

Forest Outlook studies in Africa (FOSA)



Namibia



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This paper has been minimally edited for clarity and style.

Summary

Namibia has unique forest resources, which nonetheless have significant economic and environmental value. In the absence of a strong traditional forest industry, Namibia should creatively exploit its available resources by adopting existing new technologies for processing of its wood and non-wood products. The area of reconstituted wood products, the utilisation of lesser-known tree species, the development of new products from non-wood raw materials, all demand serious attention. It is quite probable that the forest sector will grow in that direction. There is room for development of cottage industries based on limited local resources.

To make it possible to create more value out of forest resources, the government will have to pursue a policy of attracting private sector investment in product processing and also convince donors to be more actively involved in value-added industries than is the case today.

Namibia has quite supportive policies and legislation in forestry and wildlife in view of current global policies and conventions, but would benefit from more efficient, partly decentralised administrations, especially as the regional and local governments have built capacities to take over or participate more meaningfully in resource management functions, which can be delicate or easy to ignore by virtue of their indirect environmental values.

The adoption of global policies in the forest sector will mean that the sector will be sensitive and also contribute to the conservation of biological diversity, mitigation of climate change and the sector will be regularly assessed using the concept of criteria and indicators for sustainable forest management.

Even though the area under forests will decrease, better land use planning at the regional and local levels will produce a legally recognised forest state which will be more immune to unplanned conversions to non-forest uses as is the case today. In other words, forest reserves of various classes, will be part of the protected area network in Namibia.

It can be concluded, that the next 20 years hold opportunities for Namibia's forest sector to develop in its unique ways, not by large industrial plantations, but by more creative investments in processing; taking advantage of new niche-market specialised products, and of the growing tourism industry as a market for value-added products.

1 Introduction

1.1 Namibia's Economy

Historically Namibia has been well known for a mining industry that has thrived for over 100 years, with diamonds at the centre of it all. The mining industry is just among the many natural resources that the country has despite being the most arid country in Southern Africa. The other natural resource-based economic activities include a commercial fishing industry, commercial livestock ranching and nature-based tourism. Subsistence farming either with livestock or cultivation in the wetter northern half is the primary source of survival for the rural and largely poor majority. So far mining is still the largest foreign exchange earner, followed by commercial fishing. This is closely followed by tourism, which has the most optimistic growth potential. Agriculture even though it employs 70% of the population, contributes just about 10% of the GDP. The forest sector does not feature at all in the estimation of GDP simply because there is neither a formal industrial plantation base nor rich commercially exploited natural forests. Despite this, the sector contributes values worth an estimated 1.05 billion Namibian Dollars indirectly to the rural economy through biomass energy, shelter, non-timber products and through ecosystem values which support wildlife based tourism and environmental conservation. The GDP of Namibia at constant prices ranged from 7.01 billion Namibian dollars in 1992 to 8.4 billion Namibian Dollars in 1999 (Table 2).

- At the time that this report was being prepared, Namibia was undertaking a massive national planning exercise; the second National Development Plan (NDPII, 2001-2005). To provide an economic framework for the planning process, one has to take into consideration, forecasts on economic growth during the next five years during NDPII. In the chosen scenario, the major sectors will perform as follows between 2000 and 2006:
 - Mining will grow by an average of 8.2% between 2000-2006.
 - Tourism related growth is likely to grow at 6% per year, the largest in the tertiary industry.
 - Meat and fish processing with increase by 6.4 and 6.7% respectively
 - Commercial agriculture will also post a strong growth of 7%, thanks to new irrigated commercial grape farming in the south.
 - The construction industry is likely to grow by 5% per year over the same period.

1.2 The Forest Sector in Brief

The forest sector in Namibia is characterized by a resource base, consisting of semi-open woodlands, savannahs and deserts, formed under the most arid conditions in Southern Africa. These broad ecological divisions support the majority of its population of 1.7 million, living in the rural areas and engaged mainly in subsistence cultivation and livestock based agriculture. It meets its industrial wood and wood product needs from imports, while its rural populace interacts extensively with the natural woodlands, for their basic needs, in addition to those of the rapidly growing arts and crafts industry. The woodlands are dominated by the Kalahari Sands type; formed on deep ancient aeolian sand deposits, which are predominant in the Tsumkwe, Kavango, Ohangwena, Oshikoto and Caprivi Regions of the North and North Eastern parts of Namibia. The tallest tree species consist of *Pterocarpus angolensis*, *Baikiaea plurijuga* and *Burkea africana* and in some places, *Terminalia sericea*. The next prominent woodland type is the *Mopane Woodlands* with a distribution, which represents the most westernmost of its natural range in Southern Africa. A *land cover reconnaissance project* done in the more heavily wooded *northern parts of Namibia* yielded *area statistics* on land cover and use types. The total land area in northern Namibia surveyed was 28,430,127 ha. Of this, 6.4% is under extensive cultivation, 0.32% is under intensive cultivation, 25.88% is covered by woodlands, 54.4 % wooded savannahs and the remaining 12.99% is covered by other vegetation types, open water, grasslands and so on. More is given in chapter 3 of the report and the statistics are in Table 6.

It is also worth stressing, that the woodlands, which constitute 20 % of a total land area 830,000 km² and wooded savannahs, which cover 64 % do not play the same traditional roles of industrial plantations and timber-rich tropical and montane forests in other parts of Africa. For this reason, this introduction will allude to the description of the various values derived from the woodland resources of Namibia, depicted in Table 1. They indeed support the majority of Namibians directly through the supply of *energy*, *construction materials* and the wooded environment itself provides *browse* and *grazing* which underpins *livestock farming*; the mainstay of the rural economy outside the cropping season. In protected areas such as parks, the woodlands are *a valuable habitat for game*, which is in turn, valuable to the tourism industry. In addition, a number of *products* and *services* are also provided. The *riverine woodlands* along the *ephemeral and perennial rivers* have immense ecological and economic values and their protection and sustainable use are crucial. Despite these values, the forest sector is intuitively evaluated on the basis of the commercial timber industry alone excluding the values just mentioned. This anomaly is addressed in Table 1, which depicts the values of woody vegetation and should form the basis of future natural resource accounting. The various woodland types and the acacia dominated savannahs are depicted in Annexes 1 and 2. The biomass data provided on the tables area from the ongoing forest inventory, which started in 1996 and should be completed by the year 2002 and collects data on species of shrubs, grasses and other plants as well. In the relatively tall *Pterocarpus-Baikiaea* dominated woodlands, maximum tree heights can reach 22 meters with a mean of 9 meters on some sites. However, the **maximum timber volume is low** since only traditionally exploited species; *Pterocarpus* and *Baikiaea* are counted. However, substantial quantities of *Burkea africana* stocks exist that could be utilized, only if the technology of sawing it could be improved and its commercial use promoted. Woody biomass yields from each type range from 13 to 20 tons per hectare. These estimates do not include the grass sward, which on average constitutes about one quarter of the total biomass per hectare in a good year. The use of **fuel wood** remains the predominant one, followed by domestic construction and fencing of homes and agricultural fields. The **arts and crafts** sub sector is also a growing industry, which will be strongly supported in the second national development plan period running from the years 2000 to 2004 and is closely linked to tourism and a useful source of self-employment. Virtually all of the biomass energy, arts and crafts and traditional fencing wood can be met from local production in the foreseeable future Likewise, virtually all the industrial timber, paper, panels, except for

treated fencing posts are still likely to be met from imports, currently dominated by suppliers from South Africa (See Annex II, Table 3).

Non-wood products include a number of *fruits* and *nuts*, *medicines* and *grass*, which have considerable economic value but are not traded commercially in significant quantities to earn their place in national accounting systems. Nuts from **marula** and **manketi** trees have immediate commercial value for use in the pharmaceutical and cosmetic industries, in addition to their traditional use in local diets. **Marula fruit** itself can be used to make jam and its juice is already used in the commercial manufacture of liqueur. The fruits of *Strychnos* and *Berchemia* enjoy a local market just waiting to be more efficiently exploited by greater promotion, packaging and more intensive plant propagation. Of the medicinal plants, only the devil's claw (*Harpagophytum procumbens*) has an international market. Namibia however needs to consider some limited manufacture as opposed to playing the traditional African role of providing raw materials.

Table 1. The estimated economic value of the forest resources of Namibia.

Product	Main species	Annual value (million N\$)
Construction poles	Mopane	383
Tourism	Ecosystem	218
Fences for crop protection	Mopane	175
Firewood & Charcoal	Mopane, Acacia spp, Various bush invaders	153.4
Medicine	Various species	31.5
Homestead fencing	Mopane	31
Crafts and implements; Mahangu baskets; Carvings	Various species; Mopane	34.4
Goat forage	Various species	9.5
Fencing poles	Mopane	6.6
Food & Beverages	Marula oil, Various species, Mangetti kernels	6.3
Basketry	Hyphaene spp	4
Commercial logging	Pterocarpus, Baikea	2.4
Mortar and pestle	Various hardwood	1.5
Ornamental roots	Mopane	1.1
Mopane worm forage	Mopane	0.5
Total Economic Value		1,058.2

Source: Modified from Forestry Strategic plan of 1996)

1.3 Consumption trends in forest products and implications on the resource base.

Recent studies on the consumption of wood fuels in Namibia produced a daily per capita estimate of consumption of 0.69 kilograms, and the total annual consumption as of 1996 was estimated as 672,331 metric tons, worth about N\$ 104,099,000 per year. By the year 2020 and at an estimated population of 2.63 million people, the total annual consumption could total 2 million tons per year, considering the current annual population growth rate of 3%. At today's price this will be worth about N\$ 3,000,000 per year. The local **consumption of charcoal** in Namibia is still limited to the middle to upper income groups and in the hospitality industry. In 1996 the local consumption was estimated to be about **3,000 metric tons** and **12,000 metric tons was for export** to Europe and South Africa. At a conversion ratio of 5 to 1, this translates to about **75,000 metric tons of raw wood**, which is way below Namibia's export capacity. Charcoal production is very dependent on European markets, in which product **certification requirements**, could turn out to be a **non-tariff trade barrier**, and has therefore restricted export volumes, which have the potential to double. However,

individual exporters have already engaged certification agencies to assist. In the meantime, an *ad hoc* **Woodland Management Council** has been formed. It comprises of three government agencies, producers, exporters and the National Farmers Union, with the objective to uphold and oversee sound management practices. Current estimates suggest that Namibia's local consumption will increase to 6,000 metric tons per year by 2006. With the possible development of the Kudu Gas Field, the consumption of fuel wood in the urban north may go down as available cheap and environmentally safe natural gas attracts a growing number of affluent Namibians. Currently, the consumption in these towns is high, causing degradation of neighbouring wooded areas. Policies to subsidize long-distance transport of fuel wood from areas of surplus such as Tsumeb and East Oshana to the urban north may be called for, especially with the planned construction of the Tsumeb-Oshikango Railway Line.

Consumption of industrial wood and wood products is met virtually from imports. It increased soon after independence, as shown by the spectacular jumps between 1996 to 1998 years (Annex 1). Though the positive trend will be maintained, it is more likely that consumption will stabilize because of the slow growth in the economy. Table 4 shows that consumption of fibreboard doubled between 1995 and 1996 and is still high but declining. Ply wood volumes doubled from 1995 to 1998, and continues to increase, trends in sawn wood volumes are similar, presumably as a result of the recent construction booms. Newsprint imports have also risen steeply but are now stable. The import bill for wood and wood products is high and Namibia is advised to *source wood and wood products more widely and competitively* from other parts of the SADC Region to reduce costs.

There is local trade in non-timber forest products such as mopane worms, indigenous fruits such as *Berchemia discolor* and *Strychnos* species, herbal medicines, thatch grass and palm fronds for weaving. These products may have significant economic value in localised economies but they unfortunately have not been properly assessed. Marula fruit has economic value for its traditional use to make traditional juice and its nut produces oil for cooking but unlike *B. discolor*, it is normally harvested for domestic use rather than formal trading.

For mopane worms, there is already a local market and in addition, it is rapidly becoming an exotic dish for the curious tourist. However, care must be taken to conserve the remaining pockets of relatively high mopane woodlands, which provide its ideal habitat. It has been reported that mopane worms have virtually disappeared from the now heavily populated regions of Omusati, Oshana and Oshikoto because of habitat loss.

Provided that there is proper quality control and market promotion of the two major indigenous fruits; *B. discolor* and *Strychnos* a potential local market exists since there is a growing urban elite with roots from the communal areas.

1.4 Objectives of the Outlook Paper

The objective of this outlook paper for Namibia is to identify opportunities for positive developments in the forest sector that will represent added value and at the same time, enhance its status by virtue of its ecological or environmental values in a country, which has historically downplayed its importance.

In doing this, the trends in the Namibian economy will be analysed, factors such as technological advances, new markets and the like will be taken into consideration before making any suggestions on the likely scenarios for forestry development in Namibia.

2 The Change Drivers

2.1 Socio-economic changes

Population Trends and Implications on Development

Namibia's population today stands at an estimated 1.7 million people on an area of land measuring 830,000km²; making it one of the most sparsely populated countries in the African Continent. It is notable that Namibia's population, which was 0.74 million people in 1970 grew at an annual rate of 3.1% to 1.03 million in 1981 and then at a slightly increased rate of 3.2% to produce 1.41 million people in 1991. It is expected to reach 2.0 million by the year 2005 and 2.25 million in 2010 and 2.63 million people by 2020. These projections have taken into consideration, the effects of HIV/AIDS and inter-regional migration.

Fertility

The total fertility rate has decreased from 6.1 to 4.7 between 1991 and 1996. The initial high fertility rate was attributed to family reunions and repatriation of Namibian refugees after the war of liberation.

Mortality

Infant mortality had also decreased from 67 to 58 per 1,000 live births between 1991 and 1996. This decline in infant mortality increased the life expectancy for females from 62.8 to 66 years in 1996 but for males it remained the same at 59 years during the same period. This has subsequently been adjusted downwards to 54 and 47 years for male and females respectively as a result of HIV/AIDS from now till 2020.

Migration / Urbanisation

Internally population movements have occurred from rural to urban areas and between regions. In general, the rate of migration into urban areas is about 5 % per year based on 1996 estimates. Males constitute 52% of the migrants and at the same time it is the working ages of between 15 and 59 who migrate to urban areas and between regions. For example the region, which has received the highest inflow of migrants is Erongo Region, which carries the Fishing Coastal Town of Walvis Bay. The Khomas Region in which the capital city of Windhoek is located experienced a net migration of only 1.2%, a figure, which was influenced by out-migration to other regions.

Implications on Agriculture and Natural Resources

Agriculture contributes only 10% of GDP but employs about 70% of rural women. In Namibia, scarcity of water is a major limiting factor to rural agriculture. Therefore the Continuation of unsustainable husbandry will harm land with increasing populations. This also means that it is imperative that improvements in natural resource management are made. In the forest sector, the population will have a bearing on energy supply, tree planting, localized scarcities of wood fuels, consumption patterns in industrial wood, availability of raw materials for the arts and crafts industry and the rate of conversion of forestry land to agriculture.

2.2 Overall economic performance

The planning framework for National Development

Since Independence in 1990, the new government has spelled out development objectives and targets for the country in an official document known as the **National Development Plan Number 1** of Namibia (**NDP1**), which is now undergoing a mid-term review. This plan was meant to solve new development issues as the majority of Namibians who were formerly ignored and served mainly as semi-skilled and unskilled labour had to be brought into the mainstream of economic activities and the public service after independence. The political expectations of the formerly disenfranchised majority and the aspirations of the new leadership no doubt generated the following development goals at Independence:

- Reviving and sustaining economic growth
- Creating employment
- Reducing inequalities in income distribution
- Eradicating poverty

Considering the above challenging goals, the development objectives have been expectedly based on economic, social and political principles to realize them.

The **economic aspects** are aimed at the following objectives and activities:

- To enhance and carry out a top-priority human resources development programme
- Expanding the role of the private sector and foreign investment into the national economy

- To maintain an inflation rate not exceeding her immediate trading partners
- Liberalisation of exchange controls
- Improving the status of food security
- Diversification of import sources and export markets to expand trade with more countries and achieve competitive prices
- Specifically promote productive sectors with potential for growth - fisheries, tourism, agriculture, mining and manufacturing.
- Promote appropriate science and technology

To realize the **social objectives** of development, the government is committed to undertake to:

- Reduce population growth rate, increase life expectancy and increase literacy to 80% by the year 2000.
- Promote sport and culture

On the political front the new government aspires to:

- Reduce regional imbalances in trade and access to natural resources
- Support and encourage increased participation of women, youth and other marginalized groups in the economic development activities in the country

It is also important to note that the government espouses the principle of sustainable development which tacitly reflects an article in Namibia's constitution which recognizes the need to maintain essential ecological processes and using Namibia's natural resources sustainably for its economic development.

The recent and ongoing activities in government such as the promotion of export processing zones, policy for greater fiscal discipline in the civil service, rationalization and downsizing of the public service, promoting efficiency and effectiveness in government, all point to the fact that, the government intends to:

1. Maintain macroeconomic stability by strengthening monetary and public sector finance management and by consolidating fiscal discipline
2. Improve the efficiency of the public sector by accelerating and streamlining reform in the civil service and public enterprises, and improving the delivery of infra structural services
3. Enhance external and domestic competitiveness of the economy through further liberalisation of markets
4. Address the social aspects of development particularly through targeted poverty interventions and increased access of the poor to social services and income generating resources.

2.2.1 Namibia's Economic Performance in the 1999-2000 Years

To depict the performance of Namibia's economy, its primary, secondary and tertiary industries, are analysed quarterly and annually. The primary industries are so far dominated by *mining, fishing and commercial agriculture*. The commercial agriculture sub-sector was for a long time characterized by *beef ranching* and recently by a burgeoning and potentially lucrative *commercial table grape farming*. The secondary industries on the other hand, are made up of the *meat and fish processing, other manufacturing, electricity and water supply and construction*. The tertiary industries are driven by the wholesale and retail trades, tourism, financial, real estate and business services, transport and communication.

Taking 1999 as a base year and for which a full description on Namibia's economic performance is available, one can begin to appreciate the country's challenges in economic development and its possible areas of significant growth in the next five-year economic development phase after NDPI.

In 1999, Namibia's economy improved on the previous two years and growth was estimated as 3%, which was better than the 2.4% and 2.6% figures for 1997 and 1998 respectively. Lower interest rates were associated with improvement of economic conditions. Despite favourable interest rates, consumer inflation remained at 8%. In addition to or in line with the low interest rates, the economy improved through the strong growth in value added in construction, tourism, agriculture and mining sectors, as well as increased government consumption

expenditure. An interesting observation is that domestic demand is gradually increasing its importance alongside export growth in the growth of GDP and that it is predictably responsive to changes in interest rates.

Among the noteworthy changes, the construction industry registered an increase of 17.7 % over 1998 and tourist arrivals showed a 9% increase as well. Government consumption increased through personnel expenditure by 7% in 1999 compared to 3.9% in 1998. The agricultural sector improved by 5% over 1998 as a result of a 22% growth in the ostrich products industry and also the commercial table grape sub-sectors.

Indicators of Namibia's Economic Performance 1999

The indicators are based on analyses of various sectors between 1992 and 1999. It includes important elements such as exchange-rate fluctuations, growth in GDP, monetary and financial indicator, the external and public sectors. Table 2 (Source Bank of Namibia, 1999) contains all the available information. Some key indicators include a steady increase in population growth, 50% decrease in the value of the Namibian against the US dollar between 1992 and 1999, a worsening trade balance, an improving current account balance and increasing public debt as % of GDP.

2.2.2 Projected Economic Development in the second phase of economic planning (NDP2)

Namibia is currently preparing its second 5-year National Development Plan (NDP2). This plan will run from 2001 to 2005. A macro-economic forecasting done under the auspices of the National Planning Commission has projected three case scenarios. The first two assume minimum, maximum levels of economic growth respectively. The third scenario, which is dubbed the "most probable" one, is the one, which has provided the macroeconomic framework for economic development between 2001 and 2006. Each of these scenarios, are based on certain assumptions regarding the expected growth of the economy of Namibia during the life of NDP2. For purposes of this outlook study we have adopted the most probable scenario.

Table 2. Economic Indicators for Namibia

	1992	1993	1994	1995	1996	1997	1998	1999
Economic Indicators								
Population (millions)	1.4	1.49	1.54	1.59	1.64	1.69	1.75	1.80
Nam\$ per US \$	2.8	3.26	3.55	3.63	4.27	4.60	5.49	6.11
Gini coefficient						0.7	0.7	0.7
Real Sector								
GDP (N\$ mill) (current prices)	8050	8587	10576	11694	13421	14901	16826	18737
% Change		6.7	23.2	10.6	14.8	11.0	12.9	11.4
GDP (N\$ mill) (constant prices)	7017	6897	7335	7607	7770	7975	8165	8410
% Change		-1.7	6.4	3.7	2.1	2.6	2.4	3.0
GDP (N\$ mill) (constant prices)	4830	4601	4774	4772	4729	4702	4666	4680
% Change		-4.7	3.1	0.6	-0.9	-0.6	-0.8	0.3
Inflation	17.7	8.5	10.8	10.0	8.0	8.8	6.2	8.6
Monetary & Financial Indicators								
Broad Money (M2) Annual Growth Rate	28.5	21.5	29.7	23.4	24.3	7.6	10.7	20.4
Narrow Money (M1) Annual Growth Rate	28.5	53.7	17.9	5.5	64.0	1.1	30.1	24.1
Domestic Credit (N\$ Millions)	3477.0	4357.3	5398.1	6713.5	8431.9	9257.7	10537.8	12356.0
Private Sector Credit (N\$ Millions)	3082.9	3854.2	4916.9	6262.3	7016.2	7956.1	8752.8	9233.7
% Change	30.2	25.0	27.6	27.4	12.0	13.4	10.0	5.5
Prime Rate	18.9	16.5	15.8	18.3	19.8	20.5	21.8	19.43
Bank Rate	17.9	15.4	14.8	16.9	17.5	17.3	18.5	14.08
Treasury Bill Rate	13.9	12.2	11.3	13.9	15.2	15.7	17.3	13.3
Call Account Rate	-	-	-	-	14.1	14.5	15.7	12.7
Average Deposit Rate	11.4	9.6	9.2	10.8	12.6	12.7	13.0	10.82
External Sector								
Trade Balance	-221.9	-136.8	-304.7	-470.5	-390.3	-1285.2	-1579.8	-1090.6
Current Account Balance	142.9	359.8	305.3	724.3	718.9	393.7	446.6	940.2
Overall BoP Balance	-18.7	298.4	266.3	87.3	98.5	312.3	309.4	348.7
Net Foreign Assets	-99.0	-132.3	-208.0	-335.6	943.6	876.9	1332.3	2262.1
Gross Official Foreign Reserves	142.4	455.6	719.6	809.3	907.7	1219.0	1527.2	1877.0
Import Cover in Weeks	1.6	4.3	6.0	5.5	5.2	6.3	7.3	8.3
Public Sector								
Govt Budget Surplus/Deficit (% of GDP)		-2.4	-1.8	-3.9	-6.4	-2.8	-4.8	-4.5
Domestic Borrowing (Millions)	757.4	1285.5	1551.5	2059.4	2755.4	2514.9	3365.5	4112.3
External Borrowing (Millions)	465.6	490.0	475.0	496.6	487.8	353.8	545.3	729.0
As % of Exports	12.4	11.6	10.1	9.7	8.1	5.7	8.2	9.6
Total Public Debt	1223.0	1775.5	2026.5	2556.5	3243.2	2868.7	3910.8	4841.3
As % of GDP	14.3	13.7	18.6	21.1	23.7	19.0	24.0	27.0

Source Bank of Namibia 1999

Macroeconomic Framework for NDP2 central -The most probable scenario-

This scenario has been designed so that the probability of real-world outcome being better than that of the forecast is as equal as possible to the chance of the outcome being worse. In this scenario, world commodity prices and demand recover to a more limited extent, than in the high growth scenario. New mining projects go ahead but full output is realised later than planned or output does not reach the planned mine capacity during the NDP 2 period. Agriculture and Fishing recover but further expansion is somewhat limited by market considerations. Tourism growth continues as in the high scenario. Government final expenditure on goods and services expands at approximately the same rate as the population. Thus government current final expenditure per person at the end of the NDP 2 period is assumed to be approximately the same as the start.

- These results show how susceptible Namibia's economy is to changes in the external economic and physical climate. While policies on government current expenditure and investment do differ in each of the three scenarios, they essentially respond to the opportunities offered and the constraints imposed on them by the world economy.
- The results also show that higher growth that starts from a mining impetus does continue but that Namibia's economy has not yet attained a fully self-sustaining growth. Hence, the successful implementation of NDP 2 is essential to maintain the movement towards self-sustaining growth that is shown in the Middle and High Scenarios. In the Low scenarios, investment funds are limited, both from government and the private sector, as are investment opportunities. In this scenario, the investment elements of NDP 2 become less important than current budget management.
- The projects for NDP 2 are based on the cautious central scenario (most probable), which projects that:
 - GDP growth at an average rate of 5% per year 1999- 2006
 - Mining output growing at an average rate of 6% 1999 - 2006
 - Private non-mining output growing at an average rate of 5.2% over 1999-2006.
 - Government final consumption of goods and services continuing to grow at a restrained rate of 2.2% annually over 1999-2006.
 - Average employment increase of 2.2% a year over the period 1999-2006, at the same rate population growth.
 - Budget deficit declining to between 3% and 3.2% of GDP. Debt growing to 24% of GDP. Both figures remaining stable in the last years of NDP 2
 - Total investment, private and public, growing by an average 5% per year over 1999 - 2006.
 - Balance of Trade deficit deteriorating to 14% of GDP by 2006. The Balance of Payments current account to become negative, at 12% of GDP by 2006.

Overall rate of growth

The average growth in GDP will be 5.3% between 1999 and 2006.

The highest growth is likely to be registered 2001 to 2004 during which annual growth will average 6%.

Major driving sectors:

- Mining will grow by an average of 8.2% during the same period
- Tourism related growth is also estimated at 6% per year between 1999 and 2006
- Meat and Fish processing will also increase annually by 6.4 and 6.7 % respectively
- Commercial agriculture will also show strong growth of about 7% between 2001 and 2004 (expansion of the grape industry)
- The construction industry is also expected to grow annually by 5%

2.3 Anticipated changes in the role of the different sectors

Impact on the liberalization policies e.g. competition with EU in RSA's meat market

The economy is made up of different sectors, each with its own potential to contribute to the objectives of growth with equity.

- Some sectors, such as Mining; other Manufacturing, Finance, Real Estate and Business Services and Transport and Communication have the potential to create considerable value added. Some sectors, such as Agriculture, Wholesale and Retail Trade, Manufacturing as a whole, Transport and Communication and to a lesser extent, Hotels and Restaurants, Finance, Real Estate and Business Services and Fishing have the potential to create more employment. At the same time, some services sectors, such as

Finance, Real Estate and Business Services and the Posts and the Telecommunications part of Transport and Communication have the potential to develop human capital. Other sectors, Tourism (represented by Hotels and Restaurants) being one example, have the potential to achieve a combination of these objectives.

- Mining has traditionally been the foundation of the Namibian economy. During NDP 1, due to low world prices for commodities and the time needed to identify and exploit newly discovered deposits, the mining sector grew more slowly than the economy as a whole, at an average of 2.5% a year. The non-diamond part of the industry actually shrunk by an annual average of 2.0%. It is expected that both of these trends will be reversed during the NDP 2 period, so that diamond mining will grow about 1% a year faster on average than it did during NDP 1, while non-diamond mining will expand rapidly during much of the NDP 2 period at an overall average pace of 8.2%. These projections are subject to world demand conditions and thus also to changes in world prices. How far these projections are realised and how effectively the resulting wealth is used to achieve the aims of NDP 2 will to a large extent determine the future of the Namibian economy during and beyond the NDP 2 period.
- Gains in mining productivity mean that, despite the growth in output, no employment will shrink. However, the data is scanty on mining employment other than for members of the Chamber of Mines. Therefore, the mining employment forecast is somewhat uncertain.
- Elsewhere in the primary sector, Agriculture is expected to recover from the recent declines, which have natural causes. Commercial agriculture in particular is then expected to expand, partly due to short-term recovery from drought, partly due to the commercialisation of existing subsistence farming and partly due to the exploitation of new opportunities, such as grape growing for export. Fishing is expected to continue its long-term rate of expansion, though this is expected to halt at some point when the natural limits of exploitation are attained. Growth in both agriculture as a whole and in fishing is expected to be slightly faster than in the economy as a whole. The potential exists for increased employment in the non-mining primary sector, especially in agriculture.
- All industries within the secondary sector are expected to grow slightly faster than growth in the economy as a whole. Within this group, meat and fish processing are forecast to grow a little more rapidly than the other sectors. In terms of employment, manufacturing as a whole is forecast to make significant contribution, with a smaller increase in employment expected from the Electricity and Water industry.
- The tertiary or services sector is definitely a new growth area of the Namibian economy. Average growth is projected at 4% a year. This is somewhat slower than the economy as a whole. However, this growth rate is slightly faster than the 3.5% that the sector experienced during NDP 1. It is often not subject to the same risks as in natural resources; and is employment generating. Three trends explain this. The development of Finance, real estate and business services is a natural adjunct to the mining industry and has been supported by government policy. The development of Walvis Bay port and new road infrastructure, notably the Trans Kalahari highway. Will make a major difference to the Transport and Communication industry. Thirdly, the rapid application of new telecommunications technology is making the Namibian economy more efficient and bringing Namibians closer together. In addition, the central forecast is for continued growth in the tourism industry (Hotels and Restaurants) at a rate slightly faster than the economy as a whole. A large increase is forecast for employment in the wholesale and

retail Trade, with fairly large increases also forecast for the Transport and Communications Industry and the Finance, Real Estate and Business Services industries. Employment in these sectors is driven by sector growth rates plus, in the case of wholesale and retail, low expected productivity growth.

2.4 Policy and institutional changes

The current forest policy which was adopted in 1992 has the standard features expected of a forest policy in that it provides the basis for legislation to confer authority to government to control and regulate harvesting and the movement of forest products. It also espouses sustainable management principles by declaring the commitment of the Government to conserve its representative forest ecosystems, increase tree cover and even declare new forest reserves. Furthermore it calls for the provision of information regarding the national forest resource through inventories, maintenance of a national database, extension, research and education. All these should be done within the context of contributing to the national welfare.

The policy document though it contains all the mundane issues in modern day forest practice has been criticized for being too encompassing and gives an inordinate amount of responsibility to the Central Government in the management, protection and promotion of forestry. In it, are no clear mechanisms for public participation in the face of today=s vocal and assertive rural populace who want to take control of the natural resources occurring in their midst. Hence, the new Forestry Strategic Plan of 1996 suggests the means necessary to promote its implementation and in fact calls for the review of the 1992 National Forest Policy itself. The policy, which also should be viewed as policy incentives, include; public ownership and operation, public regulation of the use of private forests, public stimulation, guidance and assistance to private forest management and promotion of the private implementation of forest policies. The current Directorate of Forestry has been called upon to seriously adopt some of these incentives.

One should note that policies in other sectors and especially local and regional government, lands and agriculture can contribute positively to forest management. A recent development in local government is the policy of decentralisation which is meant to give more responsibility to the regions to plan and implement and monitor development projects, in addition to becoming more responsible in the management of their natural resources. Much as this policy will depend on qualified planners and government section heads in local regions of which Namibia is still seriously short, the policy is definitely a worthwhile one which must be implemented systematically and be seen as a strategic choice for the empowerment of hitherto ignored communal areas.

The current Forest Act of 1968 which is being reviewed can only be considered as a major improvement since the current Draft Forest Bill of 1997 recognizes the rights of communities to identify forest resources they can claim to be theirs and legally declare them community forest reserves or forest management areas. In addition there is provision for local leaders being appointed and recognized as honorary forest offices. These are designed to attract public interest and to confer rights linked to their responsibilities to manage forest resources for their direct and indirect benefits. It is hoped that the bill will be accepted by parliament this year and drafted as the new forest act. The present and future revised forest legislations are complemented by the Nature Conservation Ordinance of 1975, as far as the conservation of nature are and hence biodiversity, are concerned. The act is administered by the Directorate of Resource Management in the same ministry as forestry and can be used to control the illegal harvesting of protected plants which includes Namibia's key indigenous timber and fruit or nut producing tree species. The activities of Resource Management inasmuch as they protect wildlife habitats within National Parks, are also important in maintaining forest or woodland ecosystems. The new policy on wildlife conservancies and the amendment of the Nature Conservation Ordinance in 1996 to allow utilization of game for tourism and consumption on communally owned land will also confer protection of tree species which form an important component of wildlife habitats.

The traditional authorities bill may also clarify the role of traditional leaders and help minimize land use conflicts revolving around land allocation and tenurial arrangements which are often negative to, or prejudicial to forestry development. Along with this, is the proposed communal land bill, which will confer individual and group or communal tenure as a policy incentive to promote investment in the rural areas.

2.5 Developments in the agricultural sector

Overview of the Agricultural Sector

The forest sector is usually adversely affected by agriculture in most countries mainly due to competition with agriculture not only for land and resources but also for political support. In this regard, Namibia even though it has no industrial plantations, is no exception.

Consequently a forestry outlook study will be interested in the following:

- Rate of conversion of forestlands to non-forest and often, agricultural purposes
- Patterns of new settlements and the existence of settlement policies
- The nature of agriculture; whether low input extensive or high input intensive
- The predominant type of agricultural activities, which are cultivation and livestock
- Increased dependence on marginal lands among the currently landless
- The development of new crops and or new or expanded markets
- The availability of roads, railways and means of transportation

Namibia's agriculture depends on large-scale commercial livestock ranching for a traditional export market. Livestock husbandry is also widespread in the mainly subsistence economy of northern Namibia in which 70% of the total population is found. This zone of subsistence agriculture constitutes just about 43% of the total land, whereas the 6,500 commercial farms occupy 44% of the total land, with an average size of 5,800 hectares each.

As expected, the resultant higher population densities in the north put pressure on this arid to semi-arid environment. In addition, the northern part is not a disease-free zone and therefore does not have the same access to export markets that the commercial zone enjoys in Europe. To supplement incomes and meet their subsistence needs, rain fed crops are grown on small holdings. However, the scale of cropping is quite limited, hence Namibia still remains a net importer of grains to feed her rural and urban populations.

Agriculture in the context of the National Economy

Between 1996 and 1999, agriculture has contributed an average of 8.7 % of the GDP. This figure which represents an average decrease of about 2 % during NDP1 was caused by a decline in the production from livestock ranches and a shift to non-traditional activities such as game farming linked to "trophy hunting" tourism. On the contrary the historically ignored northern communal region with its small-holder agriculture, has realized increasing animal production at a rate of about 7.1% per annum.

As the meat export figures show (Tables 3 and 4) the commercial agricultural zone and sub-sector traditionally dominates the export markets in both large and small stock. Strict disease control through exemplary disease management and exclusion programmes, have supported this trend, in addition to generous subsidies and supportive credit programmes in the recent past. A strong transport and communication network has also been a major factor.

A lot therefore needs to be done in the communal areas to improve livestock health, access to credit, markets and a more effective extension programme. Producer co-operatives to enhance collective bargaining powers are also needed. Despite the higher livestock numbers in the communal areas than in the commercial and despite cropping under unreliable rain fed agriculture, the region still relies on remittances from migrant labour and direct employment for much needed cash incomes, as livestock and crop sales remain insufficient.

Cropping is still limited and restricted by the low and erratic rains (300-700 mm per annum) and high potential evapotranspiration rates. This favours mostly drought hardy pearl millet and Maize, which does well in the Maize Triangle area in the north-central and north-eastern Namibia. Today, Namibia exports table grapes and cotton grown under irrigation in the southern parts.

During the next 6 years falling under the forestry outlook period, Namibia has recognized that it has to make certain policy changes and introduce new programmes.

There will be increased investment in the rural areas to contribute to economic growth at a rate higher than that of population increase.

1. Deliberate steps will be taken to continue to correct the historical imbalances which created a dual economy; one commercial and well resourced and another, poor and largely ignored.
2. There will be a re-orientation of research, extension and training and improvement in the availability of credit facilities. It has been realized the potential for growth gains in Agricultural Production is greatest in the northern communal areas.

3. The Ministry of agriculture will deliberately include Non-Governmental Organizations, the private sector and parastatal bodies in the sector.

Example of recent developments are given herein.

Livestock Development

1. The Ministry of Agriculture plans to establish medium size quarantine camps closer to producers
2. There will be an improvement of delivery of veterinary drugs by a series of cold storage facilities (“cold chains”)
3. There is already an increase in the processing of dairy products such as yoghurt and cheese and long-life Ultra Heat Treated Milk (UHT).
4. There are efforts to maintain existing markets and find new ones.
5. The current maintenance of strong quarantine practices between Namibia and Botswana has helped maintain Namibia’s export quota to the European Union.

Crop Production

During NDP2 research will be intensified to increase yields on cereals and grain legumes.

Examples are as follows:

- Today three varieties of pearl millet have been developed and have enjoyed an average adoption rate of 49%.
- The growing of legumes such as, cowpeas, bambara nuts and groundnuts (peanuts) are being promoted.
- Alternative food crops, such as *sweet potato*, is being promoted alongside cash crops such as *cotton* and a native medicinal plant, the *devil’s claw*.
- Cotton promises to be a promising cash crop that has the potential under rain fed or irrigated conditions. Local production increased from 400 tons in 1992-1993 to 4,400 tons in 1998-1999, mostly from large scale irrigated schemes in the Hardap Region of Southern Namibia. It is estimated that area of production could increase by 2,000-3,000 hectares per year with a potential of 18,000ha in the communal areas. This in addition to irrigated fields could meet an annual production rate of 15,000 tons needed to establish and maintain a local ginnery.
- *Grape* production has increased in value from 21 millions NAM\$ in 1994 to NAM\$ 43 millions in 1998. Lucerne and groundnut production are also increasing.

Table 3. Livestock number on communal land and commercial farms

Cattle	1990	1995	1996	1997	1998	1999
<i>Communal</i>	1,000,780	1,169,209	1,280,237	1,288,247	1,427,476	1,460,815
<i>Commercial</i>	1,085,771	862,144	709,710	767,169	764,883	817,754
Sheep						
<i>Communal</i>	395,757	289,525	304,470	296,751	708,170	267,146
<i>Commercial</i>	2,932,559	2,120,174	1,893,987	2,132,598	1,391,197	1,893,489
Goats						
<i>Communal</i>	1,239,812	1,095,484	1,323,691	1,331,428	1,371,270	1,254,008
<i>Commercial</i>	619,930	520,606	426,549	489,401	338,920	435,761

Source Ministry of Agriculture 2000

Table 4. Marketing trends for cattle and small stock

Cattle	1990	1995	1996	1997	1998	1999	1999 %	1989-1999 (average)
<i>Export abattoirs</i>	136,261	156,381	170,707	88,879	126,824	159,522	45.3	146,595
<i>NCA's</i>	5,052	29,690	19,724	13,522	18,488	19,410	5.7	15,328
<i>Butchers</i>	37,565	29,645	28,405	31,713	26,620	20,021	5.7	33,149
<i>RSA exports</i>	144,582	198,773	279,127	92,661	148,739	152,416	43.3	167,455
Total cattle	323,460	414,489	497,963	226,775	320,671	351,369	100	362,528
Small Stock								
<i>Meatco</i>	102,070		2,198	-	2,552	236,919	19.6	87,051
<i>Butchers</i>	132,676		128,522	87,714	105,213	61,060	5.1	114,799
<i>RSA exports</i>	853,553		928,714	865,951	1,086,320	908,153	75.3	916,894
Total	1,088,299	1,183,398	1,059,434	953,665	1,194,085	1,206,132	100	11,187,743

Source Ministry of Agriculture 2000

Table 5. Beef exports to EU (UK, Germany, Netherlands, Belgium, France, Denmark, Norway)

	1991	1995	1996	1997	1998
Namibia quota	10,500	13,000	13,000	13,000	13,000
Total exports	8,837	12,032	9,384	10,340	11,087
<i>Percentage of Quota</i>	84.2	92.6	84.2	84.2	84.2

Source Ministry of Agriculture 2000

Land Tenure

As stated earlier on, Namibia has an extremely skewed land ownership situation. About 45% of Namibia namely the Central Plateau Region, is occupied by about 6,500 freehold commercial farming units that average about 5,800 hectares per holding. The majority of Namibians are confined to the North on communally owned land, which constitutes about 25% of the land area and has to be shared among 60-70% of the entire population of 1.7 million people. Unsurprisingly, land redistribution is a big political issue with strong racial dimension since the minority white population control the 45% mentioned herein. It is therefore important that agricultural development in the northern communal lands should be made more profitable and some form of redistribution should be promoted in a manner that minimizes the economic and political costs of at the national and international levels. The principle of willing seller – willing buyer still holds in Namibia and property rights are upheld.

In terms of investment in agriculture, the communal areas were virtually ignored and very little irrigation takes place along the northern rivers even if this is what one would expect in an arid country. Furthermore negligible work has been done to promote arid land agriculture in general. In view of the current land bill, which promotes communal title deeds for joint investment projects, agricultural credits could use communal deeds as security to enable much needed investment in for example, horticultural and commercial livestock production in northern Namibia.

2.6 Industrial development

In Namibia, industrial development is likely to be more positive than negative to the forest sector. This is because it is likely to create alternative employment opportunities that will relieve pressure now exerted on forestlands by subsistence agriculture. Even if, industrial development converts forestlands the current exercise to declare a permanent forest estate will tend to make it difficult for future conversions and only allow those that are clearly in the national interest and after a period of debate. It is also likely that the remaining forestlands will be better managed in a future decentralized forest administration once forest areas have been legally declared and protected by a recognized law. Given the current rate of unemployment and the absence of industrial plantations, it is unlikely that industrialization will seriously affect labour for the relatively small forest sector.

2.7 Development of services and other sectors

In the current report on Namibia's macroeconomic framework for National Development Plan II (NDP2), growth in tourism, which is the premier service sector, is projected to grow by at least 5% per annum, which will be above that projected for the annual growth in GDP.

Today, Namibia has recognized that significant growth outside the mining sector lies in tourism and other services industry. Growth in this sector is likely to have the following effects on the forest sector:

- An increased demand for wooden arts and crafts to supply tourists and locals
- Improvement of policies that are friendly to sustainable management of natural resources and conservation of key ecosystems and threatened and/or economically important plant and animal species.
- A greater sensitivity on the part of Namibians to maintain an attractive physical environment
- Greater employment opportunities leading to poverty reduction and greater consideration of environmental values.
- Improved services in tourism and finance is likely to attract associated investments through improved capital in-flows; all of which will tend to favour the sustainable use of Natural Resources.

2.8 Changes in energy use and their implications on forestry

In the energy sector, 3 major issues could come to the fore in Namibia. These are:

1. Changes in the demand for biomass and mainly wood fuels
2. Discovery and exploitation of natural gas
3. Development of further hydro-electric power

Today, Namibia consumes about 1.2 million tons of fuel wood per year, most of which occurs in the rural areas and by a majority of Namibians in the urban areas of northern Namibia. As the GDP improves and more people join the cash economy and considering the availability of alternative sources of energy, a shift from the use of raw wood is likely. This is likely to happen because:

The largest field of natural gas in Southern Africa was recently discovered in Southern Namibia and its exploitation is likely to be realized within the next decade.

Namibia is planning a second hydroelectric power project on the Kunene River in the Northwest, to provide cheap power, especially to the highly populated north. The availability of cheaper power is likely to spur industrialization in Namibia's most populated region and is likely to reduce dependence on biomass energy as the average rate of affluence go up.

The current feasibility studies on wind energy on the windy area along the coast in Southern Namibia is also likely to materialize during the next 10 to 12 years. More power generated will feed into the national grid and provide power for more people.

2.9 Development in infrastructure and communications

Namibia in comparison to many countries in Africa is served by a well-maintained network of all weather roads and also highly functional fixed and cell phone network systems. Virtually no area with forest resources and areas of economic activities are well served with roads and communication facilities. It is therefore unlikely that Namibia will see major changes other than in external trade.

In this regard the planned railway link to Southern Angola is likely to supply more forest products to Namibia from forest-rich Angola and eventually also from the Democratic Republic of Congo. Increased sea traffic using Namibia's main port of Walvis Bay will also be a major boon to the envisaged veneer plant the export-processing zone.

Another possibility is that better communication if used properly could open more access for Namibia's art and crafts in external markets. In this non-timber forest products with unique values such as indigenous fruits and medicinal plants could benefit.

2.10 Trade liberalization

In discussing trade liberalization in the African Context one should not lose sight of Structural Adjustment Programmes (SAPS) often imposed by international lending institutions since market liberalization is one of the exponents of SAPS.

In general liberalization of Namibia's economy, which is already ongoing, is expected to have the following positive effects:

- Lead to the elimination of trade barriers within a trading block of countries
- Enable the free movement of capital into and outside Namibia
- Benefit consumers who will be presented with a variety of goods
- Eliminate or reduce import controls and encourages exports

In a forestry context and in the absence of industrial plantation forestry in Namibia, trade liberalization could have the following impacts:

- Enable Namibians to freely import its forest products from a variety of SADC member countries and hopefully at competitive prices.
- Should enable Namibia to set up value-added industries based on imported wood from SADC for purposes of local market and re-export. The planned veneer plant at Walvis Bay is a case in point.
- The free flow of capital into Namibia should facilitate investment in wood processing plants.
- Since liberalization tends to militate against import-substitution industries and protectionist economic policies, it could affect forestry indirectly in that locals will need cash to buy imported goods and under conditions of high unemployment as is currently the case, rural populations are likely to revert to the exploitation of forest resources and the conversion of more forest land for subsistence and often unsustainable agriculture.

2.11 Technological changes

The technological changes that may favour the forest sector are likely to be:

- Technologies that will allow the manufacture or processing of environmentally friendly wood and non-wood products using abundant resources such as encroaching bush in Central Namibia and other lesser known species. There are indications that certain particle and wafer boards could be made from such species and could be covered with valuable veneer for the construction and joinery industry.
- Better or improved technology to manufacture and finish wooden products is a major possibility and the Government is already encouraging this in community-based forestry development projects.
- Drought resistant crop varieties may lower the rate of widespread conversion of forestlands to agriculture

- Selection and genetic improvement of indigenous fruits and nuts is likely to create local and export markets.

2.12 Trends in Investment in the Forest Sector

Faced with growing unemployment and a relatively small economy on a narrow industrial base, Namibia is beginning to explore ways of creating employment by investing in natural resource –based industries among others. This is supported by the fact that it enjoys per capita incomes making it the envy of many of Southern African Countries. One complaint in the insurance industry is that over 50% of premium payments have to be invested outside Namibia since its economy cannot absorb it all in investments. It means that there is room for investment to create wealth and provide employment and in this regard, the forest sector could offer a number of profitable investment potentials to help mitigate the problem of capital outflows.

Reconstituted wood products using the abundant encroaching bush is just awaiting improvement in technology to make it a worthwhile industry to make boards, exportable insulation panels. It has a huge potential for growth and employment creation.

It has also been shown that trees species such as *Burkea africana*, which are currently not commercially exploited, can be used to produce high quality wood for “parquet flooring”. Namibia has substantial quantities of the species to make it a viable small-scale industrial targeting the local market.

The charcoal industry has the potential to double its output and could gain from recent technologies in making briquettes and the manufacture of industrial carbon

As stated earlier, Namibia’s proximity to less industrialized but forest-rich neighbours such as Angola and the Democratic Republic of Congo makes it possible for Namibia to create value-added wood-based industries, such as the planned veneer plant at Walvis Bay.

There is also a new realization that cottage industries such as processing of oil from tree nuts and the improvement of art and crafts can be viable economic activities that Namibia should pursue. Hence novel products from nuts and traditional arts and crafts are likely to attract investments in the future.

2.13 International Policies and Conventions

With regard to International Environmental Treaties, it is noteworthy that Namibia, which joined the United Nations as an independent state only in 1990, is already a signatory to, and has ratified most major environmental treaties or conventions. In 1992, Namibia acceded to the two Conventions on Climate Change and Biodiversity at the Rio Earth Summit. Another key treaty or convention is the one concerned with the Control of the Trade in Endangered Species (CITES) which Namibia joined in 1991. This convention was recently the cause of much anxiety and debate in the last June 1997 CITES Conference in Harare Zimbabwe, over the proposed sale of ivory stocks by Namibia, Botswana and Zimbabwe. Namibia has also acceded to the Convention for the Protection of the Ozone Layer in 1993, the Wetlands Convention in 1995 and most recently, Namibia ratified the Desertification Convention in 1997. The activities on Combating Desertification are essentially multi sectoral even though there is a National Committee to Combat Desertification co-ordinated from the Directorate of Environmental Affairs, which is a sister Directorate to Forestry in the same ministry. The Basel Convention on the trans-boundary movement and disposal of toxic wastes, is yet another treaty which Namibia is considering acceding to. Coming to global forestry policies, Namibia is already on its way to developing national Criteria and Indicators for Sustainable Forest Management, to help it to periodically assess the performance of the sector and it also provides the basis for developing National Programmes to enable the systematic implementation of IFF/IPF proposals for action.

3 The Forest Sector in 2020

3.1 State of forests and plantations

Area under forests, forest cover, growing stock

According to a vegetation mapping exercise done between 1993-1996 by the Directorate of Forestry, in cooperation with the Swedish Government, some information on area of forest cover is now available. The summary results of estimated area of land cover types and user are shown in Table 6.

Table 6: Area of land cover types in hectares (covering the wooded northern half of Namibia)

Land cover type	Area in Hectares	% of Land area
Extensive/subsistence cultivation (mainly in forest and savannah areas)	1,823,936	6.42
Intensive cultivation (Permanent agriculture)	89,694	0.32
Forest (Woodlands) (areas with trees > 5 m height)	7,357,876	25.88
Savannah (areas with trees < 5 m height)	15,465,511	54.40
Other (areas without woody vegetation: open water, omurambas, grasslands, pans etc.)	3,693,110	12.99
Total	28,430,127	100.00

Erkkilä and Löfman (1999) carried out a study in Ohangwena Region, Northern Namibia to determine forest cover change using satellite images and aerial photography. The results showed that there was a clear decrease in forest area between 1981 and 1992, the annual change being 0.5%. This rate gives an indication of annual deforestation in the Ohangwena Region but specifically in the Tree Savanna and Woodland vegetation type. From the above table, the total area of Forest and Savannah is 22,823,387 Ha. If one applies the deforestation rate 0.5% per year to represent the whole of Northern Namibia (albeit an oversimplification) this would imply a loss of about 100,000 ha annually (between 1981-1992) in northern Namibia, from a total land area of 28,430,127 hectares.

State of natural forests (including areas under SFM, level of application of C and I for SFM, contribution of natural forests to wood production.)

Today, the majority of the natural woodlands, which occupy about 20% of the total land area, are neither protected by law as forest ecosystems, nor under sustainable management. Over the last 5 years starting from 1995 efforts have been made to declare areas of community forest reserves, which will be managed in collaboration with community groups who will manage and utilize them in a controlled manner. A number of reserves have been identified as tabulated here:

- Uukwaludhi –Uukolonkadhi Community Forest Reserve – 100,000 ha
- Okongo Community Forest Reserve – 87,000 ha
- Rehoboth Acacia Forest – 12,000 ha
- West Tsumkwe Community Forest Reserve –75,000 ha
- Bukalo Community Forest Reserve -12,000 ha
- Ohepi Community Forest Reserve – 60,000
- Hamoye Forest Reserve – 10,000 ha
- Kunene (Opuwo) Community Forest Reserve –5,000 ha

The main idea behind the declaration of community forest reserves is, to enable the positive and environmentally responsible interactions between communities and the woodland and forest ecosystems by allowing them rights over forest resources, provided that they maintain them as forest or woodland ecosystems. This way we will realize both practical and physical benefits from forest products as well as the environmental ones, which require the existence of forest or woodland ecosystems.

By 2020, the combined area of community forest reserves will be about 100,000 hectares of which an estimated 400,000 hectares will be under some form of sustainable management, including fire management.

Namibia is also in the process of developing and testing *Criteria and Indicators of Sustainable Forest Management* (C and I). By 2005, it would have tested its C and I on a national scale. It is planned, that the testing of C and I will be done every 5 years. Hence by the year 2020, Namibia would have done two major tests of its C and I and made it a routine way of assessing the importance and performance of the forest sector. It is believed that the C and I process will be a useful tool to convince the public and policy makers on the vital contribution of the forest sector to the overall national economy since it will be based on an internationally recognized system for assessment.

State of plantation forestry

Despite Namibia's aridity, there is increasing political support for afforestation. It is therefore likely that plantation forestry will receive financial support. To date, Namibia has less than 1,000 hectares of plantations.

By the year 2020, Namibia should have no more than 10,000 hectares of plantations and woodlots, providing *construction poles* and *fencing materials* and some *indigenous fruits*.

The yield that can be expected from pole plantations, based on recent inventories of eucalyptus plantations in the Kavango Region, is between *80 to 120 cubic meters* per hectare on a 25-year rotation. Higher yields can be expected from the first coppice crops.

Should the value of marula oil increase as expected, it is conceivable that a total of 2,000 to 3,000 hectares Marula Plantations would have been planted by 2020 in the form of farm woodlots, especially in the Oshana and Ohangwena regions of Northern Namibia.

State of trees outside forests – area and their role in production of wood and non-wood products

In Namibia the systems of trees outside are mainly trees left standing *in converted forest lands, homestead plantings, hedges and live fences, ornamentals* and naturally regenerated trees in farm landscapes and various forms of *scattered tree savannahs* and the *lone formations* seen in desert landscapes. Of these systems, the most intensively used one is the one in *heavily cultivated areas* where the trees left standing are often of economic use. This system often takes advantage of any natural regeneration of favoured species which can occur from existing soil seed banks and dispersal from residual stands or individual trees, and also because they will tend to be protected from fire and once a useful species comes up, it will often be protected. In the northern parts of Namibia, marula (*S. birrea*) and *Berchemia* (inappropriately named "bird plum"), manketi (*S. rautannennii*), *Acacia erioloba* and makalani palms (*H. petersiana*) left standing among agricultural crops either provide microclimates in the arid environment suitable for cropping, improve soil fertility, or provides fruits and nuts, in what are excellent examples of indigenous agro-forestry systems.

Homestead plantings are mostly of shade and fruit trees, which have high value to warrant their intensive care especially in the years of establishment when scarce water has to be spared for their tending. *Farm woodlots* of which there are not many is another system that the Directorate of Forestry is promoting among individual farmers and community groups.

Hedgerow inter-cropping as known in contemporary agro-forestry terminology, *is not practiced in Namibia*. It has to demonstrate its economic worth before it can be adopted. There is however a possibility of such cropping if a *riverine semi-irrigated agro-forestry* system, which has been proposed by forestry, is taken up and tested in the northern riverine agricultural communities, especially along the Zambezi and Okavango Rivers.

Live fencing exists traditionally but is not as widespread as wooden pickets, palisades and thorn bush types of fences to protect crop fields. However the forestry is vigorously promoting them. Makalani palms (*Hypheana spp*) also tend to regenerate singly or in *groves of trees* on pastures and also as isolated pockets of natural vegetation within farmland.

The *proportion of these trees* outside forests in relation to the whole population of trees in forested areas is not known but it is definitely smaller than trees in areas classified as woodlands, and the wooded savannahs referred earlier. However, their contribution to rural livelihood is appreciated and could be increased. Besides naturally scattered trees, trees outside forests in a semi arid country such as Namibia owe their existence to conversion of forest to cultivated land. The trees left standing often have value such as that of indigenous fruits used as food supplements in dry environments, shade and fodder trees. The recent deliberate attempts by governments,

NGO's and the private sector to promote, and commercialise small scale industries based on domesticated and wild indigenous fruits, are likely to promote the more deliberate management of such trees.

Today, there is a general tendency in Southern Africa (SADC Region) to promote the domestication of indigenous fruits. Recent efforts included a range wide collection of marula germplasm for provenance trials in member countries. In addition, a new project on domestication of indigenous fruits is being prepared to follow up on trials, which were conducted by ICRAF in Malawi.

In Namibia, efforts to promote trees outside forests include:

- The current promotion of live fencing to reduce harvesting pressure,
- The promotion through extension to encourage farmers to grow trees on farm woodlots
- A new research proposal on the selection, improvement, promotion and marketing of indigenous fruit and nut producing trees has been submitted to the FAO for consideration.
- Agriculture and Forestry have formed a national task force to promote indigenous fruits on a national scale. The task has been in existence for less than 4 months since its formation.
- Trials in the pressing of marula kernels to produce oil for market testing has been done and it has strengthened a women's group in Northern Namibia to organize collection of raw materials and be involved in oil pressing. It is a good example of a community- based organization being linked to the private sector.

The direct benefits of fruit trees in the issue of food security, is obvious. Marula fruit is quite rich in vital vitamins, its kernel is crushed to make traditional and highly valued cooking oil, rich in unsaturated fatty acids. The same fruit species have commercial value. Marula oil is sold locally, the juice can be sold to the liqueur industry and the oil is currently being promoted in the United Kingdom for use in the pharmaceutical and cosmetic industries mainly because of the stable characteristics of the oil. Already there are women's groups with a few oil-presses to produce the oil for further testing abroad.

Berchemia discolor also produces a fruit, which is eaten after it is has been sun dried. The fresh fruit can be fermented and distilled to produce a potent local brandy, which can be sold. The dried fruits are quite popular and are just awaiting a proper and concerted campaign for local marketing.

Manketi nut is also used traditionally as a cooking oil and also ground to make a type of porridge. In a year of poor crop yields, it provides a valuable natural food and is relied upon by the hunter-gatherer San People of the Kalahari Desert. This is a real food security issue. Its oil is being tested for possible industrial use.

A rather unusual use of trees and not just those outside forests is that, branches especially thorny or tough ones are used to *fence off crops from grazing and browsing livestock*. This kind of physical crop protection has immense economic worth in a country where crop yields are erratic in view of persistent short rains and high temperatures hence what grows must be protected.

When Namibia was preparing its strategic plan for development in the forest sector, an attempt was made to estimate the economic value of all forest or woody vegetation resources to national development. These are depicted in Table 1, and the value of trees outside forests is reflected on the value of baskets from makalani palm, food and beverages and some aspects of crop fencing. This figure can be expected to double by 2020 through the rate of conversion of forest to non-forest land, which produces "trees outside forests"

Status of non-wood forest products – indigenous fruits, oil nuts, mopane worms, crafts

As described in the preceding sub-section, the value trees outside forests will continue to increase and is likely to be double the estimated value in Table 1. This will be to a large extent dependent on the growth in importance of indigenous fruits and nuts, in both local and international markets.

As the forest ecosystems become more intensively used even if managed, and as certain ecosystems such as the mopane woodlands become fragmented, it is conceivable that this may decrease the harvests of mopane worms. As mopane worms become rare they will only be available in the extensive but shorter woodland formations in the Kunene and in the protected areas such as Etosha National Park. This is already the case. As the average per

capita earnings will have gone up by 2020, there is going to be an increase in the value and hence prices of mopane worms, way beyond current prices as it becomes a rare delicacy. The same is true of traditional Marula Oil used in cooking which can only be afforded by the relatively well to do in Northern Namibia.

By 2020, technological changes and the current trends toward natural products would have significantly increased the value of products such as Mangeti Nut, Marula Oil, Marula Liqueur, *Berchemia* and *Strychnos* fruits. These products will further stimulate the growing of indigenous fruit and nut trees in plantations, groves, hedges or the tending of single trees outside forests.

Conservation of biological diversity

To date Namibia has a National Biological Diversity Task Force in which the Directorate of Forestry is a key member. The task force is co-ordinated by a Directorate in the same ministry. So far, all the Directorates in charge of parks, wildlife, forestry and environmental affairs and also the National Botanical Research Institute have biological diversity plans of action in their national programmes.

Within the current process of the second National Development Plan (NDP2) all the natural resources sectors formed an inter-sector cluster of institutions deliberately brought together to consider issues of sustainable development in their plans. These were supposed to be reflected in the respective sector chapters in NDP2. Biological diversity is therefore a well-considered issue in our sector plans.

Currently, Namibia has a number of wildlife parks on land, marine parks, nature reserves and Ramsar Wetland Areas. The terrestrial parks in Namibia currently constitute about 8% of the total land area. Through two programmes of the forestry strategic plan of 1996, namely the Community Level Management of Natural Forests and the Environmental Forestry Programmes, the directorate will contribute to the conservation of biological diversity through the establishment of community based forest reserves already mentioned, and the creation of key forest types that are not currently part of the nationally recognized protected area network. This is most likely going to increase the combined size of protected areas to about 10% of the total land area.

3.2 State of Forest Industries

By the year 2020, Namibia will not have a flourishing traditional forest industry based on sawmills and pulp and paper industries. However because of its unique economic, demographic and environmental characteristics the following are likely to obtain:

There will be a modest development of plantations and woodlots which will not exceed 10,000 hectares. Namibia should be able to meet its local demand for treated fencing and construction poles.

With new and improved technology in saw milling and the manufacture of reconstituted wood products, Namibia will have small scale but profitable wood industries based on the current bush encroachment species such as *Acacia mellifera* which could be used in the manufacture of chipboards and waifer boards. Currently commercially under-utilised species such as *Burkea africana* (red syringa), *Giurbourtia coleosperma* and *Colophospermum mopane* are likely to be used more for high value furniture, specialized wooden implements and crafts and even a potentially lucrative parquet flooring industry. In other countries such as Zimbabwe and Zambia *Burkea africana* is a valuable wood for flooring.

With the development of mobile saw milling and processing equipment, the costs of extraction can be brought down.

Our current efforts to create a cottage industry on wooden crafts has yielded positive results in the Tsumkwe region in which products have been manufactured purely from dead or dry wood. It has been demonstrated that a niche market can be created out such an industry provided that a cheap and reliable power source is provided and artisans are trained in professional quality finishing using relatively unsophisticated equipment.

Namibia's economy which is projected to grow at the rate of 5% per annum for the next 5 years will improve her purchasing power and make it viable to start a veneer plant at Walvis Bay using wood imported and transported by water from neighbouring Angola and the Democratic Republic of Congo. Namibia is economically well placed to go into the value added wood industry either on its own, or in partnership with its neighbouring giant South Africa since Namibia has an advantage of proximity to SADC's major sources of tropical hardwoods.

3.3 Wood Demand - Supply Situation.

Namibia will continue to be a net importer of industrial wood and wood products in the foreseeable future. It will continue to meet its domestic needs in fuel wood and will most likely be self sufficient in poles for local domestic construction and treated fencing posts from its own woodlots and plantations.

Wood fuel demand is likely to remain stable if the rate of people becoming more affluent and depending less on wood will remain less than actual growth in the GDP and population growth. However if the projected rate in economic growth is sustained at 5%, there is a likelihood that a large proportion of Namibians will turn to using electricity and natural gas for domestic energy. Already the plans for the exploitation of natural gas and increasing the capacity for the generation of hydro- electric power are under way.

Construction timber will continue to come from imports but by 2020 Namibia will be sourcing its industrial wood from more and therefore more competitive prices than today. The current expensive over-dependence on timber from South Africa is ill advised and is likely to reduce by 2020 as construction in rapidly urbanizing northern Namibia will begin to be more sensitive to material costs. This is likely to be strengthened by railway links to Southern Angola and the construction of a bridge across the Zambezi River, which is already in the early stages of implementation. Table 7 illustrates the likely trends in the consumption of forest based commodities and services.

Table 7. Consumption Trends of Forest Products and Services in Namibia

Requirements	Trends	Driving force
Firewood	Increasing consumption in rural areas Urban consumption to increase at decreasing rate Firewood exports to decline	Subsistence economy Possibilities of energy substitution due to changes in income Government policy aimed at satisfying domestic needs
Charcoal	Increasing domestic Consumption Indeterminate export trend	Increased demand for <i>braai</i> in urban areas International requirement for the certification of forest products
Poles and posts	No changes in consumption of fencing posts on commercial farms Increasing posts consumption on farms in the Northern regions and national parks Consumption of poles to remain stable or grow in line with the expansion in the national economy	Stagnant commercial agricultural production Possibilities of privatisation of communal land and intensive management of national parks Telephone company switch to optic fibres
Ornamental products	Increasing demand for carvings Increasing demand for mopane roots	Expanding tourist industry Enhanced product quality and marketing
Farm implements	Increasing consumption of farm implements	Share of the rural economy in gross domestic product
Sawnwood	Gently rising consumption	Changes in national output and income levels, Government housing policy and relative price level of substitute materials
Boards	Gently rising future consumption	Expansion in the construction and housing industry, and relative price level of substitute materials
Paper	Increasing future consumption	Expansion in national output income levels and education
Non-wood products	Increased future consumption	Policy incentives to encourage small scale processing activities
Recreation and ecotourism	Increasing future consumption	Expansion in tourism industry and human recreation
Environmental services	Increased flows of services are expected with improved management	Sustainable management of natural forests

Social and economic implications

In 1996 as indicated in Table 1, the Directorate estimated the total economic value of forest resources to be about 1 billion Namibian Dollars which was viewed as a conservative estimate of the direct use benefits from wood and non-wood products and those indirect uses linked to ecosystem value which underpins, Namibia's wildlife based tourism.

As Namibia is now developing its Criteria and Indicators for Sustainable Forest Management, the measurement of the socio-economic criterion will require a more robust methodology to estimate the benefits. A conservative estimate is that the value will have tripled to about 3 billion Namibian Dollars, simply because the country would have been more affluent and ecosystem values and those of carbon sequestration will be much higher. In addition, value added products such as art and crafts would fetch higher prices. Furthermore, a more vigorous value added wood-based industry will create more jobs in cottage industry and more mainstream industries such as reconstituted boards and high value flooring materials and charcoal briquettes.

The scarcity value of mopane worms, the development of taste for indigenous fruits and nuts in addition to the industrial use of marula and other nuts would also have added much more value to these types of products.

With Namibia's climate being what it is, forest ecosystems will still be the bastion of grazing and fodder for an ever-growing livestock industry and will continue to provide valuable thatch grass to an increasingly affluent urban population and the burgeoning tourism industry.

A proper estimate of the contribution will be possible by 2010 when Namibia would do its second national assessment of C and I to assess the performance of the forest sector.

3.4 Forestry and environment

Conservation of biological diversity

To date Namibia has a National Biological Diversity Task Force in which the Directorate of Forestry is a key member. The task force is co-ordinated by a Directorate in the same ministry. So far, all the Directorates in charge of parks, wildlife, forestry and environmental affairs and also the National Botanical Research Institute have biological diversity plans of action in their national programmes.

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State of park management and eco-tourism -Indicate the most likely changes

It is in the plans of the Directorate of Forestry that by the year 2010, forestry will be recognized in regional land use plans and the result of this is that in all areas of Namibia there will be land set aside for forestry and also for multi-purpose use, provided that it remains under forest cover. It is likely that the current forest area will decline but we will be left with a legally recognized and stable forest estate. However the promotion of agroforestry and other trees outside forests, will maintain a reservoir of carbon and ecosystems valuable for other forms of life and use. Since the current legislation supports the conservation of biological diversity and the forest policy

recognizes other global benefits of forests such as climate change, these will be continue to be deliberately planned for and implemented well before 2020. The valuable riverine or gallery forests will continue to be protected under the law for their value in maintaining water quality, protecting courses and serving as valuable habitat and browsing areas for livestock and wild life.

3.5 Institutional Framework for Forestry

At the moment the structure of forest and wildlife administrations follows a centralized model but de-concentrated through a network of field offices. Despite the network of field offices, planning and policy decisions and development planning is still controlled by one Head Office currently controlled by a Director. However the government has three major policy changes that may very well change this centralist model of natural resource administration:

- A new communal land bill has provision for regional land boards and regional land use plans. In addition it recognizes the right of rural people to jointly ask for credit using a communal title as collateral for investment capital.
- Both the forest and wildlife laws provide for community forest reserves and wildlife conservancies respectively, to be managed by local institutions having the resource tenure or usufruct rights wholly or in some shared arrangements with central or a regional or local government.
- The Namibian Cabinet has approved a policy of decentralization of government, which is currently being implemented in phases by the Ministry of Regional, Local Government and Housing.

The above changes are rapidly leading to decentralized forestry and wildlife administrations and by 2020, Regional and Local Governments will take full control of the planning, the management and the revenues thereof, of forest resources in their localities. The Central Government will set policy, supervise its implementation and the enforcement of legislation and co-ordinate National Level Planning for forestry development.

Staffing of the Forest Administration

To date the Directorate of Forestry has not filled its entire technical and professional posts in its structure. In its strategic plan, it is envisaged that by the year 2005, all professional and technical posts would have been filled with appropriately trained Namibians. One limitation is in the research sub-division in which it takes time to train qualified and experienced personnel. However, the current level of professional training for Namibians, if it is upheld, will make it possible to achieve the anticipated staffing situation. This will be further bolstered by the use of the strategic plan, annual objectives and the deliberate management of staff performance as required by the objectives and measurable result areas.

Functions to be retained by the Directorate or Central Government

- Advising the Minister on Forestry Matters
- Policy making and review, including the supervision of implementation of policy and legislation, including relevant regulations at the national level.
- Negotiation with Central Government and Donors for regional and national projects.
- Promotion and carrying out of strategic and applied research
- Monitoring and inventory of forest resources and management planning
- Promoting public awareness and education in forestry
- Addressing regional and global issues pertaining to forestry
- Recruitment and Training of Professional Staff

Functions and Sub-Functions to be Decentralized or Devolved to the Regions

From the functions listed herein, the Directorate of Forestry in its present form is eventually going to devolve the following functions or sub-functions to Regional Governments.

- The preparing of proposals for the development of the necessary infra-structure and the supervision of the implementation.
- The definition, initiation and description of forestry development programmes to be forwarded to Forestry Head Office for compilation and forwarding to funding agencies.
- The identification, boundary definition, and consent seeking on Community and Regional Forest Reserves, with the Central Government remaining responsible for the identification and the negotiation over state level forest, nature and other types of reserves.
- All afforestation of Regional Sites except badly degraded areas, which may be deemed to require more intensive practices.
- The granting of concessions for timber and non-timber products as long as sustainable levels of utilisation are established and supervised by the central Government.
- Fire control in community and regional forest reserves, even though, the central Government may still run a national fire management programme.

The Implications of the above proposal is that:

- The Regional Governments should take over the running of all forestry offices in the field, except the “Super-Regional Offices” headed by Chief Foresters and stations devoted to Research.
- All Research Staff and Seed Centres will remain under the Central Government.
- All the Regional Nurseries and their staff will be transferred to the Regional Governments.

Wildlife Administration

The administration of parks and wildlife will follow the trend that has been described for forestry with the one exception that the ministry is already entertaining the notion of a future “*wildlife and parks board*” which will be able to plough-back revenue generated in parks into conservation which is not possible according to today’s treasury regulations that govern the allocation of funds. Under this arrangement, the Wildlife and Parks Board will be autonomous and it will generate revenue to the exchequer by way of the hospitality industry or tourism services. Despite this, the community or private conservancies will be managed by decentralized government institutions providing technical guidance to local, community-based organizations.

By 2020, the administration and management of parks should have improved significantly since there is currently the political will to train Namibians at the professional level for this purpose. Better trained staff is likely to improve the state of ecosystem and species based management planning, which is not quite well developed currently. With the adoption of community based conservancies linked to trophy hunting tourism, there will be considerable incentives to manage the parks better since they are vital as reservoirs of game for purposes of translocation, biological diversity and mass tourism.

It is also important to add that Namibia’s wildlife administration is already sensitive to global policies and conventions, dealing with conservation of biological diversity, trade in endangered species and the protection of representative ecosystems.

4 Change Facilitation

Factors that are crucial for improvement of the situation or to avoid undesirable consequences.

To avoid undesirable outcomes the forest sector ought to do the following:

Must seek or *develop new technology to add value* to its own wood and non-wood resources and pursue their marketing within and outside Namibia’s borders.

Namibia should *use its economic advantage* to establish value-added forest-based industries from *imported high value and utility timber species* for local consumption and re-export. Such a policy will *enhance technological development* and *attract much-needed investment*.

Namibia should *establish plantations and wood lots* to supply its farming communities with treated poles for fencing and construction and to produce non-wood products such as *fruits and oil producing nuts*. The promotion of indigenous fruit and nut trees to develop already known products and to produce novel or lesser-known products is a worthwhile pursuit to squeeze more value out of our forests and trees outside forests.

In order to help the forest sector the *Criteria and Indicators Initiative* in SFM should first and foremost be regarded as a useful tool for advocacy for the forest sector, not a gimmick for attracting donor funds. It is only when the local public and policy makers get convinced of the importance of the forest sector that we will have a legally recognized forest estate which will yield tangible and intangible benefits that forests are known for.

The forest sector must see to it that *strategic forestry planning* is adopted through the support by central government, by regional land boards and also recognized at the Central Government by ministries in charge of Lands and Regional and Local Government.

The forest sector should also produce a national paper on *critical forest conservation areas* and negotiate strategies for their management before they are legally gazetted as conservation areas.

In pursuit of the *empowerment of local communities* the strategy for community level management must be consolidated during NDP2 so that by 2010, all declared community forest reserves will be under sustainable management, including proper fire management and supported through the liaison between central government and donors.

The *utilization of traditionally under-utilized species* such as *Burkea africana* and *Acacia* to produce new products such as reconstituted wood products, flooring strips and compressed charcoal briquettes is a definite growth area in the face of rapid advances in wood-processing technology.

Strategies such as live fencing, subsidized transportation of fuel wood to areas of deficit will help reduce pressure from heavily used forest resources and enable rehabilitation programmes.

The *policy of decentralization* ought to be pursued but should be phased in as regional and local governments take charge of their own planning, implementation and monitoring of local development programmes. A good way of phasing this is to encourage regional governments to identify and manage regional forest reserves as provided for in the current forest legislation which is currently in parliament. That way they will begin to gather experience in resource governance since they will also be in charge of lands, agriculture, health and others.

Donors should increasingly act as *catalysts for locally meaningful change* by investing in developments that have global benefits such as conservation of biological diversity, mitigation of climate change and also in *income generating activities* since this improves incomes and may have the positive result of making people more amenable to philosophies of conservation, sustainable use. The current attitude of having inordinate amounts of faith in the private sector and market forces is often short sighted. Donors should be partners with local communities as the *vanguards of real changes* to people's lives and should not leave communities to the vagaries of profit-driven capitalists to deal with the often-unsuspecting local people.

To increase investments in the forest sector and contribute to the modern economy, the forest administration should pursue *its policy to promote the greater participation of the private sector in value-added industries*. In this regard, it should jointly promote investment in partnership with the Ministry of Trade and Industry. It will also require that the forest administration *work more effectively through other sectors* to realize the aspirations of its mandate.

To steer development in the forest sector in a rapidly changing environment and increasing "globalisation", there should a *policy review body or forum* that would debate current and emerging issues in order to plan for the sector, taking into consideration the likely risks that the sector is likely to face. *Periodic strategic planning processes*, say, every 10 years could support this sort of forum.

5 Conclusions

From the description of the sector, the analysis of the change drivers and the attempt to foresee what the forestry sector is likely to be like by the year 2020, a number of conclusions can be made.

Namibia has unique forest resources, which nonetheless has significant value in economic and environmental terms. In the absence of a strong traditional forest industry, Namibia should creatively exploit its available resources by *adopting existing new technologies for processing* of its wood and non-wood products. The area of *reconstituted wood products*, the *utilization of lesser-known tree species*, the development of *new products* from non-wood raw materials, all warrant serious attention. It is quite probable that the forest sector will grow in that direction. There is room for development of *cottage industries* based on limited local resources.

To make it possible to create more value out of forest resources, the government will have to pursue *a policy of attracting private sector investment in product processing* and also convince *donors* to be more actively involved initially in *value-added industries* than is the case today.

Namibia has *quite supportive policies and legislation* in forestry and wildlife, in view of current *global policies and conventions* but would gain from more efficient, partly *decentralized administrations*, especially as the regional and local governments have built capacities to take over or participate more meaningfully in resource management functions, which can be delicate or easy to ignore by virtue of their indirect environmental values.

The adoption of global policies in the forest sector will mean that the sector will be sensitive and also contribute to the conservation of biological diversity, mitigation of climate change and the sector will be regularly assessed using the *concept of criteria and indicators* for sustainable forest management.

Even though the *area under forests will decrease*, better land use planning at the regional and local levels will produce a *legally recognized forest state* which will be more immune to unplanned conversions to non-forest uses as is the case today. In other words, forest reserves of various classes, will be part of the protected area network in Namibia.

It can be concluded, that the next 20 years has opportunities for Namibia's forest sector to develop in its unique ways, not by large industrial plantations, but by more creative investments in processing and taking advantage of new niche-market specialized products and taking advantage of the growing tourism industry as a market for value-added products.

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