital, re-investment and Intra-company loans. Foreign direct investment is an important source of external finance for developing countries as it is much influenced by the investor's long-term vision of maximizing profits in the production activities of interest, in relation to other external financing such as donors for specific projects and specified time period. After independence Namibia's inflow of foreign assets have been positive and had a percentage share of 25% on the GDP in 2004 (Gaomab II, 2005). Though such a figure can give an indication of the ability or potential of the country in attracting foreign investors, the agricultural sector is not amongst the prioritized sectors of interest by foreign investors. Much of the FDI inflows in the country are focused on natural and mineral resources as well as large markets (such as textile). In an attempt to attract more foreign direct investors to stimulate economic growth and create more jobs, the Namibian government established the Namibia Investment Centre (NIC) through the Ministry of Trade and Industry and has also set The Foreign Investment Act of 1990 to govern foreign direct investment in Namibia. The NIC became Namibia's official investment promotion and facilitation office where potential investors contact. It is often the first point of contact for potential investors. The Centre has the responsibility of screening all potential investors. Under the Foreign Investment Act (1990) foreign investors are guaranteed equal treatment as to Namibian firms, which entail fair compensation in the event of expropriation, international arbitration of disputes between investors and the government, the right to remit profits and access to foreign exchange (KPMG, 2012). According to the NIC in 2005 over 70 percent of the Foreign Direct Investment in Namibia have been in the mining and related value addition sectors. It is therefore clear that the country only benefits from substantial resources (uranium, diamonds, zinc, copper, oil) which attract the majority of FDI. This share of FDI has been launched into very large projects of infrastructure in the country, especially transport systems, which was highlighted in earlier sub-sections. Poor attraction of FDI in the agricultural sector has made the government to allocate huge budgets to

agricultural sector and other related sub sectors such as forestry, aquaculture and water in order to achieve the main national goal of food security and import substitutions (Nhuleipo, 2010).

2.4.3 Namibia in World Trade

After being an independent country in 1990, Namibia became a member of GATT in 1992, following the engulfment of the body in 1995 in January Namibia joined the World Trade Organization in 1995. The country is also a member of Southern African Customs Union, through which it participates in the WTO discussions. As it is known that the goals of WTO are to help trade flow as freely as possible, to promote the rules of free trade between the countries and to settle trade disputes, the establishment of free trade areas helps the country to have a bigger voice by being part of the Southern African Development Communities (SADC). SACU sets the main trade policy instruments for the member states. This does not mean that Namibia only adheres to the policies set by the union, but bodies within SACU member states are established, which make recommendations with the Customs Union Commission on certain changes such as tariff changes and other SACU issues. Internally there are entities that serve as a platform for public-private dialogue on trade and investment related matters mainly the Namibia Trade Forum. Analytical research on trade issues is made by such entities and conclusions are drawn to on economic and trade policies (Mohamed and Motinga, 2002). Trade policy in Namibia aimed at diversifying its export base through a variety of investment packages, but the composition of exports especially in raw materials makes the country vulnerable to external shocks such as terms of trade changes, external demand and climatic variations (Mohamed and Motinga, 2002). SACU harmonized to meet the union's goals. The internal entities after drawing the analytical research conclusions notified the union that maize and pearl millet and their products are sensitive products and they are exempted from the homogenous free trade and import permits are required should trade take place and only after national harvest is sold (refer to the agricultural imports sub-section of this paper) (Froystad et al., 2009). Economic Partnership Agreement has been signed between Namibia and the EU to allow duty-free and quota-free access of all Namibian products to EU member states.

Objectives

The main objective was to examine the economic changes in the agricultural sector in Namibia as a result of Globalization.

- To analyze the changes in the structure of different branches of agriculture in the country
- To determine the impact globalization has on the performance of agricultural production
- To study the future prospects of agricultural produce, exports and imports

Methodology

In order to study the economic changes in the agricultural sector important secondary data was collected on Agricultural exports, imports as well as agricultural production, which are required to quantify the level of globalization indicated by two important criteria. The essential secondary data was collected from statistics and information from the National Planning Commission, the Ministry of Agriculture, Water and Forestry, data from the Agronomic Board of Namibia (mainly annual reports) as well as and most importantly from the Meat Board of Namibia. The available data allow the use of time series from the year 2000 to 2012, which is a period of thirteen years, enough to provide a clear trend of globalization and its direction in the agricultural sector in Namibia.

To analyze the changes in the agricultural sector, simple graphs on agricultural growth will be analyzed.

The most important feature that could quantify or give a great picture of the impact of globalization on Namibia's agriculture is the FDI as highlighted in the previous subsection, but such data is unavailable and poses the biggest methodological constraints. Nevertheless, the two criteria for analyzing the globalization of an industry (in this case agriculture) will be the main focus. The criteria are based on international trade and since Namibia is a country part of the WTO and participates in trade, these criteria are applicable. The two criteria are the Integration of International Trade (IIT) index and the Level of International Trade (LIT) index, which both determines how open an industry's economy is (Kohansal, 2010).

IIT is also referred to as intra-industry trade index and have been used in many different studies as a criterion of globalization of economies. Intra-industry trade exists when trade of the same types of products takes place within the industry, which can be at different production level (vertical intra-industry trade) or the same production level (horizontal intra-industry trade) (Grubel and Loyd, 1975). The measuring equation is:

$$IIT = 1 - (|Export - Import| / Export + Import)$$

If the country import and export the same product, according to this equation the result will be a range between zero (0) and one (1), with 1 expressing the complete presence of intra-industry trade.

The equation have been developed by Herbert Grubel and Peter Lloyd in 1975 as they tried

to measure IIT, even though other previous studies have been done on intra-industry trade in the 60s. The index shows the degree of globalization and liberalization of an industry.

The other index is LIT which determines the expansion of international communication in an industry (Kohansal, 2010). The index is known to have been used on measuring globalization in chemical industries by Makhija, Kim and Williamson (1997). Kalbasie and Majidi (1998) and Komijani and Nouri (1999) also used the LIT index in an attempt to evaluate the globalization of Iran's economy. LIT index shows the partnership of trade in relation to the industry's production shown in the equation as:

$$LIT = \frac{Export + Import}{(Total\ production + Import - Export)}$$

Just like the first index, the LIT index also ranks from zero (0) to one (1), whereby one implies that import and export are important aspects of the industry and that the industry participates well in trade (Hedayat, 2009).

Data from the Meat Board of Namibia provide important information about the exports, imports and the production of livestock. Is highlighted in the theoretical part of the paper, the agricultural sector is Namibia is composed of the crop and livestock production with a total output ratio of 3:7, respectively. In this paper the livestock industry will be used to determine the level of globalization and show the participation of the Namibian agricultural sector in the universal economy. It is because livestock production is a more established industry in the country due to environmental conditions and the aridity of the country. In accordance with the convenience of the available data, beef meat industry will be taken as a sample to study the agricultural sector's expansion of communication in global trade.

The two criteria used to analyze an industry's level of globalization will further be studies simultaneously.

Results and Discussions

5.1 Changes in trade volumes

The theoretical part highlighted the differences in agricultural branches in terms of output and the share of the country's economy. Due to being an arid dry country crop production do not prosper especially at commercial level and it requires high technology facilities such as irrigation equipment and pumps for watering. Therefore, livestock production have a room for expansion due to the availability of annual grasses and the encroachment by bushes what allow browser animals to feed on. The exports and imports of livestock products composed of beef, mutton (sheep meat), processed meat as well as pork meat are summed up and discussed below.

Table 6: Import and Export quantities in tons (source: Meat Board, 2011) (Calculated for summation of products)

Year	Exports	Imports
2000	3575.635	3441.202
2001	3749.082	4117.238
2002	5077.698	5006.583
2003	6742.668	5155.147
2004	8131.753	5954.657
2005	16021.694	6518.781
2006	14563.175	6135.860
2007	16991.557	5861.401
2008	16523.390	7430.960
2009	17953.847	7805.544
2010	16602.418	7438.287
2011	14347.982	4417.849
2012	14997.470	3486.546

The quantities of livestock products exported in Namibia are higher as there is an increasing demand in Namibian meat from the EU and the African countries especially

South African and Angola. As the demand for specific products increases due to market expansion, the revenues are high, which enables the re-investment of the profits to modify the products (in this case meat processing). This leads to a decrease in imports of the processed meat, because part of the processing is being done within the borders. the increase in exports and decrease of exports over the years have been caused by the value addition being done in Namibia, whereby retail ready, value added cuts and the approval value addition plants in the meat company by the EU, which is regarded as high value customers (Meatco, 2013). In an attempt to maintain the level of production and protect producers, the importers are allowed to import when the production of the importable agricultural products are finished.

5.2 Integration of International Trade (IIT)

The extent of intra-industry trade is often used in studies to determine the level of integration into the global economy. Trade of products within the same sector exist for ages, but the measurement of the extent to which a sector or an industry trade these products have only been provided four decades ago by economists Herbert Grubel and Peter Lloyd in 1975. This measurement is again shown as:

$$IIT = 1 - (|Mt - Xt|) / (Mt + Xt)$$

Where: - Xt -Exports
 Mt -Imports

According to the equation it is clear that the measurement of intra-industry trade will have a maximum of one (1) and a minimum of zero (0), with the highest indicating the perfect integration of the industry into world trade. The minimum indicates that trade in the sector is only confined to either export or import (Hedayat, 2009).

The Namibian trade of livestock products is examined in the same manner to determine the level of integration of the Namibian agricultural sector.

Table 7: The Intra-industry Trade index (calculated based on the formula)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IIR	0.98	0.95	0.99	0.86	0.84	0.57	0.59	0.51	0.62	0.60	0.61	0.47	0.37

The IIT index in the agricultural sector shows the complete integration of the sector into trade as shown in table 7, whereby both export and import activities are almost at the same level. It shows from the early years of the decade that the country was importing more of the agricultural products in 2000 to 2003 with a level of integration being 0.98 and 0.99 in those respective years. The index shows a decline in one of the trade mode, by just 12 % in the following year to 0.86. At this point the country started to export more products than importing. In 2004 following the increase in pig farms in the country caused a drop in the amount of pork meat imported into the country and the index lowered to almost half of the amounts of exports indicated by the index as 0.57 in 2005. As presented in figure 6, from 2005 the export to import ratio was almost halved and remained steady until a sudden change in 2010 where the index declined to 0.37 in 2012. At this point (2012) the value of this index is poor and indicates that the imports and exports of agriculture are not balanced. There is a degree of inconsistency, though it does not indicate absence of one of the trade modes.

The trend of the Intergration of International Trade (IIT) index

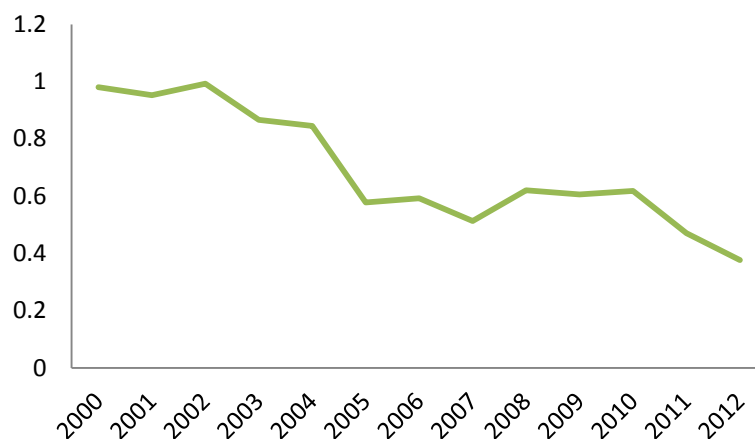


Figure 6: The trend of the Integration of International Trade (Intra-industry Trade) of Namibia’s agricultural sector.

The figure presents the trend of the IIT index as described earlier on. It can be seen from the graph that the integration of the industry in international trade was very high, where export quantities and import quantities were almost equal. But as the period continues, the

amount of imports have started decreasing while the quantities exported have been increasing as shown in table 6 in the trade changes sub-section. The index is a good measure of how globalized the economy is and it have been used by Bhadouria and Verma (2012) in determining the Intra-industry trade in India's textile industry. Economists in different parts of the world have tried to use the IIT index to measure this simultaneous between countries and within the same industry. Hedayat (2009) measured the intra-industry trade in Iran's agricultural sector and according to his findings, the IIT index was rather imbalanced and the agricultural sector in Iran was rather importing more agricultural products than exporting and Iran was not part of the WTO which made it difficult to be involved in trade internationally. At an index level of 0.5 Hedayat (2009) viewed his results to be satisfactory since the trend of IIT was moving in a positive increasing direction.

The Agricultural sector in Namibia on the other hand have improved in terms of production and market expansion with saw the increase in agricultural exports than its imports of the livestock products. The import decrease was arrived to by the decrease of pork demand from abroad as highlighted by the Meat Board of Namibia (2013) in its annual report. Furthermore, the graph showed that there is a continued decrease in integration of Namibia's agriculture in global trade, but this does not relate to agricultural production as such since IIT does not consider industrial production as a measure globalization. The growth of an industry like agriculture is much determined by its production volumes and the better criterion for showing that is the Level of International Trade (LIT).

5.3 Level of International Trade (LIT)

The globalization of a sector can be determined by different aspects as indicated in the theoretical part of this paper, most notably by the FDI, multi-national companies as well as by trade openness, but in this case, the Namibian agricultural sector will be measured by the LIT index, which is a criterion that entails trade aspects and agricultural production. As explained in the methodology sub-section, the data used for measuring the level of international trade is from the beef industry in the Namibia's agricultural sector in monetary value. This means that the beef industry have been used as a sample in determining the LIT of Namibia's agricultural sector.

It have been highlighted that this index was used to evaluate the globalization of chemical industries by Makhija, Kim and Williamson (1997) and other economists such as Kalbasie

and Majidi (1998), Komijani and Nouri (1999) and Mehrara and Rustemian (2003) have all used the LIT index to evaluate the globalization of Iran's economy. Hedayat (2009) also used the LIT index in the same way with the explained formula as follows:

$$LIT = X_t + M_t/P_t + M_t - X_t$$

Where: X_t - Exports

M_t - Imports

P_t - Total Production

Mathematically the values of the index range from zero (0) to one (1), and can be expressed in percentage for simplifications. The maximum (high) value indicates the importance of trade in the industry and it shows that the industry participates well in international trade (Hedayat, 2009). Table 8 shows the LIT index in Namibia's agricultural production expressed by the beef production industry.

Table 8: The Level of International Trade Index (LIT)

Year	LIT index
2000	0.164
2001	0.177
2002	0.220
2003	0.281
2004	0.353
2005	0.448
2006	0.466
2007	0.492
2008	0.524
2009	0.554
2010	0.491
2011	0.390
2012	0.398

The LIT index is able to determine the expansion of trade communications of an industry whereby the trade value is viewed in relation to the output of the industry. Apart from the previous results of the IIT, the LIT index over the studied period did not reach a high level and the highest was in 2009 reaching 55% of involvement in international trade and it was the highest in terms of trade communications as far as the beef industry is concerned. It is unsurprising that at this stage there was an increase in the agricultural exports (livestock) and production and it was the time when the IIT index indicated the dispersion of export quantities from the quantities imported.

The first four years from year 2000 to 2003 there is a low level of international trade and the globalization index determine the percentage of trade communications to be between 16% and 28%. From 2004 to 2009 again the index remained steady, where there is a continuous or same maintenance of trade. The direction of LIT index is presented in figure 7, to show the trend of trade communications in the agricultural sector of Namibia as determined by beef production.

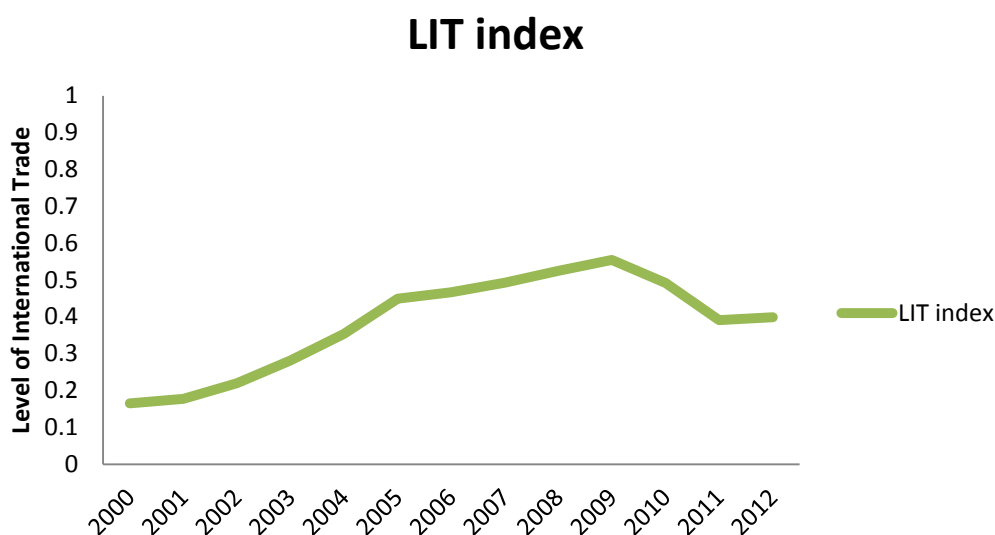


Figure 7: The trend of the level of International Trade of Namibia’s beef industry

As discussed earlier on LIT index, the trend has been in an increasing mode, which indicates that the trade of beef is becoming an important aspect from time to time in comparison with its production.

As a developing country, most of the agricultural production is focused on meeting the

national goal of food security. This is the cause of a low percentage of tradable products in relation to the total output of the same products, but as the production have been meeting the demand locally and the external markets expands, the amount of exports increases and without a focus on the imports, this causes the index to rise to more than 50% of involvement in universal trade. Another contributing factor in the Namibian meat industry is the improvement of meat processing facilities and the approval of the value addition practices by the importers of high value in the EU and South Africa which are the main markets as far as beef export is concerned. Though most of the cattle in Namibia are exported as live animals to South Africa with better established abattoirs, over the past few years the number of local butchers has increased in Namibia by 15%, making an increase in the number of cattle slaughtered within the borders (Meatco, 2013). This have contributed to the decline in trade in the years from 2009 to 2012, whereby the quantities of beef imports lowers and the export quantities also decrease slightly, while the total output continues to grow. It is a sign that competition is encouraged between producers and processors of beef locally and in South Africa, whereas the local consumers are benefiting from the decrease in prices as production costs lowers.

5.4 Indices analysis simultaneously

The indices are only used to determine globalization of an industry, in this case the agricultural industry. Komijani and Nouri (1999) emphasized the existence of different industries depending on their orientation in international trade as simple global industry, multi-domestic industry, and transitional multi-domestic and integrated global industry.

A **multi-domestic industry** is the one in which the competition within the industry is essentially segmented from country to country. Competitive factors in one country are largely independent of those in other countries. In this case Namibia's agriculture can be viewed as globalized, because its competitive advantage is being spread to other countries that produce the same agricultural products such as South Africa and Botswana. This competitive advantage in the livestock production arise from the free foraging of animals that allows consumers and potential markets to view the livestock products as natural and of best taste. This have caused the import increase in cattle from Namibia and transferring to their export abattoirs. The IIT have shown that both import and export occur simultaneously with an index value of 0.99 in 2002 and as the quantities of produce of livestock products increases in Namibia there started to show a decline in imports as the facilities improve locally which was the advantage South Africa had over Namibia in processing the livestock products. This is what made the huge drop in the index value to 0.37 in 2012 and it is expected to continue dropping as the country will stop importing livestock products. The same decline was also seen in the LIT index whereby in 2009 to 2012 there was a decrease in the importance of trade in the industry by 14%.

Simple global industry is one in which the sector or the industry is export oriented and it is more determined by the low level of IIT index. This is the industry where Namibia is heading towards as being indicated by the decrease in the IIT index from 0.6 to 0.4 in 2010 and 2011, respectively. With LIT it is hard to determine this type of industry as an increase or decrease in the importance of trade in the industry cannot give an indication of whether export or import is the highest.

Transitional multi-domestic industry is the industry that is relatively significant in simultaneous trading. It can be viewed when the LIT and IIT are at 50% with an increase in trend, which shows that the industry is heading towards multi-domestic and trade will be important in the industry. The LIT index from 2007 to 2010 shows this level of around 50% importance of trade in the industry and declined only after 2010 towards a simple global industry that is dominated by export.

Lastly the **integrated global industry** is one in which there is complete or high integration of the sector in the global economy, which is indicated by a high level of both LIT and IIT. In 2000 and 2002 the level of IIT was 98% and 99%, respectively, indicating a complete integration of the industry into global economy. This means that at this point the agricultural sector was fully an integrated industry. The LIT only had a maximum of 55% in 2009 and it does not indicate this integration in the universal economy.

Conclusions

Globalization as arrived to by the advancement in technology and communications has enabled expansion in international transactions. It is the scope and the speed of the changes in international trade that characterizes globalization. The measures of globalization in an industry have remained a challenge to many, as globalization is a phenomenon that a lot focus on and its impact. Trade is only characterized by the imports and exports of goods and or services between parties, and various researchers have emphasized on the importance of countries' integration in world trade as it affects their national growths. Agriculture is an important sector, especially in a developing country whereby the livelihoods of the citizens depends on it mainly by employment creation. Countries' integration in international trade have enabled the removal of trade barriers and saw countries better off by having access to a variety of products and being able to expand their markets and gain profits through sales. As a developing country, Namibia's agriculture is heading towards a simple global economy, whereby trade will exist and dominated by exports. Nevertheless, Namibia's agriculture have for years been integrated well into the global economy and trade continues to be an important aspect of the agrarian industry as indicated by the two important indices.

The increase in agricultural output as well as the increase in exports while imports decrease shows the growth in the agrarian sector. The drop in the imports is caused by the improvement in the technology which is as result of being integrated into the world economy. As the use technology increases and improves, the dependence on agricultural imported products decline because the same products are now being produced and processed within the borders of the country. According to the indices, globalization is only important when the agricultural industry is fully engaged in both exports and imports of products within the industry itself. However, this is only beneficial in the view of consumers and producers, whereby the increase in imports expose the local consumers to differentiated agricultural products (variety), while the increase in exports due to market enlargement presents producers with profits and technological improvements. Such benefits causes improvements in the livelihoods of the people in the country, improve food security and causes satisfaction. On the other hand, growth in the agricultural sector is known to be characterized by increase in production volumes and export quantities and not necessarily the imports of the products. According to the results, it can be concluded that Namibia's agrarian sector is well integrated into the global economy and there is a forward

movement towards the expansion of trade communications, which shows the importance of trade in the agricultural sector. Namibia's agricultural sector's economists, planners and decision makers can be able to make their decisions well after analyzing the results of this paper, especially in being recognized as a globalized sector.

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