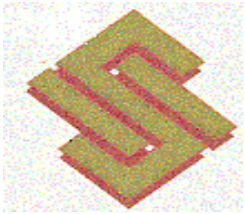

BANK OF NAMIBIA

RESEARCH DEPARTMENT

UNLEASHING THE POTENTIAL OF THE AGRICULTURE SECTOR IN NAMIBIA

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LIST OF ACRONYMS

AALS	Affirmative Action Loan Scheme
AGOA	Africa Growth and Opportunity Act
AGRIBANK	Agricultural Bank of Namibia
ATF	Agricultural Trade Forum
EU	European Union
EURO	Euro Currency
FELDA	Federal Land Development Authority
GDP	Gross Domestic Product
KLCE	Kuala Lumpur Commodity Exchange
MAWF	Ministry of Agriculture Water and Forestry
NAB	Namibian Agronomic Board
NASSP	National Agricultural Support Services Programme
NAU	Namibia Agricultural Union
NCA	Northern Communal Areas
NCRs	North Central Regions
NGO	Non Governmental Organisation
NHDI	National Horticultural Development Initiative
NNFU	Namibia National Farmers Union
N$	Namibia Dollar
N-SIS	North – South Incentive Scheme
MEATCO	Meat Corporation of Namibia
POUND	Pound Sterling
PORLA	Palm Oil Registration and Licensing Authority
RSA	Republic of South Africa
SACU	Southern African Customs Union
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
USA	United States of America
VAT	Value Added Tax
VCF	Veterinary Cordon Fence

Executive Summary

The objectives of this paper are to look into the factors that have been causing the decline in the agricultural growth with a view to identify products that have the potential of increasing the output of the sector. Moreover, the paper is intended to investigate the level of investments required in the sector. To achieve the objectives above, a desk research augmented by field surveys and case studies of other countries were undertaken. The main purpose of the field surveys was to assess the main constraints preventing the sector from reaching its full production potential, identify existing opportunities, as well as the levels of investments required in order to increase the output of this sector. The surveys were administered to about 14 key bodies and institutions which represent the interests of farmers in the country. The sampling criterion was more judgmental and based on the fact that the selected institutions are in better position to know the existing constraints and opportunities in the sector given their close contact with the farmers.

In addition to the field surveys this paper used case studies so as to learn from the experience of Malaysia, Kenya and Zambia on the policies they embarked upon in their quest of unleashing the potential of their respective agricultural sectors. The selection of these countries was underpinned by the fact that, similar to Namibia, Zambia and Kenya had dualistic agricultural structures at independence and had to institute policy interventions to achieve growth and equity objectives in the respective agricultural sectors. As for Malaysia it was due to the fact that Malaysia is a major producer of palm oil which among other things produce bio diesel. This therefore ties well with the ambition of Namibia to produce bio diesel.

Unleashing the Potential of the Agricultural Sector in Namibia. Draft Sept 2006

From the paper it became evident that Namibia is characterized by a dualistic agricultural sector, where a strong commercial sector exists along with a sector of households in freehold and non-freehold areas. This dualistic character of the sector has been inherited from the apartheid regime. What concern policymakers is the fact that the share of the agricultural sector to GDP (11.7 percent during the period 1990 to 1997) in Namibia is not only lesser than the average for the Sub-Saharan Africa (30.0 percent on average during the corresponding period), but has also deteriorated from 6.9 percent in 1999 to 5.4 in 2003. Moreover, the share of agriculture in the labour force has been sliding from 49.0 percent in 1990, to 29.3 percent in 2000. Furthermore, its performance has been sluggish, registering declining and negative growth rates sometimes. This is in spite of a number of policy interventions that were implemented in the sector.

Despite the observed sluggish performance the paper observes that the agricultural sector remains one of the key pillars of the Namibian economy given the fact that, it is a provider of food, employment, incomes, foreign exchange in the economy. Moreover, it creates demand for capital investments and increasing productivity of workers. The agricultural sector also supports other sectors such as transport, manufacturing, plastic packaging and etc. For example, the agricultural sector sustains about 70 percent of the Namibian population, either directly or indirectly. Moreover, in 2004 the agricultural sector accounted for 11.5 percent of the country's total foreign exchange earnings of the country, about 39 percent and 19 percent to the country's total maize and wheat consumption requirements respectively. Moreover, it supplied about 100 percent of total beef, mutton and peal millet consumption, as well as contributing 2 percent to total manufacturing output of Namibia. Based on the above back ground, the importance of the agricultural sector within the Namibian economy cannot therefore be overemphasised.

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The paper found that, the agriculture sector is constrained by factors such as less availability of marketable animals, unavailability of markets for some products, lack of economies of scale, high input and transport cost, lack of finance, climatic and weather conditions, competition, exchange rate volatility, unavailability of farm lands, lack of skills and fresh produce markets, scattering of producers and unsynchronised transport system.

The paper further found that, beef, sheep, goat, poultry, mahangu, grapes, jatropha curcas, hoodia, cactus pear, avocados, banana, beans, beetroot, broccoli, butternuts, cabbage, carrots, chilli, cucumber, dates, lemon, lettuce, mango, naartjies, onions, oranges, pears, pineapples and potatoes have the potential for growth in the agricultural sector. The investment required in the sector is estimated at about N$885.9 million. It was also found that Namibia enjoys a comparative advantage in the production of the products identified above and should therefore increase their production.

More over, the paper drew the following lessons from the case studies: In all the countries Malaysia, Kenya and Zambia, respective governments intervened in the agricultural sector through various policies such as giving support to the small holder farmer's, broadening access to finance, provision of infrastructure and investing in research. Moreover, in Kenya the government instituted a land distribution programme. In Malaysia the success of palm oil was also due to the country's comparative advantage. Despite these interventions, output in Kenya and Zambia increased initially but latter started to decline. In the case of Zambia the decline in output was brought by a host of factors more particularly drought, privatisation, cattle diseases and removal of subsidies on maize and fertiliser. It should however be pointed out that of recent agricultural growth has started to pick up in Zambia on account of continued government focus on food security, diversification and the opening up of new agricultural productions areas. In Kenya, the decline in the growth of the agricultural sector is attributed to inefficiencies in marketing, limited land expansion of small holder farming, limited

development and use of new technologies, deteriorating infrastructure, low investments, and bad weather. Not withstanding the decline in the growth rates, the agriculture sector remains imperative as employment creator, earner of foreign exchange and contributor to GDP in these countries as well as in Namibia.

In order to unleash the potential in the agricultural sector, the paper recommends the following:

- Concerted efforts should focus on expanding production of beef, karakul and horticultural products in the communal areas.
- Marketing as well as promotion of products such as grapes, processed goat meat, bone in beef and dairy products which are in dire need of new markets should be strongly emphasised.
- Modernization of the rural areas by putting in place proper infrastructures in the form of roads, electricity, marketing facilities and feedlots are strongly encouraged.
- The current efforts by the green scheme to increase production of agricultural products through irrigation methods is commendable, however it is recommended that emphasis should rather be placed on the production of crops in which Namibia has a comparative advantage more particularly horticultural crops.
- The recent regulation by the Namibian Agronomic Board, to compel retailers to source 15 percent of their supply of horticultural as an import substitution strategy is commendable. If supply warrants, it is recommended that the domestic outsourcing requirements could be increased in the future. Moreover, efforts to encourage the local consumption of Namibian products such as that of Team Namibia are greatly encouraged.
- Within the commercial areas it is recommended to intensify the de-forestation with a view to increase the carrying capacity of the land.

- With regard to the State Land acquisition policy of The Ministry of Lands and the Affirmative Action Loan Scheme of the Agribank, the two institutions should re-looked into the issue of farm lands evaluation to avoid unnecessary competing demand for lands. A mechanism of proper coordination between the two institutions in this particular aspect should be adopted.
- The land policy must be implemented in such a way that it dispels uncertainties' to farmers, areas earmarked for resettlement must be defined clearly, and resettled farmers should be grouped into clusters. These areas should be equipped with the necessary infrastructure and be near by the markets to enhance productivity.
- Investments in the projects such as Karakul sheep farming, grapes, hoodia, jatropha, processing of grape products should be intensified.
- Furthermore, research in agriculture is strongly encouraged. In addition to research, there is a need to enhance the productivity of agricultural workers by introducing tailor made agricultural training in the rural areas.

Chapter 1 Introduction

The majority of the people of Africa and Namibia in particular acquire their livelihood directly or indirectly from agriculture. Agriculture accounted for about 30 percent on average of the gross domestic product (GDP) for Africa as a whole during 1990 to 1997 (Odada, et al 2002). This share is even larger in more than two-thirds of Africa's low-income countries. In contrast however, the industrial sector, which is the only realistic alternative source of tradable output accounts for a modest share of GDP in almost all low-income countries, except few mineral-resources-rich countries. As the dominant production sector, agriculture not only remains important for national economic growth but also for job creation and poverty reduction.

Despite the fact that most African governments have affirmed agriculture as the basic engine to foster economic growth, it is very unfortunate that those pronouncements often lack clear economic policy support or guidance. A review of the agricultural sector in the last decade reveals that the region has been facing perpetual staple food deficit and most African states are net staple food importers. This adversely affects the trade balance and the overall balance of payments of most African states. It also deprives most of them of the scarce foreign exchange which could better be spent on providing essential services such as health and education. These problems experienced by most African states are also pertinent to Namibia.

Namibia is characterized by a dualistic agricultural sector, where a strong commercial sector exists along with a sector comprised of households in freehold[1] or non-freehold areas, (Pholoolo 2001). This dualistic character of the sector has been inherited from the apartheid regime, where the minority of the population got most of the land and with the assistance of the state, turned it into

[1] Freehold refer to holding of a title deed on a property.

viable commercial land (Moorsom, 1985; Elkan et al, 1992; Kirsten and Van Zyl, 1998; Phololo, 2001). The minority farmers were then given subsidies for settlement, wells, dams, breeding stock and loans. Extensive stock farming has been the most dominant activity, and beef production, the major product in the north. Karakul sheep farming was the second most important agricultural product, and the major activity in the south. The Karakul is well known for its world class pelts, marketed in industrialised countries, while beef is primarily marketed in South Africa and in the European Union. It should also be pointed out that almost two-thirds of agricultural output is accounted for by commercial agriculture, which overwhelmingly is cattle farming.

Of great concern however, is the fact that the share of the agricultural sector to GDP in Namibia averaged at 11.7 percent for the period 1990 to 1997, which is lesser than the average for the Sub-Saharan Africa (SSA), which stood at 30.0 percent on average during the corresponding period (Odada et al 2002). Moreover, the share of the agriculture sector in Namibia has deteriorated from 6.9 percent in 1999 to 5.4 percent in 2003. According to Odada, 2002, the deteriorating share of the agricultural sector could be ascribed to the expansion of other sectors like mining, and services, while the low share of agriculture as a percentage of GDP can be explained by climatic and soil conditions, which are less suitable for agricultural production.

Similarly, the share of agriculture in the labour force has been sliding down from 49.0 percent in 1990, to 29.3 percent in 2000. Since the share of agriculture in GDP has declined more rapidly than its share in the labour force, productivity increases must have been lower in the agricultural sector than in the non-agricultural sectors (Odada, et al 2002).

The agricultural sector further recorded decreasing and sometimes negative growth rates during the period 1995 to 2004. The sector registered declining real growth rate of 15.2 percent, 11.1 percent, 4.6 percent and 1.5 percent during the

periods 1996, 1999, 2000 and 2004 respectively. During the periods of 1995, 1997, 1998 and 2001, the sector observed negative growth rates ranging between -1.8 percent and -14.9 percent. The negative growth in the agricultural output could be ascribed to many factors such as the appreciation of the domestic currency, drought, decline in product prices, higher interest rates and decline in demand due to competition in international markets. The sector is also confronted by the lack of agricultural financing, growing population, insufficient usage of technologies, low investments in the sector, and bush encroachment

At independence, the Namibian Government accorded special attention to the development of the agricultural sector. In this regard a number of policy interventions and programmes were embarked upon in order to enhance the output of the sector. These initiatives include the Affirmative Action Loan Scheme (AALS), the National Agricultural Credit Programme (NACP), the Green Scheme, a ban on export of live animals to South Africa etc.

All these initiatives were underpinned by the understanding that the recovery in the performance of the agricultural sector is a precondition for economic development, given the fact that improvement in rural purchasing power will result into higher effective demand for industrial goods and thus lead to the overall growth of the economy.

Notwithstanding a number of policy interventions in the agricultural sector, its performance has been sluggish, registering declining and sometimes negative growth rates, its share in GDP as well as its contribution to employment has also been declining in recent years. In spite of the observed trends, the agricultural sector still remains one of the most vital sectors within the Namibian economy; given the fact that about 70 percent of Namibia's population depend on it either directly or indirectly.

For example, the agricultural sector sustains about 70 percent of the Namibian population. Moreover, the sector is a major earner of foreign exchange for the economy. Accordingly, the agricultural sector accounted for 11.5 percent of the country's total foreign exchange earnings in 2004. Furthermore, the agricultural sector contributed 39 percent to the country's total maize requirements, 12 percent to the domestic consumption of wheat and 100 percent of total beef, mutton and peal millet consumption in 2004. Furthermore, Agriculture supports other sectors such as transport, manufacturing, plastic packaging and etc. For example in 2004, agriculture contributed about 2 percent to total manufacturing output of Namibia. Against the above back ground, the importance of the agricultural sector within the Namibian economy cannot therefore be overemphasised. The sector therefore remains critical to the overall objectives of increasing the output of the economy as well as poverty alleviation.

Given the above background, the objectives of this paper are:

- Identify the factors that have been causing the decline in the agricultural growth.
- Suggest measures to overcome the identified constraints, with an idea to enhance agricultural production.
- Identify products that have the potential of increasing the value addition within the sector, as well as their related investment requirements.

The rest of the study will therefore be structured as follows, Chapter 2 will be the literature review, Chapter 3, will outline the agriculture sector in Namibia, Chapter 4 will contain the data analysis, Chapter 5 will summarise the experience of Malaysia, Kenya and Zambia with regard to measures they implemented to increase the growth of their agricultural sectors and Chapter 6 will consist of the conclusions and policy issues.

Chapter 2 Literature review

2.1 Theoretical literature

The role of agriculture in economic development of a country changes as the transformation proceeds. In the early stages, agricultural growth, particularly led by food staples and small farms, is a major engine of national economic growth and can play a very significant role in reducing poverty (Skoet at al 2004). However, as the country develops the agricultural sector begins to take a secondary role as an engine of growth, and the composition of its output and farm size structure changes. The key questions are whether this is true for Namibia today, and if not, what need to be done to enhance the production of agriculture in its primary growth role in the early stages of economic development.

Johnson et al (1961) offer five ways in which the agricultural sector contribute to overall economic growth: Meeting the food demands of a wealthy and growing urban population; increased agriculture exports as a means of earning foreign exchange; providing labour for the expanding sectors of the economy; providing capital for investment in the growing industrial sectors of the economy, and increased cash incomes in the rural sector which serves to increase demand for the products of the industrial sector.

Hazell et al (1983), argues that with the dynamism of the “green revolution”, agriculture came to be seen as a growth sector that could among other things: generate more food and raw materials at lower prices, free up foreign exchange for the importation of strategic industrial and capital goods, reduce poverty by increasing labour productivity and employment in rural areas and lowering food prices for all.

Johnson and Kirby, (1975), Mellor, (1976), and Mellor and Johnson, (1984) suggested that a growing agricultural sector demands non-farm production inputs and supplies raw materials to transport, processing, and marketing firms. Likewise, increases in farm incomes lead to greater demand for consumer goods and services. Besides stimulating national economic growth, these production and consumption linkages affect poverty, particularly when agricultural growth is concentrated on small and medium size farms.

Despite the overwhelming supporting evidence that agriculture contribution is vital to the overall growth of the economy, a paper by Harley and Crafts (2000) raises doubts about the contribution of agriculture. They argued that England imported a wide range of manufactured goods because agriculture was unable to provide enough food. In spite of a relatively good performance in terms of total factor productivity (TFP) growth, production growth was in fact hampered by diminishing returns to labour and capital.

2.2 Empirical literature

A number of researchers have investigated the relationship between the agriculture sector and the economy. Miller et al (1999), in their study on the contribution of Agriculture to the Arkansas Economy found that the Agriculture sector in 1996 accounted for 24 percent of all the employment of the state, 41 percent of the manufacturing gross state product and 10 percent of value added in the Arkansas state's economy.

Gardner (2003) investigated the relationship between growth in agricultural value added per worker and GDP per capita for 52 developing countries. He provides evidence of positive relationship between these growth rates and poses the question: "What is the direction of causality?" Limited information is provided concerning the methods used to answer this question, however it was concluded that agriculture does not lead growth. Tiffin (2004), however, used the Grainger

causality test in the panel data analysed by Gardner for 85 countries, he found overwhelming evidence that supports the conclusion that agriculture value added causes growth in both developed and developing countries.

Odada and Godana, (2002) asserts that the agricultural sector is the largest employer supporting approximately 70 percent of the population. In summary, evidence from both the theoretical and empirical literature supports the hypothesis that indeed growth of the agriculture sector might have significant role on the economy. These may be in the form of providing food, employment, incomes, foreign exchange, and creating demand for capital investments and increasing productivity of workers. Agriculture also supports other sectors such as transport, manufacturing, plastic packaging and etc. Based on the above back ground, the importance of the agricultural sector within the Namibian economy cannot therefore be overemphasised.

Chapter 3 Overview of the Namibian Agricultural Sector

The agriculture sector in Namibia can be categorised into two main areas, livestock farming and crop farming. Livestock farming constitute a significant portion of Namibia agricultural output, contributing about 70. percent of the total output of the sector in 1995 before easing to account for only 59 percent in 2004, (table 3.1). Crop farming which accounted for only 8 percent of the total output of sector in 1995, more than doubled, reaching 17 percent in 2004. Despite, the observed significant growth of crop farming, livestock farming continues to dominate the total agricultural output.

3.1 Livestock farming

Livestock farming in Namibia comprises of cattle, sheep, goat and pig. In terms of output, beef production is the major livestock farming activity in Namibia followed by mutton/lamb, goat and pork. Beef is predominantly produced in central regions of Otjozondjupa, Omaheke, and Kunene, while mutton and lamb is produced in the arid regions of Hardap, Karas and Erongo.

Table 3.1 Agricultural output at current prices (Million N$)

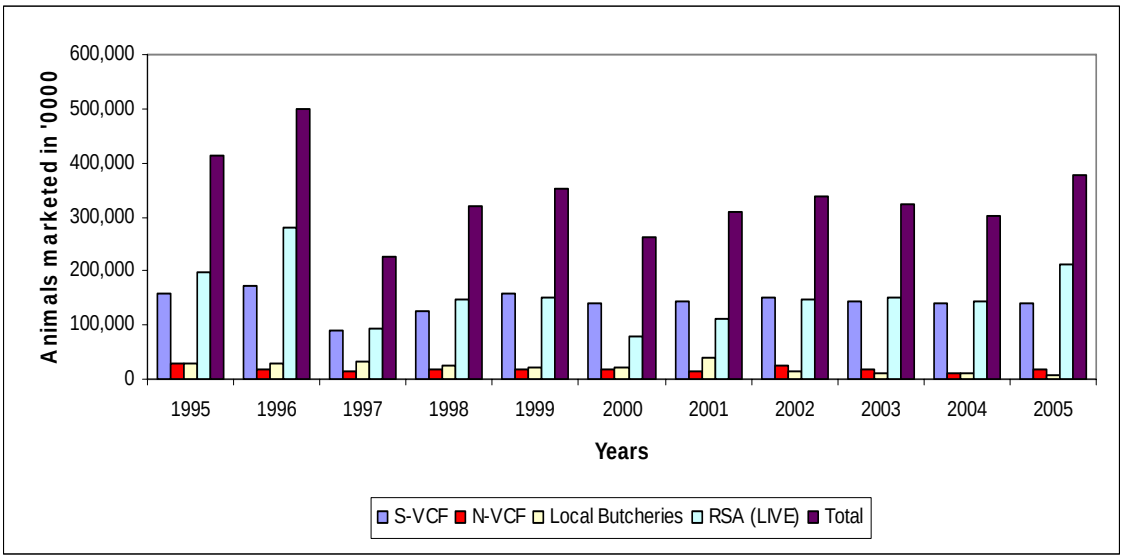
	1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Total Output	1,240	1,381.30	1,398.40	1.532.10	1,676.50	1,880.10	1,719.60	2,372.90	2,184.40	2,007.90
Commercial sector	849.2	1,020.2	917.0	1,192	1,166.7	1,074.3	1,333.0	1,823.6	1,654.5	1,369.0
Livestock	803.2	963.6	826.6	1,106.0	1,046.4	977.9	1,187.5	1,675.8	1,467.8	1,180.4
Cattle	436.6	543.7	395.4	659.8	485.7	361.1	698.5	731.3	933.5	637.1
Sheep/goats	168.1	140.9	178.0	205.8	341.9	335.0	252.8	620.4	384.5	285.1
Pigs	6.1	5.5	2.7	1.8	2.9	2.9	0.7	(1.4)	4.8	10.4
Karakul Wool/Pelts	8.0	9.2	6.7	15.2	12.7	14.8	19.5	17.9	20.2	11.0
Dairy (Milk)	20.0	25.0	28.9	30.1	30.7	34.4	41.4	50.1	52.1	58.1
Hides and Skins	96.6	109.7	93.3	108.4	125.0	138.0	77.0	160.0	30.0	98.0
Other Animals Products	67.8	129.6	121.5	84.8	47.5	91.7	97.7	72.2	42.7	80.7
Crops	**46.0**	**56.5**	**90.4**	**86.5**	**120.3**	**96.4**	**145.5**	**147.9**	**186.7**	**188.6**
Maize	12.9	14.5	34.6	14.9	15.8	26.4	37.1	35.8	56.3	73.8
Wheat	5.3	2.8	4.2	5.6	3.1	4.3	9.4	13.5	19.0	15.2
Grapes	21.8	30.0	39.6	51.8	80.9	44.4	74.7	84.2	92.8	86.2
Other	5.9	9.2	12.0	14.1	20.5	21.4	24.3	14.4	18.6	13.5
Communal Sector	**344.8**	**361.2**	**391.0**	**253.5**	**389.5**	**709.4**	**241.1**	**401.4**	**343.2**	**450.3**
Livestock	143.7	102.4	90.1	25.8	148.4	395.1	(68.4)	87.6	(41.5)	5.8
Crops	52.5	97.8	125.0	42.9	44.5	103.1	91.3	42.8	106.3	154.5
Others	148.7	161.0	175.9	184.8	196.7	211.2	218.1	270.9	278.4	290.0

Source: Agricultural Statistics Bulletin

3.1.1 Beef

As mentioned earlier, the major beef producing areas in Namibia are the north and east central regions. Beef is produced primarily in both in the commercial and communal areas; however within the communal areas production remains constrained by the lack of land tenure which has resulted to over-grazing. This situation has been aggravated by the tendency of large farmers fencing off significant portions of land leaving small farmers with little grazing land. The commercial sector on the other side is highly capital intensive and use high usage of fattening products. Accordingly, the total number of cattle marketed declined from 414,489 in 1995 to 377, 072 or 9 percent in 2005 (chart 3.1).

Chart 3.1 Cattle Marketed

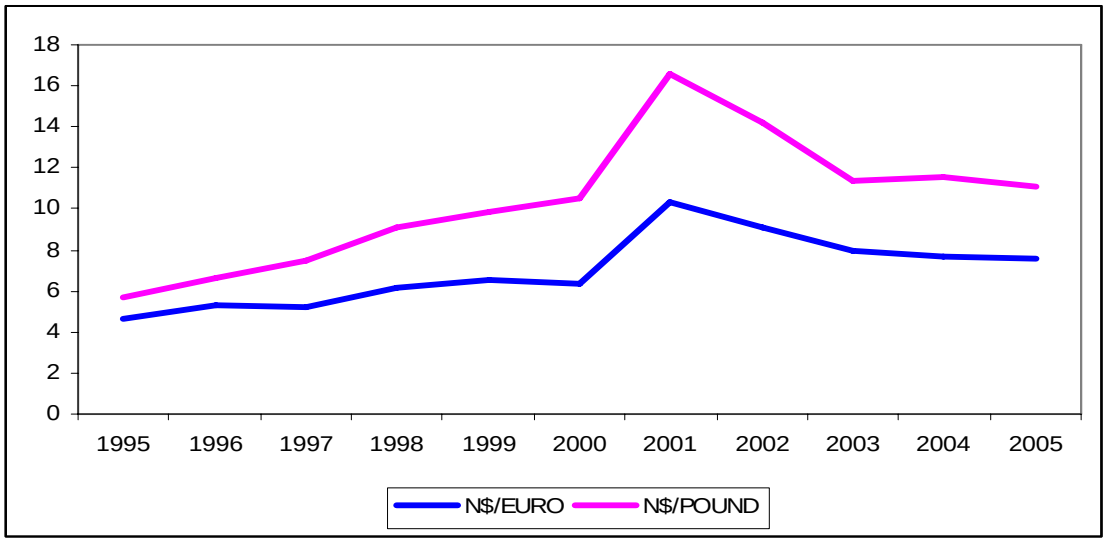


Source: Meat Board

The observed fluctuations in the total cattle marketed could be attributed to climatic conditions. For example, the decline in cattle marketed observed in 2004, could be ascribed to good rainfalls received which resulted in farmers holding their cattle for restocking. Some of the most common problems hampering cattle farming, are bush encroachment, poor selection of breeds, the low bull to cow ratio, foot and mouth disease, uncertainties emanating from the land reform process and the inactive

involvement of the Ministry of Agriculture, Water and Forestry in extension work, the exchange rate volatility, availability of slaughterable cattle, meat quality and marketing channels. For example chart 3.2 shows that, the domestic currency has been depreciating both against the Euro and Pound from 1995 to 2001 implying that domestic farmers realised high export revenue in those periods, however, from 2002 to 2005 the domestic currency has been consistently appreciating against the same currencies. The appreciation of the domestic currency has adverse effects in terms of reducing the revenue of farmers. Moreover, there is a requirement that for cattle from the northern communal areas (NCA) to enter the South African market, it must be kept in quarantine farms for 21 days. A problem associated with this arrangement is that these cattle often loose weight in these camps because of insufficient feeding lots, leading to low prices being fetched on these animals and subsequently discouraging farmers from marketing their cattle more.

Chart 3.2 N$ per foreign currency



Source: Bank of Namibia

Namibia's beef is exported primarily into the European Union (EU) as carcass, de-boned beef and on hoof to South Africa. The main marketing channels for beef include auctions, Meatco and local abattoirs. Marketing within the communal areas vary, with the south having better access due to accessibility to better infrastructure and communications.

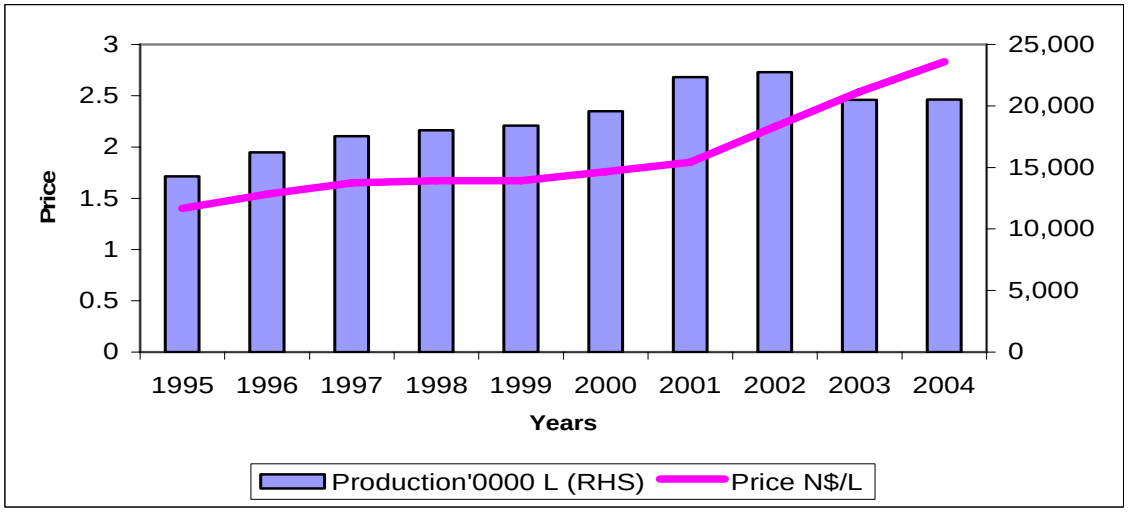
In 1992, the government approved the Affirmative Action Loan Scheme (AALS). Under this scheme, the Agricultural Bank of Namibia (AGRIBANK) is entitled to provide loans for a 25 year period at subsidised interest rates, to formerly disadvantaged Namibians to acquire agricultural land. Under this scheme a total number of 3.47 million hectares of farm land has been distributed, benefiting 625 beneficiaries and costing the government about N$160.6 million in subsidies from 1992 to October 2004 (Ministry of Lands and Resettlement, 2005).

This programme was complemented by the North-South Incentive Scheme (N-SIS), which allows communal farmers to sell of their livestock north of the veterinary cordon fence (VCF) and purchase disease-free cattle south of the VCF on a newly acquired farm in order to create space for small-scale communal farmers. Furthermore, the scheme supplement the farmers by an amount equal to 50 percent of the total amount raised from the sell of their rural livestock. The programmes above are affected by among other things, higher purchase prices of land, bush encroachment, location of farmlands, and small herds in relation to the carrying capacity of the farms purchased, resulting in difficulties for the farmer to pay back the loan. Moreover the requirements for qualification to the latter's loans are very high, for example the minimum animal requirements for the N-SIS are 150 large scale units or 800 small scale units.

3.1.2 Dairy

The dairy sector particularly the production of long life milk increased substantially by 43.6 percent from 14,289 litres of milk to 20,530 litres of milk in 2004, (chart 3.3)

Chart 3.3 Milk Production



Source: Agricultural Statistics bulletin

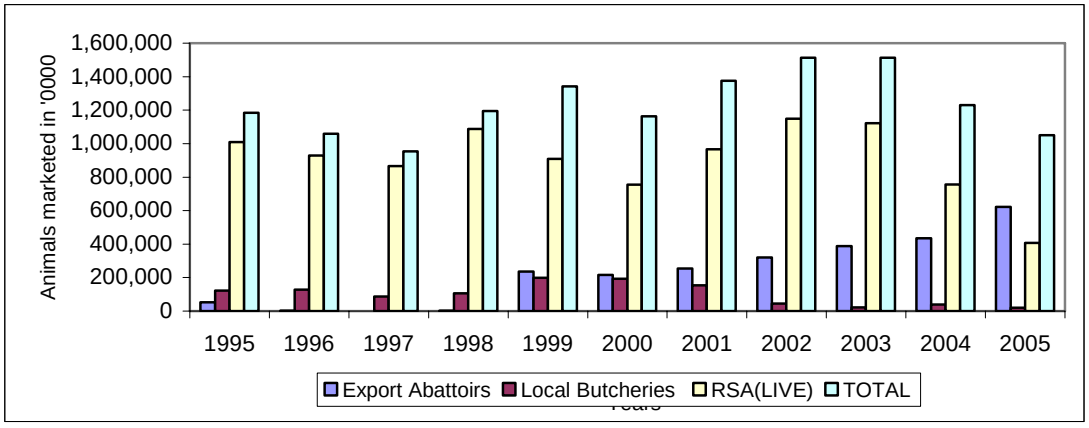
The long life milk enjoys the infant industry status which is expected to end in 2008. Despite the observed significant increase in the production of milk, Namibia does not seem to have a comparative advantage in milk production and it is reported that the industry is on the verge on collapsing. This could be attributed to the fact that, the production of milk requires a lot of fodder, which is very expensive to purchase.

Moreover, stiff competition from South Africa and the high tariff requirements for entering new markets particularly Botswana and Angola precludes the development of the dairy sector. Other constraining factors in the dairy sector are lack of economies of scale, and lack of finance to purchase technologies that would increase the shelf life of long life milk to a minimum of six months. It should be noted that the industry have applied for the extension of the infant status on long life milk beyond 2008. Moreover, some of the measures that could save the industry from collapsing are the exemption from the payment of Value Added Tax (VAT).

3.1.3 Small stock (sheep and goats)

Small stock production is the key agricultural activity in the arid southern parts of Namibia. According to the Agricultural census of 2004, sheep accounted for about 57 percent of the total production of small stock in Namibia, while goats accounted for the remaining 43 percent, (appendix 5). When disaggregated according to breed types the Dorper sheep is the principal breed which accounted for about 36 percent of the total production of the small stock, followed by the Boar goat 21 percent. The Karakul sheep, accounted for only 4.4 percent, while the remaining 38.6 percent was accounted for by other sheep and goats. The Dorper is well known for the production of meat while the Karakul sheep is bred primarily for pelts. The Marketing of small stock registered a decrease of 11.2 percent from 1,183,398 in 1995, to 1,050, 297 in 2005, (chart 3.4).

Chart 3.4 Marketing of Small Stocks



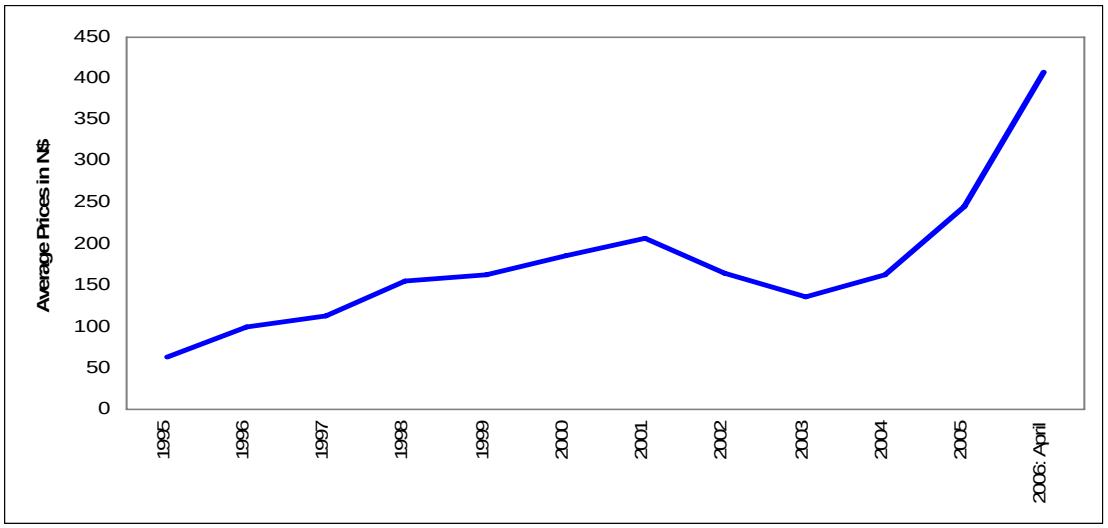
Source: Meat Board

A closer analysis of chart 3.4 reveals that there was a decrease of 25 percent in the number of small stock marketed on hoof to South Africa between 1995 and 2004, the declined further increased to 59.6 percent for the period between 1995 and2005. The observed trend and the subsequent increase in the number of animals marketed to Meatco could be ascribed to the Small Stock Marketing Scheme that was introduced in April 2004 (Meat Board 2004). The scheme

prescribes that for every 1[2] animal exported, 2 animals must be slaughtered locally in order to increase value addition and increase employment in the domestic economy. The only exception to this ban is weaners which may be exported to South Africa on hoof.

The Karakul sheep is the most common pelt producing sheep in Namibia. Subsequent to the recovery of the world price for Karakul pelts, the Namibian Government has in 2006 proclaimed the Karakul industry as a strategic industry for the social economic development of the locals. Accordingly, the average prices of pelts increased substantially by 540 percent from N$63.67 per pelt to N$408.05 per pelt between 1995 to April 2006 (chart 3.5). To this effect there are efforts to increase the production of Karakul in the rural areas. The government is yet to develop a strategy with key stakeholders on how to revive the production of Karakul.

Chart 3.5 Average price of Karakul Pelts



Source: Karakul Board

Namibia enjoys a comparative advantage in terms of supplying short haired and lighter Karakul pelts in the world. Similar to beef, the sheep farming, more

[2] With effect from the 1 September 2006, this ratio will change from 1 is to 6.

particularly Karakul is constrained by low supply. This situation is aggravated by the lack of resources to purchase breeding materials as well as the land reform uncertainties. In this regard, the Karakul board in association with Agra, the Karakul breeders' society and the Ministry of Agriculture, Water and Forestry has considered a number of key projects to increase the production of Karakul. These include among others the ram project, the Kunene South project and training.

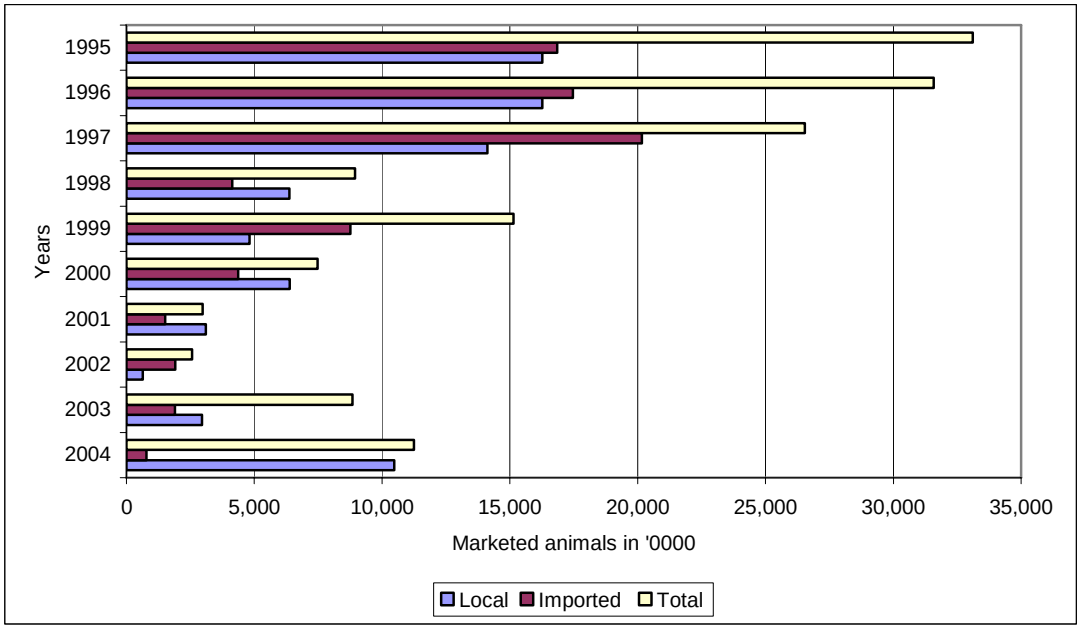
The ram project is aimed at reviving the breeding of Karakul sheep in the communal areas. Under this scheme, the Karakul board subsidise farmers with N$100 for each ram purchased or N$45O in case of a ewe. The Kunene South project envisages the re-introduction of the Karakul sheep in the Kunene South area. The project subsidizes about 33 percent of the total cost of the sheep purchased. This project however, requires extra funding to give farmers increased subsidies. The training project is intended at providing training workshops on breeding of Karakul in communal areas or at the Gellap Ost research station in Keetmanshoop. Training courses offered include, pelt sorting, the art of wool shearing, weaving and etc.

On the part of goats, available statistics shows that a significant number of goats are produced in rural Namibia, which in 2004 accounted for about 73 percent of the total production of goats. One of the problems cited which is affecting the marketing of goats is the non existence of a market for goat meat cuts. Accordingly, about 90 percent of goats are often sold on hoof to South Africa. A potential market for goat meat has recently opened in the USA, and thus Namibia should strategise to get into this market.

3.1.4 Pork

The total number of pig marketed decreased significantly by 66 percent from 33,111 in 1995 to 11,253 in 2004, (chart 3.6). Namibia relies heavily on the importation of pork for local consumption and production of processed meat products. A significant decline in the local production of pigs was observed in 2002. This is ascribed to structural changes resulting from farmers disinvesting from pig production due to stiff competition from South Africa that affected the pig industry (MAWF, 2005). Furthermore pigs are prone to the African swain fever. This observed negative development seems to have been reversed in 2003 and 2004, when pig farms resumed operations in Namibia. Consequently, the proportion of imported pigs was reduced to only 10 percent of the total slaughter in 2004, from 51 percent in 1995.

Chart 3.6 Pigs marketed including live imports from RSA

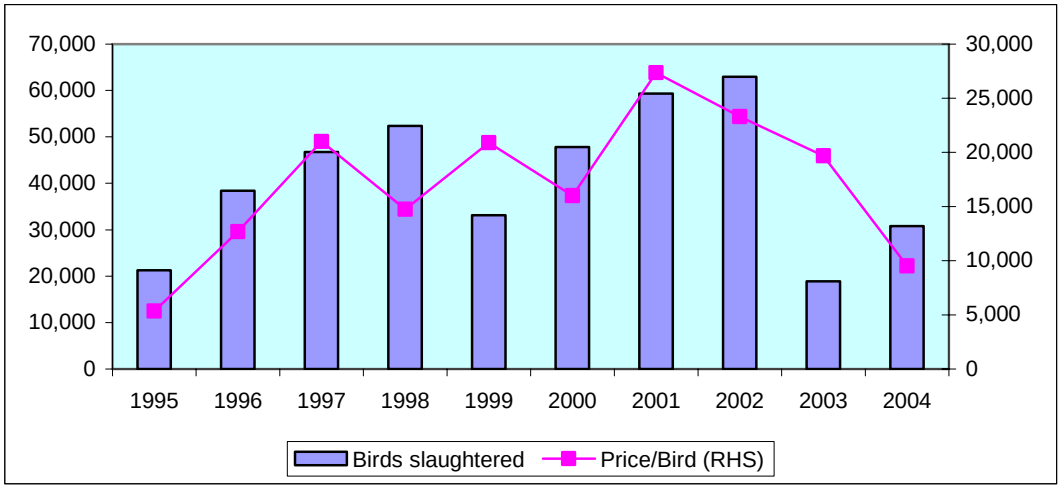


Source: Meat Board

3.1.5 Ostrich

The total number of ostrich slaughtered has increased from a total of 21,241 birds in 1995 to a total of 30,762 birds in 2004, (chart 3.7). However, when compared to the last three years it can be observed that the total number of these birds slaughtered have declined from the highest record of 62,976 birds that were slaughtered in 2002. In 2003, ostrich birds slaughtered hit the lowest level for the entire period of only 18,930 birds. On the other hand, the price of slaughtered birds increased from N$5,333 per bird to the high of N$27,343 per bird in 2001 before declining to N$9,512 in 2004. Ostrich meat is often marketed to countries such as South Africa, Switzerland, Belgium, and Germany. Moreover, its skin and feathers are sold to South Africa.

Chart 3.7 Ostrich production



Namibia Agricultural Union

3.2 Crop farming

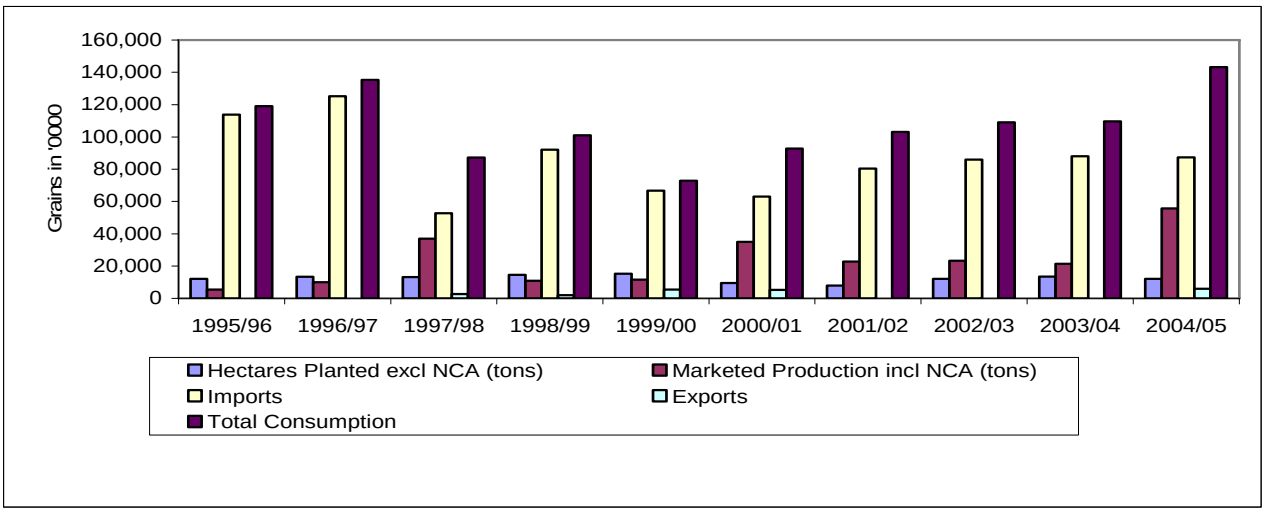
Pearl Millet, commonly known as “Mahangu”, is the major crop cultivated in Namibia, followed by white maize and wheat. To substantiate on this point, about 96, 370 tons of mahangu were produced in 2004 compared to only 55,597 tons of maize in the same year. Other crops cultivated in Namibia include grapes, dates and horticultural crops.

3.2.1 White maize

White maize is the major commercial crop produced in Namibia and its harvesting fluctuates with the rainfall conditions. Maize is planted either under dry land, irrigation based methods or both. Dry-land white maize is mainly produced in the maize triangle situated between Grootfontein, Otavi and Tsumeb, in the Summersdown, Omaheke, and the Caprivi Region. Irrigation based maize production on the other hand is cultivated at the Hardap irrigation scheme, the Naute Project, Etunda, the Katima Farm, Musese, Shitemo, Shadikongolo and Mashare. An increasing amount of white maize under irrigation is also produced at Stampriet, Tsumeb, Grootfontein, Kombat and Otavi areas. Accordingly, marketed maize increased by 937 percent from 5,361 tonnes in 1995/96 to 55,597 tonnes in 2004/5 (chart 3.8).

Namibia depends on imports of maize particularly from South Africa for consumption purposes. For example in 2004, maize imports accounted for 61 percent of the total consumption of white maize in Namibia, compared to 95 percent in 1995. The importation of maize is controlled by the Namibian Agronomic Board, through import permits.

Chart 3.8 White maize marketed production, imports and exports



Source: Namibian Agronomic Board

The milling of maize is performed by 26 millers, of which 55 percent of the maize milling capacity is owned by Namib Mills[34], while a further 20 percent is held by Bokomo, a South African company. The remaining 25 percent is shared by small millers in the country.

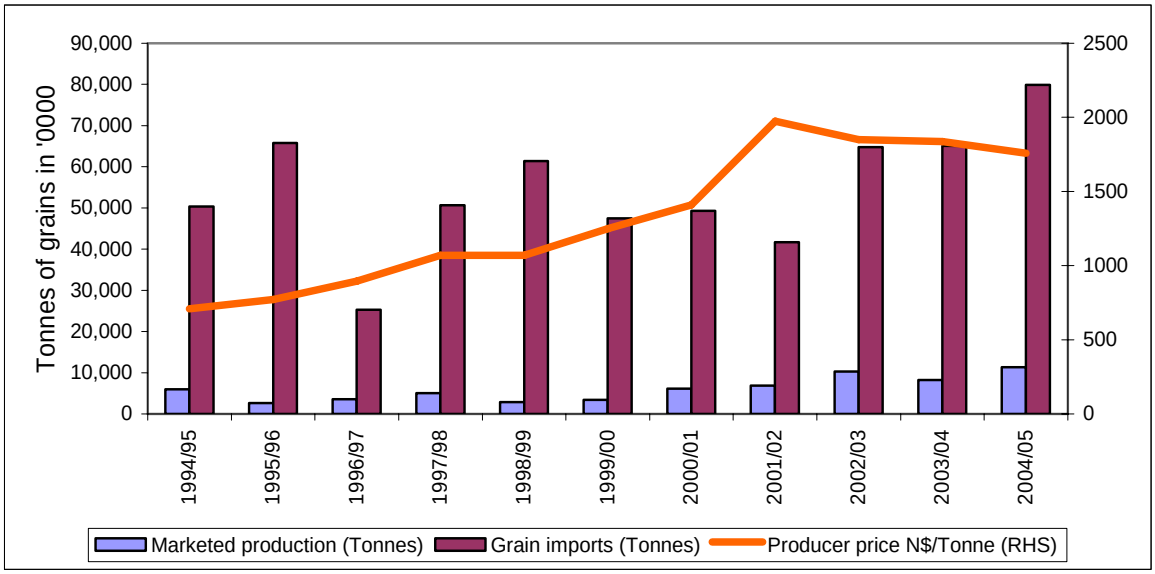
3.2.2 Wheat

Wheat is planted under irrigation in winter (June/July) for harvesting during November/early December of each year. Similar to white maize, wheat is produced at the Naute project, the Hardap irrigation project, the Shadikongolo and in small quantities in the Otavi and Kombat areas. Wheat marketed in Namibia increased significantly by 89 percent from 6,000 tonnes in 1994/95 to 11,340 tonnes in 2004/05, (chart 3.9). Namibia is far from self sufficiency in terms of wheat consumption and depends heavily on imports. For instance, in 2004

[3] Namib Mills has three milling facilities which are based in Windhoek, Otavi and Katima Mulilo.
[4] Its products include flour, maize products, pasta, milled millet, rice, sugar and animal feeds.

imports accounted for 88 percent of the total consumption of wheat, compared to 89 percent in 1995.

Chart 3.9 Wheat production and marketing



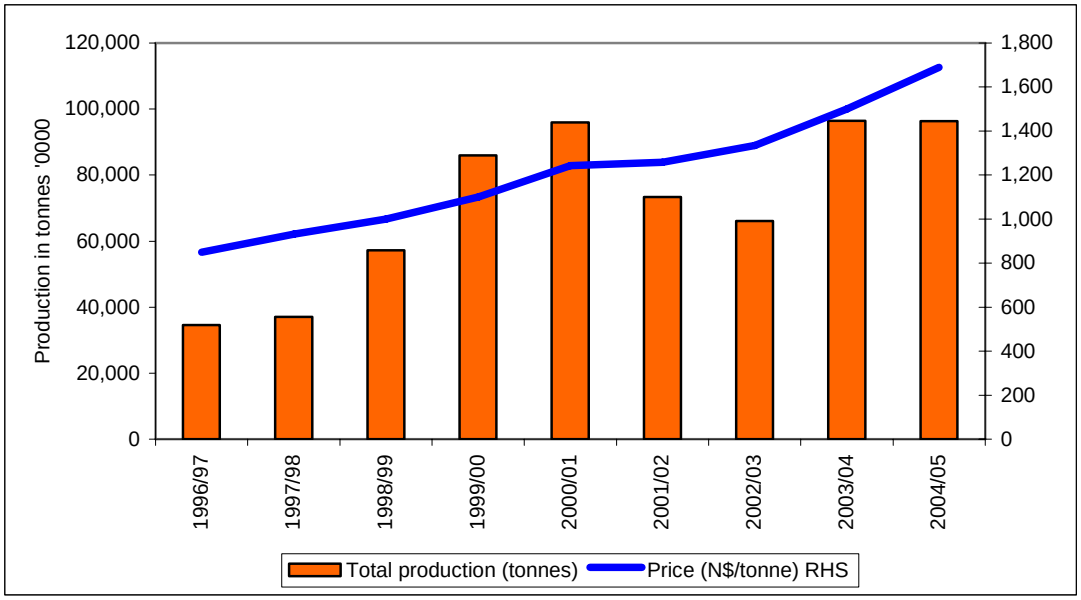
Source: Namibian Agronomic Board.

The importation of wheat likewise of maize is controlled by the NAB through permits. Only raw wheat may be imported as the importation of wheat flour is prohibited by SACU. Wheat is milled by two companies, in particular Namib Mills which holds 85 percent of the wheat milling market and Bokomo Namibia which accounts for the remaining 15 percent.

3.2.3 Mahangu

Mahangu is cultivated primarily in the North Central Regions (NCRs), Kavango and Caprivi and it is the leading crop grown in Namibia. The total production of Mahangu increased drastically by 64 percent from 34,629 tonnes in 1996 to 96,370 tonnes in 2004, (chart 3.10). Contrary to wheat and maize, mahangu is mostly utilized for domestic consumption only. Traditionally, mahangu has been viewed as a crop utilised mainly as household food in addition to lending to needy neighbours or friends.

Chart 3.10 Mahangu grain production and prices



Source: Namibian Agronomic Board

Processing of mahangu in Namibia is undertaken by various processing plants (millers), such as Kamalanga Mills, ABC Mills and Okavu Mills. In the areas such as Caprivi, Kavango and Northern regions lack of infrastructure such as roads and long distances between towns or millers were identified of problems affecting the trade of mahangu.

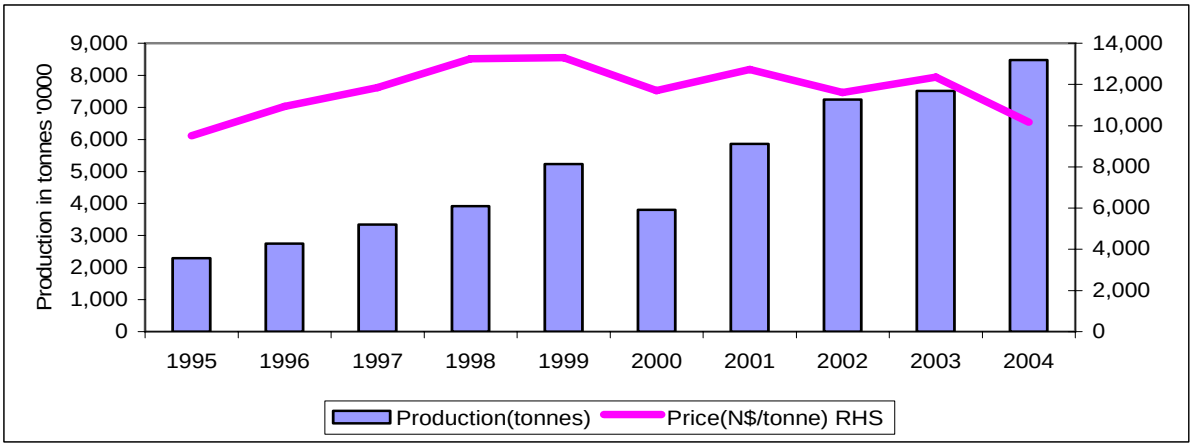
These problems were further exacerbated by millers' lack of technical and maintenance skills as well as the lack of storage facilities to store their consignments properly. Available information indicates that the government envisaged setting up a mahangu storage facility in the northern communal areas beginning with a pilot project in the Caprivi. Unlike wheat and maize, mahangu grains have not been imported from other countries. A possible source of imports in times of drought and scarcity of mahangu is Angola; however, the constraint is the 25 percent import duty requirement[5]. This import duty makes the imports rather expensive and thus stifles trade.

[5] Since Namibia is a member of the customs unions (SACU), mahangu imports from Angola are levied an import duty of this magnitude.

3.2.4 Grapes

Grapes are farmed at Noordoewer/ Aussenkehr on the Orange River. Namibia harvest high quality seedless table grapes for export to Europe, China and the Middle East. Namibian table grapes had been the first to reach the European market, while competitors could only reach the market a month latter. This advantage was mainly due to climatic conditions which enabled the Namibian grown grapes to ripe earlier. Consequently, the production of grapes increased by 260 percent from 2,298 tonnes in 1995 to 8,473 tonnes in 2004, (chart 3.11)

Chart 3.11 Production and prices of Grapes



Source: Agricultural Statistics Bulletin

However, this advantage seems to have been eroded by competition from Latin American countries more specifically Chile and Peru, and subsequently reducing Namibia's comparative advantage. The latter can be attested by consistent decrease in the prices of grapes since 1999, from N$13,300 per tonne to N$10,168 per tonne in 2004 (chart 3.11).

3.2.5 Other horticultural crops

Other horticultural crops that are cultivated in Namibia include sunflower, cotton, ground nuts, dates and lucerne. Moreover, communal farmer groups with the assistance of NGOs are producing fruits and vegetables such as cabbage, carrots, green mealies and pumpkins along the Okavango and Zambezi rivers. Along the Olushandja Dam and at the Etunda Project, fruits and vegetables such as tomatoes, cabbage, watermelons[6], sweet-melons, onions and butternuts are being produced. Furthermore, in the areas of Tsumeb, Otavi and Kombat a number of farmers are said to successful with horticulture production. The Okahandja and Hochfeld areas also produce large volumes of potatoes and onions, most of which are being exported to South Africa.

Namibians consumes an estimated 90 thousands tons (N$200 million) of fresh produce in a year, of which 80 percent is imported from South Africa. It is estimated that local Namibian producers supply only 20 percent, (Namibian Agronomic Board, 2004). Local producers find it difficult to penetrate the local market and as a result are constrained from increasing their market share. This is due to inadequate local marketing infrastructure and marketing strategies. Moreover, the Namibian fresh produce is inadequate to provide consistent supply to the market for the whole year, and therefore wholesalers rather opt to source their supply from South Africa. Consequently, some producers have to send their produce to the Cape Town fresh produce market. This practice is common with onion and potato producers in Hochfeld area and tomato producers along the Orange River, (Namibian Agronomic Board, 2004). The latter find their way back to Namibia through the wholesalers. Furthermore, the production of fresh produce in Namibia is far from each other as well as the main markets. Moreover, transport is also not synchronized and could thus be expensive.

[6] Watermelons, sweet-melons, onions and butternuts are being exported to South Africa.

The government established the Green Scheme to incorporate disadvantaged Namibians into commercial operations in 2003. The scheme is aimed at developing an irrigation-based agronomic production system with a view of increasing the contribution of the sector to GDP. The projects under this scheme will include the development of some 27,000 hectares of irrigation land along Namibia's five perennial rivers: the Kunene, Kavango, Kwando, Zambezi and the Orange River over a period of 15 years. The green scheme agency has been established to spearhead this scheme.

The strategy of the green scheme is to attract and enable large-scale commercial farming enterprises to establish commercially viable entities in remote and undeveloped rural areas, by acting as service providers. These service providers therefore, ensure the provision of effective production on a cost recovery basis and facilitate the transfer of skills to small farmers. The role of the government in this regard is to provide financing of predevelopment studies, contribution towards the financing of off-land bulk water and electricity supply, provide water and interest rate incentives[7].

The Green Scheme is being implemented together with the National Horticultural Development Initiative (NHDI). The intention of the Horticultural Development Initiative is to increase the local production and facilitation of the marketing of fruits, vegetables, livestock fodder and other horticultural products, which will promote import substitution. The expected output is based on a portfolio of 20 horticultural products, maize, wheat, millet, sorghum and cotton in order to focus on national food self sufficiency. In terms of marketing, it is envisaged to establish three central fresh produce markets in the country, one in Windhoek, Oshakati and Rundu. Furthermore, the collection and distribution points are planned in the main production areas such as Uutapi, Katima Mulilo, Tsumeb,

[7] The interest incentive is split into development capital (studies, infrastructure, processing equipment, machinery, irrigation equipment, long-term and medium term loans) and working capital (short – term loans): Accordingly, it is envisaged that government will account for 100 percent of interest paid on development capital in the first 3 years and about 20 percent of the interest on working capital. Latter, interest on the development capital is planned to be reduced to 70, 50 and 20 percent in the subsequent three years, while on working capital interest is expected to decline to 10 and 5 percent in the following years respectively.

Mariental, Noordower/ Aussenkehr as soon as a critical mass of production is achieved. The NHDI is being spearheaded by the Namibian Agronomic Board.

Chapter 4 Survey Analysis

This chapter will present the results of field surveys which were undertaken in June 2006. The main purpose of the field surveys was to assess the main constraints preventing the sector from reaching its full production potential, identify existing opportunities, as well as the levels of investments required in order to increase the output of this sector.

4.1 Sampling

About 14 key bodies and institutions which represent the interests of farmers in the country were selected, these institutions include the following: The Namibia Agronomic Board, the Agricultural Bank of Namibia, Agricultural Trade Forum (ATF), Meat Board, Meatco, Namibia Agricultural Union (NAU), Namibia National Farmers Union (NNFU), The Green Scheme Agency, The Ministry of Agriculture, Water and Forestry, Namibia Diaries, Namib Mills, Karakul Board, Namibian Orange River Grape Growers Association and the Farmers Meat Market. The sampling criterion was more judgmental and based on the fact that these institutions are in better position to know the existing constraints and opportunities in the sector given their close contact with the farmers.

4.2 Data collection

In order to assist in analysis, this study administered a questionnaire which was sent out and latter followed up with personal visits to collect the required data and information. As explained earlier, the objectives the questionnaire was, to obtain information on what is causing the decline in the sector's output, suggest measures to overcome problems identified, and identify products that have

potential of adding more value in the sector. Furthermore, the questionnaire attempted to collect information on the level of investments required in the sector.

4.3 Constraints to growth in the Agricultural Sector.

4.3.1. Inadequacy of marketable animals.

These problems are pertinent to cattle and karakul farming. Namibia has a duty free quota to export 13 000 tonnes of meat to the European Union under the Cotonou agreement. However, since the inception of this agreement, Namibia has not managed to fill this quota, because of inadequate marketable animals. This could partly be attributed to bush encroachment and its resultant reduction in the carrying capacity of land especially in the commercial areas. Moreover, this problem has been compounded by the tendency of most commercial farmers switching from cattle to game farming, as well as the uncertainties emanating from the land reforms. The latter stems from the fact that farmers are uncertain as to which farms are targeted by the land reform process and as a result discouraged from investing more into farming. Within the communal areas production is hampered by the poor selection of breeds, the low bull to cow ratio, foot and mouse disease and the low extension worker/farmer ratio. Moreover, water and inadequate grazing are also constraints in the areas such as Ohangwena, Oshikoto, Kavango and Kunene, Kunene respectively.

4.3.2. Limited markets for some products

Markets seem to be a problem especially in the case of goat meat, bone in beef, dairy and grapes. For example, about 90 percent of goats are often sold on hoof to South Africa. A new market for goat meat has recently opened in the USA, and thus Namibia should strive to get into this market. Similarly, the bone in beef does not quality for export to the European Union due to healthy concerns. Therefore Namibia beef export has to be deboned to qualify for export into the

EU. As a result, these beef exports end up collecting lower than would have been prices due to the weight lost during the deboning process. With regard to the dairy industry, the high customs tariffs to potential markets such as Angola and Botswana hampers exports to these countries and thus prevents the expansion of the market.

4.3.3. Lack of economies of scale, fresh market produce, and high costs

Most of the inputs into the production process in Namibia are often imported from South Africa. Moreover, transportation charges have to be added to the costs of the inputs, and consequently increasing the overall production costs. This scenario is prevalent to the dairy sector, grapes and other horticulture crops. Moreover, Namibia does not have economies of scale in the production of milk, which also requires a lot of fodder. For the horticultural crops lack of organised fresh markets, scattered ness of production units and unsynchronized transport system is another serious impediment to the growth of these products.

4.3.4. Limited financial resources

Availability of financial resources seems to be a limited in the entire agriculture sector. For instance, the dairy sector cited the lack of financial resources needed to purchase advanced production technologies. Similarly, extending the production of the karakul sheep in the rural areas requires, increasing subsidies to communal farmers for purchasing breeding stock. Moreover, financial resources are required in the production of other animal and crop species such as beef, grapes, poultry, jatropha curcas, hoodia, horticulture and etc.

4.3.5. Climatic and weather conditions

Erratic weather and climatic conditions was cited as having adverse effects on the production of maize and wheat as well as grapes. Moreover, due to poor soil

texture a vast part of Namibia is not suited for rain fed cultivation of maize and wheat crops.

4.3.6. Competition

Competition in the local and international markets is a serious constraining factor both to dairy and grapes. In addition, the UHT or long life milk in South Africa is exempted from VAT in that country, subsidised and economies of scale has resulted in stiffer competition to the locally produced long life milk within the Namibian market. In the case of grapes competition has been caused by Latin American countries. This has as a result eroded the early supply advantage that Namibian grapes enjoyed in the past.

4.3.7. Exchange rate volatility

The volatility of the exchange rate in the past years also contributed negatively to the performance of export driven sectors such as beef and grapes. These exchange rate disadvantages were due to the appreciation of the domestic currency which has the effects of reducing the income received in the local currency and thereby affecting the profit margins negatively.

4.3.8. Unavailability of farm land and lack of skills

These constraints are specific to the green scheme especially in the Caprivi and Kavango regions. Moreover, this problem might be compounded by the non availability of good roads, electricity in the rural areas as well as skills. Skills in this regard refer to the knowledge required to grow horticultural crops and tropical fruits. Furthermore, skills for the breeding of Karakul seem have declined in tandem with the decline in prices of these breeds.

To summarise, the factors constraining the growth of the agricultural sector are as follows: Less availability of marketable animals, Unavailability of markets for some products, lack of economies of scale, high input and transport cost, lack of

finance, climatic and weather conditions, competition, exchange rate volatility, unavailability of farm lands, lack of skills and fresh produce markets, scattered ness of producers and unsynchronised transport system.

4.4 Potential products and the required level of investments

4.4.1 Beef and Karakul

Potential for further expansion in the beef, karakul exists if production were to be increased in the communal areas. Going by the census statistics for example, the communal areas accounted for about 63.3 percent of the total production of cattle, thus implying that potential for increased production in these areas still exist. In the case of beef, this potential could be unlocked if the veterinary fence could be expanded northwards by creating extra disease free clusters. Disease free beef from the NCA would then qualify for exports into the EU and USA markets and subsequently increase the output in the agricultural sector. Similarly, the production of the Karakul sheep and pelts in the communal areas should be intensified by increasing subsidies given to communal farmers. In terms of investments requirements, an amount of N$1.5 million for feasibility studies and additional N$5 million[8] per year is required to increase the budgetary allocation of the Ministry of Agriculture, Water and Forestry to enable it to deliver the required extension services.

4.4.2 Goat meat

Goats also show great potential for growth and value addition within the economy. This stems from the fact that these animal species grow better in Namibia as given by the production statistics, (appendix 5). Accordingly, goats

[8] This figure need to be treated with caution as it is an estimate of one of the people interviewed and not necessarily the official position of the Ministry of Agriculture, Water and Forestry.

are the third largest animal species produced in Namibia after sheep and cattle. To unleash the potential of goats, concerted efforts must be put on the processing of goat meat and finding new markets. In this vein, great emphasis must be placed on accessing the newly opened market for goat meat in the USA.

4.4.3 Poultry

Poultry farming is another potential product for growth in Namibia. In addition to the production of eggs, it is envisaged to set up a broiler in Namibia, in order to reduce the dependence on chicken imports. This project entails all stages from the realing of chicken to marketing of chicken cuts. It is estimated that this project will cost about N$300 million.

4.4.4 Mahangu

Mahangu is well suited to the Namibian climate. Mahangu has been declared a controlled product in 2006 and this is expected to increase its marketing and production, given its adaptability to the climate. To enhance the potential of Mahangu, efforts must be placed on the processing of Mahangu into flour and etc.

4.4.5 Grapes

The potential to increase output for the grapes depends on finding new markets, and the processing the raw grapes into brandy and grape juice. Potential markets for grapes include the USA, Middle East and the Eastern block. It has to be noted that considerable progress has been achieved in attempt to export grapes to the USA under AGOA. Should things go as planned, Namibian grapes could qualify for export to the USA either during the last six month of the year 2006 or by early 2007. A distillery which process grape into brandy is being envisaged, this plant is expected to cost about N$400 thousands to be fully operational. Processing of grapes into juice could also be considered in the medium to long term.

4.4.6 Jatropha Curcas

Jatropha plant has also been identified as having potential to increase the value of the Agricultural sector in Namibia. Jatropha Curcas is a drought resistant plant that can be cultivated in the arid and semi arid soils. Jatropha Curcas produces plum-size fruits with two or three oleiferous seeds. It requires and thrives on about 500 mm of rainfall per year. This plant grows better within the Otavi, Tsumeb, Grootfontein triangle, Kavango and Caprivi regions. Jatropha leaves and oil seeds can be used as traditional human and animal medicine, disinfectant, purgative, rheumatism, insecticide and molluscicide, soap production, fertilizer and energy production. Moreover, Jatropha oil can be used as lubricant and biodiesel for motor vehicles. Given the high fuel prices the importance of this plant can not be emphasized.

In addition to revenue generated from the sale of jatropha products, respective farmers more particularly those in the rural areas qualify for carbon credit, as compensation for prevention of pollution immediately after plantation of jatropha. Such credit can be traded on the London Stock Exchange. The Namibian Agronomic Board recently completed a feasibility study to determine the viability of planting Jatropha in Namibia. Assuming that the total area of about 63,000 hectares of jatropha is planted, it is estimated that this could contribute about N$189 million to the GDP, N$124 million to state revenue fund and about N$4.5 million in carbon credit revenue. Planting jatropha is estimated to require about N$450 million[9].

[9] This figure does not reflect the costs required to plant the 63,000 hectares above, because these figures were obtained from two different sources.

4.4.7 Succulents

Other plants with potential to increase the output in the sector are succulents. A succulent is a plant of which one or more of its organs- leaves, stem or roots has developed the capability to store water (Succulent Society of South Africa, 2004 and NASSP, 2004). This allows them to survive in harsh dry environments. An example of such crop species in Namibia is Hoodia and the Cactus Pear. Hoodia is a drought resistant natural plant which grows easily in the southern parts of Namibia. This plant is known to have appetite suppressant properties and as such could be used as a natural treatment for obesity, (NASSP, 2004). Cactus pear is a family of succulent plants which is extremely well adapted to Namibian conditions. Though highly drought resistant and use water very efficiently, the plant respond better to controlled irrigation. Cactus pear is found on approximately 90 percent of commercial farms in Namibia, varying from a few plants to about plantations of approximately 5 hectares The plant have a number of uses ranging from eating the fruit, jam making, alcohol, face and body lotions, hair gels and shampoos and etc.

4.4.8 Other Horticultural Crops

Horticultural crops have a major potential for further growth in Namibia. This is due to climatic conditions which enables Namibia's horticultural products to ripe earlier than that of competitors. Some of the crops cited as having potential for growth and value addition in the sector include avocados, banana, beans, beetroot, broccoli, butternuts, cabbage, carrots, chilli, cucumber, dates, grapes, lemon, lettuce, mango, naartjies, onions, oranges, pears, pineapples and potatoes. According to the Namibian Agronomic Board, Namibia is self sufficient in the production of following crops. These are onions, cabbage, tomatoes, potatoes, watermelons, green mealies, oranges, carrots, butternuts, pumpkins, sweet corn, mango, lettuce, sweet potato, beetroot, gem squash cauliflower, peppers, paprika and naartjies. The capital requirements for horticultural crops are estimated at N$72 million for erecting a horticultural market in Windhoek and

N$37 million for building the Oshakati market. These investments will be funded by the government under the horticulture marketing scheme project.

In summary, products with potential for growth in the agricultural sector include beef, sheep, goat, poultry, mahangu, grapes, jatropha curcas, hoodia, cactus pear, avocados, banana, beans, beetroot, broccoli, butternuts, cabbage, carrots, chilli, cucumber, dates, lemon, lettuce, mango, naartjies, onions, oranges, pears, pineapples and potatoes. The amount of investments required in the sector is estimated at about N$885.9[10] million. This figure is the sum of N$6.5 million (beef research and extension services), N$20 million (dairy products), N$400 thousand (brandy processing plant), N$450million (jatropha plantation), N$300 million (broiler), N$109 million (Green Scheme infrastructure).

[10] This figure is should be read with caution because its is not inclusive of the total investment requirements in the sector given the fact that it is based on a small sample of respondents.

Chapter 5 Lessons from Malaysia, Kenya and Zambia.

In addition to the field surveys this paper used case studies so as to learn from the experience of other countries on the policies they embarked upon in their quest of unleashing the potential of their respective agricultural sectors. The selection of these countries was underpinned by the fact that, similar to Namibia, Zambia and Kenya had dualistic agricultural structures at independence and had to institute policy interventions to turn the sectors. As for Malaysia it was more of the need to learn on how other developing countries undertook the same objectives as well as given the fact that Malaysia is a major producer of palm oil. Among other things, palm oil is used for the production of bio diesel. This therefore ties well with the ambition of Namibia to produce bio diesel. A brief account of the lessons that could be drawn from the various policy interventions in the three countries can be summarised as follows:

- Small farmer's holder schemes.

Both in Malaysia and Zambia smallholders' farmers were organised on group settlement schemes. In Malaysia, the federal government paid the cost of establishing the scheme and in turn repaid by the settlers over a fifteen–year period. After the settlers paid the scheme they received shares in the cooperative, rather than obtaining individual freehold title. These programmes are similar to the envisaged small holder farmers under the green scheme. Such small holder farmer's could be allowed to access loans as groups or to form co-operatives.

- Broadening access to credit

Financial access in the form of subsidies to farmers was increased in Malaysia, Kenya and Zambia. Moreover, in Kenya commercial banks were required to allocate a proportion of their reserves to agricultural lending. In

Namibia financial access to the agricultural sector is given by AGRIBANK, the government and commercial banks. It is recommended that these institutions increase their funding to the sector. Moreover, institutional investors with access savings are encouraged to invest in the agricultural sector.

- Provision of infrastructure

In Malaysia, the government intervened by establishment of the Palm Oil Registration and Licensing Authority, the Kuala Lumpur Commodity Exchange. In the case of Kenya and Zambia this was done by setting marketing boards and various statutory bodies. Moreover, such marketing boards were latter expanded to rural areas in Zambia. The Namibian Agronomic Board was established by the Agronomic Industry Act (Act 20 of 1992, to facilitate the production, processing, storage and marketing of controlled agronomic product in Namibia. In addition, the Meat Board and the Karakul Board were established to promote the interests of the meat and karakul respectively. Moreover, it is envisaged to build horticultural markets in Windhoek, Oshakati and Rundu as well as collection and distribution points in the main production points of Uutapi, Katima Mulilo, Tsumeb, Mariental and Noordower. As in the case of Zambia marketing boards could be extended to the rural areas too.

- Intensification of research

In Malaysia a levy based on the sale of palm oil to support the Palm Oil Research Institute was enacted, while in Kenya, government devoted about 10 percent of its annual budget to agricultural research in the early years after independence. There are a number of agricultural research stations in Namibia such as Gelap Oost, Kalahari, Sandveld, Sonop, Uitkoms, Omajene, Neudamm, Mashari, Ogongo, Tsumas and Hardap, which are administered

by the Ministry of Agriculture, Water and Forestry. These stations among other things are affected by unavailability of funding.

- Resource endowment factor

The profitability of Palm oil in Malaysia is equally attributed to the resource endowment of the country which is well suited for this plant species. Thus as a lesson Namibia could concentrate on products in which the country is well endowed with such as cattle, sheep, grapes, water melons etc.

- Land reform

A major land reform was undertaken in Kenya immediately after independence when government distributed a considerable amount of the former white settlers' farmlands to small scale farmers. In Namibia the land reform is being administered under the auspices of the State acquisition of the Ministry of Lands and Resettlement and the Affirmative Action Loan Scheme. As alluded to earlier, these programmes are constrained by a host of factors more particularly overpricing of land, bush encroachment, location of farmlands, limited supply of farmland in relation to demand and small herds in relation to the carrying capacity of the farms purchased, resulting in difficulties for the farmer to pay back the loan.

Moreover, commercial farmers are uncertain about which farms will be expropriated, as this has been stated as the last option available to government in case where no land or farms are forthcoming under the two land distribution programmes cited above. The land policy must be properly implemented to dispel uncertainties' to farmers, areas earmarked for resettlement must be defined clearly, and resettled farmers should be grouped into clusters. These areas should be equipped with the necessary infrastructure and be near by the markets to enhance productivity.

- Besides for Malaysia the output of the agricultural sector declined.

As a result of these policy interventions, Malaysia accounted for 61.7 percent of the world production of palm oil and 70.2 percent of the world exports and currently is the world's leading producer of palm oil. In Kenya the agricultural sector growth declined from 6.4 percent per year on average between 1963 and 1972 to only 0.3 percent during 2000 to 2003. The decline in the growth of the agricultural sector in Kenya is attributed to inefficiencies in marketing, limited land expansion of small holder farming, limited development and use of new technologies, deteriorating infrastructure, low investments, and bad weather.

In Zambia, small and medium scale farmers grew from 23 percent to 36 percent of the population between 1969 and 1980. Moreover, the overall growth rate of marketed crop production which was 9.9 percent on average between the 1970s; fell to 2.1 percent in the 1980s. The decline in output was attributed to a host of factors more particularly drought, privatisation, cattle diseases and removal of subsidies on maize and fertiliser. It should however be pointed out that of recent agricultural growth has started to pick up in Zambia on account of continued government focus on food security, diversification and the opening up of new agricultural production areas. For example, since the year 2000, there has been some tentative growth in the sector, posting a 5.0 percent growth rate and another 4.3 percent in 2003 and 2004

In summary it is evident that in all three countries, government intervened in the agricultural sector through various policy measures such as providing support to the small holder farmer's, broadening access to finance, provision

of infrastructure and investment in research. Moreover, in the Kenya government instituted a land distribution programme.

Malaysia the success of palm oil was also due to the country's comparative advantage and its contribution to the world palm oil is more than 70 percent. Despite these interventions, output in Kenya and Zambia increased initially but latter started to decline, however in Zambia it has started to pick up again in the recent years. The observed trends are similar to the case for Namibia where the share of agriculture in the labour force has been sliding from 49.0 percent in 1990, to 29.3 percent in 2000, while its performance has been sluggish, registering declining and negative growth rates sometimes.

Not withstand decline in agricultural sector growth particularly in Kenya, and Zambia, the agricultural sector is still vital to these economies contributing about 30 percent to GDP, 80 percent to national employment and more than 60 percent of the country's total export earning in the case of Kenya, (www.pwc.com/extweb/industry.nsf). In Zambia agriculture contributes about 20 percent to the country's GDP and 85 percent to total employment, (http://en.wikipedia.org/wiki/economy_of Zambia). In Namibia, the agricultural sector employs about 70 percent of the Namibian population. Moreover, the sector is a major earner of foreign exchange for the economy, for example in 2004, the agricultural sector accounted for 11.5 percent of the country's total foreign exchange earnings. Furthermore, the agricultural sector contributed 39 percent to the country's total maize requirements, 12 percent to the domestic consumption of wheat and 100 percent of total beef, mutton and peal millet consumption in 2004. Agriculture further supports other sectors such as transport, manufacturing, plastic packaging and etc. From the above background, the agriculture sector therefore remains imperative as an employment creator, earner of foreign exchange and contributor to GDP in the countries under study as well as in Namibia.

Chapter 6 Conclusions and Policy Recommendations

The objectives of this paper are to look into the factors that have been causing the decline in the agricultural growth with a view to identify products that have the potential of increasing the output of the sector. Moreover, the paper is intended to investigate the level of investments required in the sector.

The paper found that, the agriculture sector is constrained by less availability of marketable animals, unavailability of markets for some products, lack of economies of scale, high input and transport cost, lack of finance, climatic and weather conditions, competition, exchange rate volatility, unavailability of farm lands, lack of skills and fresh produce markets, scatterings of producers and unsynchronised transport system.

Products with potential for growth in the agricultural sector include the following animal and crops: Beef, Sheep, Goat, Poultry, Mahangu, Grapes, Jatropha Curcas, Hoodia, Cactus Pear and horticultural crops such as water melons, onions, banana, lemon, lettuce, pears, pineapple,. The investment required in the sector is estimated at about N$885.9 million. Namibia enjoys a comparative advantage in the production of the products identified above. Furthermore, Namibia should concentrate on import substitution of fresh produces as a production strategy.

In addition, marketing as well as promotion of products in new markets might also play a significant role in terms of increasing the output of the sector. This refers for instance to products such as grapes, processed goat meat, bone in beef and dairy products which are in dire need of new markets. Furthermore, since the potential for growth in the sector lies much in the rural areas, modernization of the rural areas might aid to the growth of the sector. This could be achieved by putting in place proper infrastructures, marketing facilities and

incentives. In addition, increasing research and extension services might unlock the hidden potential of the sector.

The paper estimates the investments required in the sector at about N$885.9 million. This figure is the sum of N$6.5 million (beef research and extension services), N$20 million (dairy products), N$ 400 thousand (brandy processing plant), N$450 million (Jatropha plantation), N$300 million (chicken broiler), and N $109 million (Green Scheme infrastructure).

The lessons drawn from the case studies are as follows: In all countries Malaysia, Kenya and Zambia, respective governments intervened in the agricultural sector through various policies such as giving support to the small holder farmer's, broadening access to finance, provision of infrastructure and investing in research. Moreover, in Kenya the government instituted a land distribution programme. In Malaysia the success of palm oil was also due to the country's comparative advantage. Despite these interventions, output in Kenya and Zambia increased initially but latter started to decline, however in Zambia it has started to pick up in recent years. Not withstand the decline in the growth rates, the agriculture sector remains imperative as employment creator, earner of foreign exchange and contributor to GDP in these countries.

In order to unleash the potential in the Agricultural sector, the paper recommends the following:

- Concerted efforts should focus on expanding production of beef, karakul and horticultural products in the communal areas. More specifically, the extension of the red line by creating disease free clusters north of the red line should be encouraged, while the usage of feed lots in the communal areas should be used intensively. In the Karakul sector emphasis should be placed on increasing subsidies to communal farmers. In this regard

government is therefore encouraged to workout modalities on how to support the Karakul industry including small farmers as pledged.

- The current efforts by the green scheme to increase production of agricultural products using irrigation based methods is commendable, however it is recommended that emphasis should rather be in the production of crops in which Namibia has a comparative advantage more particularly horticultural crops. The government should ensure that good infrastructure in the form of roads; electricity and markets are put in place to connect the production in the rural areas to the urban centres.

- Within the commercial areas it is recommended to intensify the de-bushing with a view to increase the carrying capacity of the land.

- To make the State land acquisition program and Affirmative Action Loan Scheme more effective the paper recommends, that the Ministry of Lands and Agribank should re-looked into the issue of farm lands evaluation to avoid unnecessary competing demand for lands. A mechanism of proper coordination between the two institutions in this particular aspect should be adopted.

- Farmers under the Government scheme who fail to produce should be replaced with production oriented farmers. Moreover, efforts to find new markets for grapes and goat meat should be intensified.

- The land policy must be implemented in such a way that it dispels uncertainties' to farmers, i.e. areas earmarked for resettlement must be defined clearly. Resettled farmers should be grouped into clusters in well identified areas as was the case in Malaysia. These areas should be in the vicinity of markets and well equipped with the necessary infrastructure in

order to enhance productivity. Investments in the projects such as karakul sheep farming, grapes, hoodia, jatropha, processing of grape products and irrigation based horticultural products and the de-bushing process.

- Furthermore, research in agriculture is strongly encouraged. In addition to research, there is a need to enhance the productivity of agricultural workers by introducing tailor made agricultural training institutions in the rural areas. These institutions would support the agricultural colleges in the countries by providing practical training to agricultural employees in all aspect of agricultural production. Moreover, small holder farmers should be trained on budgeting and proper selection of breeds. The usage of veterinary technicians in rural areas should be intensified.

References

Bank of Namibia, *Annual Report 2004*

Donavan, W. (1996), Agriculture and Economic Reform in Sub–Saharan Africa. *AFTES Working Paper No.18 World Bank*.

Gardner, B. (2003), Causes of Rural Economic Development, Proceedings of the 25th International Conference of Agricultural Economists, Document Transfer Technologies, *and Durban,* South Africa.

Green Scheme Irrigation Policy, *Ministry of Agriculture Water and Rural Development.*

Harley, C. and Craft N.F.R (2002), 'Stimulating the two views of British industrial revolution" *Journal of Economic History pp.819 – 841*.

Hazell, P., and Roell, A. (1983) "Rural Growth Linkages: Household Expenditure in Malaysia and Nigeria," Research Report No.41, *International Food Policy Research Institute, Washington.*

Hirschman, A. (1958), The strategy of Economic Development, *Yale University Press, New Haven*

Howard, P.Z . (2005) Investing in Agriculture as an Engine of Economic Growth: Uncovering Determinants of the Wold Bank's Rural Development Strategy

Johnston, B. & Mellor, J. (1961) The role of Agriculture in Economic Development, *American Economic Review 51: 566-93* in Richard Tiffin (2004) Is Agriculture the Engine of Growth

Johnson, B. and Kilby, P. (1975) Agriculture and Structural Transformation: Economic Strategies in Late- Developing Countries. *Oxford University Press.*

Lipton, M. (2004). Crop Science, Poverty and the Family in a Globalising World". Plenary Session, Brisbane International Crop Science Conference

Mellor, J. (1976) The New Economics of Growth: A strategy for India and the Developing World. Ithaca, NY: *Cornell University Press*.

Mellor, J. and Johnson, B. (1984) "The World Food Equation: Interrelationships Among Development, Employment and Food Consumption." *Journal of Economic Literature*

Miller, W. and Soto, Y. (1999) "Contribution of Agriculture to the Arkansas Economy, Special Report 196. *University of Arkansas*.

Ministry of Agriculture, Water and Forestry. (2005) *Agricultural Statistics Bulletin*

Namibian Agronomic Board*, Annual reports various years*

National Horticulture Development Initiative Final Report (2004)

Nyangito, H and Okello, J. (1998) Kenya's Agricultural Policy and Sector Performance: 1964 to 1996. *Institute of policy analysis and Research, Occasional Paper No. OP/04/98*

Odada, J. and Godana, T. (2002) Sources of growth in Africa: A case study of Namibia, *University of Namibia*.

Phororo, H. (2001). Food Crops or Cash Crops in the Northern Communal Areas of Namibia: Setting a Framework for Research Agenda, *NEPRU WORKING PAPER NO.80*

Pletcher, J. (1990). Public Interventions in Agricultural Markets in Malaysia: Rice and Palm Oil, *Modern Asian Studies, Vol.24, No 2, pp.323-340.*

Tiffin, R. (2004). Is Agriculture the Engine of Growth?" Working Paper, *University of Reading (March 10), pp.1-21.*

_____ (2002) "Agriculture and economic Growth". In Bruce Gardner and Gordon Rausser, eds., *Handbook of Agricultural Economics, Vol.II. A. Amsterdam: North Holland*

Timmer, P. (2002) "Agriculture and economic development' Bruce Gardner and Gordon Raussser (eds.) *Handbook of Agricultural Economics, vol. 2A Agriculture and food policy Amsterdam*

_____ (2005) Agriculture and Pro-Poor Growth. *Centre for Global Development, Working Paper Number 63*

Whitehouse, L (2004) South- South Trade Promotion Programme, Namibia, Supply survey on food, water and sanitation, shelter and household items. *International Trade Centre*

Appendix 1 Case study of Malaysia: Palm oil[11]

The cultivation of palm oil in Malaysia dates back to 1875, however it was first planted for commercial purposes in 1917. Keen to diversify the economy in order to lesson its dependence on tin and rubber, the government adopted several measures to promote oil palm cultivation. These measures include, allowing rubber replanting grants to be used for planting oil palm, charging lower export duties for palm oil than rubber, and investing in a massive program of smallholder resettlement on schemes often devoted to oil cultivation. Under this programme, smallholders were organised by public authorities on group settlement schemes, such as those of the Federal Land Development Authority (Felda). The federal government pays the cost of establishing the scheme, and is in turn repaid by the settlers over a fifteen- year period. After the loans have been repaid the settlers receive shares in a cooperative, rather than individual freehold title, so as to maintain the coherence of the scheme as an estate.

Moreover, in 1977, the Palm Oil Registration and Licensing Authority (PORLA) were established. PORLA was assigned with the responsibility to find new markets. In addition, the government established the Kuala Lumpur Commodity Exchange (KLCE) to facilitate the trade of palm oil in 1980. The KLCE benefited the industry by providing hedging facilities, expanding the market, setting prices as a basis for trade contracts, and attracting international traders and thus linking Malaysian palm oil markets to overseas markets. Subsidies were also given to planters to replant rubber stands with oil palm.

Furthermore, government levied export duties on palm oil products. The amount of duty was based on a sliding scale that varies with the price the palm oil fetches and the extent to which the palm oil is processed. In addition to these levies, a cess is levied to support the Palm Oil Research Institute. As a result of these

[11] Based on the study by James Pletcher titled public interventions in agricultural markets in Malaysia: rice and palm oil

policy interventions, the area under oil palm grew at an average rate of 18.9 percent between 1961 and 1983. By 1982, Malaysia accounted for 61.7 percent of the world production and 70.2 percent of the world exports of palm oil. Currently it is the world's leading producer of palm oil. In addition to policy the profitability and growth of palm oil in Malaysia could be ascribed on resource endowment which is well suited for palm oil production.

The industry has hardly been free of government intervention, and it is now comprehensively regulated. These regulatory powers has not interfered with the most important determinant of profit and loss, the price system, but rather to promote the interest of the industry as a whole, defining quality standards, providing statistical data on production and trade, provision of infrastructure, promote of the expansion of processing facilities.

Appendix 2 Case study of Zambia[12]

Zambia like Namibia inherited a highly dualistic agricultural structure at independence in 1964. Potential arable land is about 42.5 million hectares of which only about 2.5 million was being used in the 1990s. The concern to policy makers then was to increase food production to ensure self-sufficiency for a rapidly growing population. As a result the state intervened in the sector by expanding the agricultural extension service and the crop-marketing depots to cover the whole country, introduction of uniform crop prices, and provision of tractor ploughing services, credit and fertilizer at highly subsidised rates.

Furthermore, from 1964 to 1982, the government encouraged the formation of co-operatives, state farms and parastatals. At the same time, large scale commercial farmers and individual small-scale producers with customary tenure or in settlement schemes were supported primarily by producer and input price policies. These policies were therefore targeted to increase crop production and to encourage the progression of subsistence farmers towards market-oriented production and to spread market agriculture into areas where subsistence farming dominated before independence.

Donor-financed project were also set up in a number of rural areas to help farmers commercialise their agriculture. Broadening access to credit and mechanisation was also made a priority. The pricing policy was also amended to enhance social and equity objectives with the introduction of uniform pricing in the 1974-75. This enabled farmers to receive the same price for their produce despite their location relative to the market. Subsidies on fertilizer increased during the 1960s and early 1970s resulting in increased production of maize.

[12] This part borrows heavily from Doris J.Jansen and Andrew Rukovo 1992

These measures were successful in meeting the equity objectives and increasing the participation of rural households in production for the market. For example, between 1969 and 1980 small and medium-scale farmers grew from 23 percent to 36 percent of the rural population, while subsistence households declined from 75 percent to 62 percent. The large-scale commercial farming sector also declined from 1.7 percent of farming population to 1.2 percent (Wood, 1990, Jansen at al, 1992).

The participation of the formerly subsistence farmers in market-oriented agriculture declined from 52 percent in 1969 to 35 percent of the rural population. Overall, the growth rate of marketed crop production was 9.9 percent in the 1970s; before falling to 2.1 percent in the 1980s. During the 1990s the agricultural sector grew at an average annual rate of 4.5 percent. Growth in these years was stifled by drought and government withdrawal of support from agricultural producers and the privatisation of state-owned companies. Since the year 2000, there has been some tentative growth in the sector. In 2003 agricultural production which is predominantly rain-fed[13] posted a 5 percent growth rate and another 4.3 percent in 2004, (www.statehouse.gov.zm). More over, the country's agricultural production is still dominated by small-scale farms cultivating landholdings of one to five hectare and producing most of the cotton[14], millet and sorghum as well as a large proportion of maize, groundnut and sunflower. The recent picking up of the sector's performance can be attributed to government's agricultural policies such as the 50 percent input subsidy on fertilizer, early delivery of agricultural inputs such as seed and fertilizer to farmers throughout the country, encouragement of irrigation farming, crop diversification and opening up of new agricultural production areas.

[13] The average annual rainfall is 1000 mm with the Northern parts of the country experiencing the highest rainfall averaging more than 1400 mm annually.
[14] The main food crops are maize, sorghum, cassava and millet. Cash crops include cotton, tobacco and vegetables.

Appendix 3 Case study of Kenya[15]

In Kenya, agriculture has remained the mainstay of the economy since independence in 1963. Its contribution to GDP has however decreased from 35 percent in 1963 to 30 percent in 2004. Total employment is about 75 percent of the labour force and it provides most of the food[16] requirement for the nation and earns about 60 percent of the country's foreign exchange (Kenya, 1997, Nyangito et al 1998).

A number of policies were used to foster growth of the agricultural sector in Kenya. The first policies were instituted during the period 1964 to 1980 and emphasized on government intervention in nearly all aspects of agricultural production and marketing (Smith, 1976, Nyangito et al 1998). These interventions could be summarised below.

The reform process began with the land reform which took place soon after independence. Under this program government distributed considerable amounts of the former white settlers' farms to small-scale farmers. This resulted into a monetised small-holder sector that contributed greatly to growth in the sector. Moreover the government devoted about 10 percent of its annual budget to agricultural research. The use of purchased inputs was also promoted through licensing of distributors and input price subsidization. Furthermore, government extended subsidized credit to farmers through the statutory Agricultural Finance Cooperation, while commercial banks were required to allocate a proportion of their reserves to agricultural lending.

Another important policy during this era was the marketing of agricultural produce and controlled pricing. Most of the commodities were marketed through a number

[15] Extracted from the study titled, Kenya's Agricultural Policy and Sector Performance: 1964 to 1996 by Hezron Nyangito and Julius Okello, October 1998.
[16] Tea is the dominant sector, other emerging sector are coffee and sugar.

of statutory marketing boards. The prices were set by the Ministry of Agriculture but were implemented by the marketing boards.

From 1980, there was a shift in economic policy towards a liberal state, emphasising on reducing state intervention in the economy. This was partly in response to the high costs associated with socialist development strategies which became clear with the failure of most publicly-owned enterprises. These reform programmes can be divided into two phases: 1980 to 1992, and 1993 to 1997. The initial policy reforms emphasized the liberalisation of the grain market and the removal of price controls for all agricultural commodities. This phase was followed with decontrol and relaxation of fertiliser import licensing systems, price decontrol and removal of obstacles in the marketing and distribution system, removal of government support (subsidies) on most investments and services.

The policies interventions were successful in the first decade after independence. For example, by 1980 small-holders contributed about 50 percent of the total production from 37 percent in 1964. The agricultural sector grew by 6.4 percent per annual between 1963 and 1972. Between mid-1970 to 1980, the growth of the sector was reduced to only 3 percent and further to a negative figure in early 1990. The decline in the growth of the agricultural sector is attributed to inefficiencies in marketing, limited land expansion of small holder farming, limited development and use of new technologies, deteriorating infrastructure, low investments, the oil shock of the 1970s and bad whether. Between 1994 and 1999 with the return of good weather conditions the agricultural sector registered a positive growth rate of 2.6 on average; however growth deteriorated further from 2000 to 2003, registering an average growth rate of about 0.3 percent. The unsatisfactory performance in the sector in the 2000s is attributed to low yields, lack of high quality seeds and other inputs, poor infrastructure, poor and inefficient technologies, coupled with low extension services and low investments

Appendix 4 List of people interviewed

1. Mr. Namene Kalili, Horticulture Officer Namibian Agronomic Board
2. Amb. Leonard Ipumbu, CEO, Agricultural Bank of Namibia
3. Mr. Liebich Norbert, Treasurer, Namibian Orange River Grape Growers Association
4. Mr. Christof Brock, CEO, Namibian Agronomic Board
5. Mr. Vehaka Tjimune, Namibia National Farmers Union
6. Mr. Andre Botes, Agricultural Economist, The Green Scheme Agency
7. Mr. Leon Hugo, Agriculture Engineer, The Green Scheme Agency
8. Mr. Otto Apiasay, Financial Officer, The Green Scheme Agency
9. Mr. Jurgen Hoffman, Trade Advisor, Agricultural Trade Forum
10. Mr. Deesmond Van Jaarsveld, Managing Director, Namibia Diaries
11. Mr. Paul Strydom, General Manager, Meat Board of Namibia
12. Mr. Willie Schultz, Manager, Meat Board of Namibia
13. Mr. Wessel Visser, Manager, Karakul Board of Namibia
14. Mr. Kobus van Graan, Managing Director, Namibia Mills
15. Dr O.J.B Huebschle, Chief Veterinary Officer, MAWF
16. Mr. Bernd Rothkegel, Director of Planning, MAWF
17. Mr Eggert Gernot, Farmer

Appendix 5: Agricultural Census 2004

	1995	1996	1997	1998	1999	2000	2001	2002	
Cattle	**2,031,353**	**1,989,947**	**2,055,416**	**2,192,359**	**2,278,569**	**2,504,948**	**2,508,570**	**2,329,553**	**2**
Commercial	887,224	743,057	790,699	824,207	830,043	845,656	908,262	858,391	
Communal	1,144,129	1,246,890	1,264,717	1,368,152	1,448,526	1,659,292	1,600,308	1,471,162	1
Sheep	**2,409,699**	**2,198,436**	**2,429,328**	**2,086,434**	**2,160,651**	**2,446,146**	**2,233,578**	**2,764,253**	**2**
Karakul	275,705	217, 759	206,596	185,170	193,748	204,712	206,727	236,771	
Dorper	1,581,367	1,412,571	1,655,826	1,344,091	1,417,512	1,598,664	1,539,827	1,836,731	1
Other Sheep	552,627	568,106	566,906	557,173	549,391	642,770	487,024	690,751	
Commercial	2,064,291	1,878,840	2,112,789	1,727,210	1,865,770	2,086,867	2,011,478	2,389,401	2
Communal	345,408	319,596	316,539	359,224	294,881	359,279	222,100	374,852	
Goats	**1,616,090**	**1,786,150**	**1,821,009**	**1,710,190**	**1,689,770**	**1,849,569**	**1,769,055**	**2,110,092**	**2**
Angora	9,780	6,211	5,411	4,286	4,505	5,941	4,689	4,291	
Boerbok	948,500	893,904	975,826	884,885	820,236	973,464	1,047,942	1,096,781	
Other Goats	657,810	886,035	839,772	821,019	865,029	870,164	716,424	1,009,020	1
Commercial	575,707	544,942	547,205	479,930	461,675	491,511	536,847	608,313	
Communal	1,040,383	1,241,208	1,273,804	1,230,260	1,228,095	1,358,058	1,232,208	1,501,779	1
Pigs	**19,979**	**18,923**	**16,884**	**14,706**	**18,731**	**23,148**	**21,854**	**47,805**	
Commercial	13,193	12,493	10,559	9,035	8,880	12,807	12,284	6,825	
Communal	6,786	6,430	6,325	5,671	9,851	10,341	9,570	40,980	
Ostriches	**21,241**	**38,891**	**46,725**	**52,393**	**33,116**	**47,823**	**59,309**	**62,976**	
Commercial	20,811	38,416	46,160	51,464	27,666	41,783	55,280	58,550	
Communal	430	475	565	929	5,450	6,040	4,029	4,426	
Poultry	**487,031**	**458,158**	**522,618**	**403,937**	**450,513**	**476,331**	**502,356**	**883,950**	