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Review and Improvement of data related to wood products in Namibia

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This paper has been minimally edited for clarity and style

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Background

(A) The EC-FAO Partnership Programme (1998-2000)

Strengthening data collection and analysis is critical for improving forest policy formulation and planning at national and sub-national levels. However, this aspect has not been given much attention in most countries, undermining the adoption of sustainable forest management practices. The EC-FAO Partnership Programme (1998-2000) on "*Data Collection and Analysis for Sustainable Forest Management in ACP (African, Caribbean and Pacific) Countries - linking National and International Efforts*" aims to strengthen national capabilities related to forestry information and statistics. An important starting point for this is to review and validate existing data and to improve the data collection process and methodologies.

This present study focuses specifically on aspects of wood-products, such as production, consumption and trade of roundwood, industrial roundwood, sawlogs, veneer logs, pulpwood, wood-chips, sawnwood, wood-based panels, and paper and paperboard, etc.

Apart from improving the quality of basic data, this study is expected to strengthen the technical capacity and expertise of the Directorate of Forestry, Namibia, in forestry data collection and analysis to produce information on the forestry sector. Participation in this effort and networking with other national focal points and experts dealing with wood-products statistics is expected to benefit the government of the Republic of Namibia through sharing of methodologies and information and facilitating learning from each other's experience.

(B) Forestry Development in Namibia

Namibia's forest resources constitute an important national heritage, which provides both economic and environmental benefits. Forestry development in Namibia started at the beginning of the 20th century when the role of woody vegetation in environmental protection was recognised by the German colonial government. However, the forest resource suffered a great deal under the South African mandate period when the deliberate policy of uncontrolled cutting was encouraged, especially in the communal areas of the North and North East of the country. Indeed no meaningful development activity was initiated in the sector during South African occupation.

Colonial policy of forest exploitation, especially in the communal areas, and commercial areas of Tsumeb and Grootfontein that started in the 1930s continued unabated until Namibia attained independence in 1990. Lack of technical capacity to administer forest concessions worsened the situation of uncontrolled forest exploitation. Meanwhile, poor forestry administration constrained the initiation of any meaningful forestry development activities. In the early 1970s and late 1980s, the country's liberation struggle prevented the implementation of forestry development activities in large areas of Northern Namibia, which needed attention and still carries the bulk of the forest resources.

For many years forestry development was managed from a small section under the Ministry of Agriculture. Independent Namibia created, in 1990, a Directorate of Forestry, to highlight the importance of forestry to national development and to carry out programmes that are aimed at

implementing the national forest policy.

Presently, the Directorate of Forestry is still in its early developmental stages. The Directorate produced the first Forestry Strategic plan for Namibia in 1996. In addition, in August 1997 the Directorate started carrying out the Namibia-Finland Forestry Programme to implement the Strategic Plan. The strategic Plan is based on ecological, environmental, cultural, and socio-economic considerations and it considers production, protection and participation as the three important issues of forestry development in Namibia.

New Forest legislation was completed in 1997 and is awaiting approval by parliament. The national forest policy of Namibia has been reviewed and is awaiting approval.

The main challenges being faced by the Directorate are manpower development, infrastructure development and improvement of data and information for the planning and management of forest resources. Several forestry staff are in colleges and universities to obtain Forestry Diplomas and BSc Degrees. The infra-structural development is almost complete. Forestry data collection, compilation, analysis and dissemination are in progress and need further support and strengthening to institutionalise the process.

A process to develop Criteria and Indicators aimed at monitoring sustainable forest management in Namibia is also on going. A few criteria and indicators have now been selected for actual testing in the field.

C) Status of wood products data

Availability of statistics on production, consumption and trade of wood products in Namibia is scanty and to a certain extent non-existent. The key relevant authorities such as Ministry of Trade and Industry, Customs and Excise and National Planning Commission (Central Statistics Bureau), although collect wood products data, do not have information on wood products in a form that can be readily and easily disseminated to the public. It seems that so far there is no deliberate plan or efforts to regularly analyse this data and provide the information in a format ready for the user.

Therefore, in Namibia there is a great and urgent need to establish a comprehensive database on production, consumption and trade of wood products. Obviously, this is a long-term exercise, which should be continued beyond this review, with the assistance of aid organisations.

The Directorate of Forestry has started to keep track of wood products trade data through the recently established Forestry Permit System. However, this system now needs to be expanded to include additional data on wood products such as production, consumption and trade of roundwood, industrial roundwood, sawlogs, veneer logs, pulpwood, wood-chips, sawnwood, wood-based panels, and paper and paperboard, etc. Only in this way will information on wood products trade be at the fingertips of the Directorate and thereby become easily disseminated to the public.

1. Overview

Namibia's woody resources play a significant role in the country's economy. The majority of the rural populations derive their livelihood from the forest resources. On the other hand, a limited forestry industry also obtains its raw material from these resources. Below is a brief description of the quantitative state of Namibia's forests and the various wood products derived from them.

1.1. Forest resources

The main vegetation types available as a source for wood products and of economic interest to forestry development in Namibia are Savannahs and Woodlands. Beginning in 1996 up to date the Directorate of Forestry is carrying out forest inventories in these areas to quantify the woody resources mainly for strategic planning.

Tables 1 and 2 show summary statistics for various sampled areas within the Savannah and Woodland vegetation, from Forest Inventory reports that are available at the Directorate of Forestry,

Savannah vegetation occupy approximately 64 % (about 53 million ha) of the nation's land area. They vary tremendously, from desert shrubs in the Western and Southern parts of the country which support large livestock and game populations, to *Mopane* trees in the North and Northwest. *Mopane* is also found in East Caprivi region.

In 1997 an area of 8 212 447 ha, in the **Woody Savannah and Woodland and Camelthorn Savannah** vegetation zone, was inventoried covering eastern and southern parts of Tsumkwe district, northern parts of Otjinene district and eastern parts of Okakarara districts. Forty-one (41) species were enumerated. The dominant height is about 16.5 m. There is about 101 stems/ha and the mean tree volume including branches for all species is 4.2 m³/ha. The average dry biomass including branches for all species is 3.2 tons/ha (see Table 1). Timber species such as *P. Angolensis* and *B. Plurijuga* are not found in these areas.

Woodlands occupy approximately 20 % (about 16 million ha) of the nation's land area. They vary from savannah trees and woodlands in the North-Central Caving Region, Capri strip in the Northeast and Waterberg Plateau in the South, and riverine woodlands that constitute important dry season grazing, watershed protection; to large trees in the Erongo mountains. Riverine woodlands are rich in plant and animal biological diversity.

From a forestry point of view, woodlands dominated by *Pterocarpus angolensis*, *Baikiaea plurijuga* and *Burkea africana* are the most valuable. A **Pterocarpus-Burkea dominated woodland** covering an area of 607 949 ha was inventoried in 1996 in **West Tsumkwe** district (Tables 1 and 2). The estimated area of woodland where *P. angolensis* or *B. africana* is the first or second dominant species is 316 860 ha or 52.1% of the area. Fifty-three (53) species were recorded. The dominant height is about 22.3 m. There is about 99 stems/ha and the average tree volume including branches for all species is 17.8 m³/ha. There are about 18 *P. angolensis* and 458 *B. africana* seedlings per hectare. Most of the *P. angolensis* seedlings are less than 1.5 m high. The mean saw log volume of *P. angolensis* trees is 0.31 m³/ha or an equivalent average of 1 tree per ha. The average dry biomass including branches for all species is 12.5 tons/ha.

A **Baikiaea-Pterocarpus-Burkea dominated woodland** was inventoried in Kavango Region in 1997. The total area inventoried is 17 815 ha. More than 80% of the area was dominated by *Baikiaea-Pterocarpus*. Twenty-three (23) species were recorded. The dominant height is about 13.2 m. There is about 114 stems/ha and the mean tree volume including branches for all species is 38

m³/ha. The mean saw log volume of *P. angolensis* trees is 0.65 m³/ha and *B. Plurijuga* 0.28 m³/ha or an equivalent average of 1 tree per ha for both species. The average dry biomass including branches for all species is 20.6 tons/ha (See Tables 1 and 2).

Table 1: Mean height, number of trees, volume and biomass per hectare for all species (Dbh > 5 cm)

Forest/ Vegetation Type	Area Sampled: District/Region	Size, in Ha	Dominant tree species	Tree height (m)	Mean No. of trees/Ha (All species)	Mean tree volume m ³ /Ha (All species)	Mean tree Biomass tons/Ha (All species)
Woodlands 20% of Namibia's land area	Western Tsumkwe District	607 949	<i>Pterocarpus</i> - <i>Burkea</i>	Max 22.3 Mean 7.9 Min 1.5	99	17.8	12.5
	Caprivi: (Salambala)	18 000	<i>Mopane</i> - <i>Terminalia</i>	Max 20.8 Mean 8.4 Min 2.4	140	48.0	12.8
	Kavango: (Nkurenkuru Concession area)	17 815	<i>Baikiaea</i> - <i>Pterocarpus</i>	Max 13.2 Mean 8.0 Min 1.0	114	38.0	20.6
	Caprivi Region	2 009 527	<i>Baikiaea</i> - <i>Burkea-Mopane</i>	Max 23.8 Mean 9.6 Min 0.7	87	21.4	17.7
	Caprivi State Forest	1 46 100	(Degraded) <i>Baikiaea</i> - <i>Combretum</i> - <i>Burkea</i>	Max 24.8 Mean 10.2 Min 0.5	71	33.3	20.8
Savannah Woodland, 64% of Namibia's land area.	East and South Tsumkwe, Otjinene & Okakarara Districts	8 212 477	<i>Acacia</i> - <i>Terminalia</i>	Max 16.5 Mean 5.8 Min 1.9	101	4.2	3.2
	Ongadjera Community Forest	128 200	<i>Mopane-Acacia</i>	Max 11.1 Mean 6.4 Min 3.4	10	1.1	0.7
	Uukwaludhi Community Forest	82 520	<i>Mopane</i> - <i>Commiphora</i> - <i>Terminalia</i>	Max 12.3 Mean 5.3 Min 1.7	53	6.3	4.8
	Omusati Region*	1 383 924	<i>Mopane</i> - <i>Terminalia</i> - <i>Acacia</i>	Max 19.2 Mean 5.3 Min 1.0	33	3.2	2.7
	Oshana Region**	259 675	<i>Mopane</i> - <i>Diospyros</i>	Max 16.4 Mean 5.3 Min 1.0	12	1.8	1.2

Notes on Table 1:

- (1) Tree volume means the volume of the entire tree comprising of the main tree trunk and branch wood.
- (2) Tree biomass means the biomass of the entire tree comprising of the main tree trunk and branch wood.
- (3) Total number of trees in the sampled area is equal to the No. of trees/ha times Size in Ha. For example, for Western Tsumkwe District: 99 x 607 949 = 60 186 951 trees.
- (4) Total volume of trees in the sampled area is equal to the tree volume m³/ha. times Size, in Ha. For example, for Western Tsumkwe District: 17.8 x 607 949 = 10 821 492 m³.
- (5) Information on shrubs and saplings (Dbh < 5 cm) and grasses is available but not included here.
- (6) In Omusati Region, tree height includes *Hyphaene petersiana* (Makalani) and *Sclerocarya birrea* (Marura)
- (7) ** In Oshana Region, tree height includes *Sclerocarya birrea* (Marula) and *Diospyros*

mespiliformis

Table 2: Average stems and timber volume per hectare of *P. angolensis* and *B. plurijuga* (Dbh > 45 cm)

Forest/ Vegetation Type	Area Sampled: District/Region	Size, in Ha	Dominant tree species	Mean No. of trees/Ha (All species)	Timber Species	No. of timber trees/Ha (Rounded to the nearest unit)	Mean timber volume m ³ /Ha
Woodlands 20% of Namibia's land area	Western Tsumkwe District	607 949	<i>Pterocarpus</i> - <i>Burkea</i>	99	<i>Pterocarpus</i>	Max 6 Mean 1 Min 0	0.31
					<i>Baikiaea</i>	Max 4 Mean 0 Min 0	0.004
	Caprivi: Salambala	18 000	<i>Mopane</i> - <i>Terminalia</i>	140	<i>Pterocarpus</i> *	0	0
					<i>Baikiaea</i> *	0	0
	Kavango: Nkurenkuru Concession area	17 815	<i>Baikiaea</i> - <i>Pterocarpus</i>	114	<i>Pterocarpus</i>	Max 7 Mean 1 Min 0	0.65
					<i>Baikiaea</i>	Max 6 Mean 1 Min 0	0.28
	Caprivi Region	2 009 527	<i>Baikiaea</i> - <i>Burkea-Mopane</i>	87	<i>Pterocarpus</i>	Max 2 Mean 0 Min 0	0.06
					<i>Baikiaea</i>	Max 12 Mean 1 Min 0	0.75
	Caprivi State Forest	146 100	(Degraded) <i>Baikiaea</i> - <i>Combretum</i> - <i>Burkea</i>	71	<i>Pterocarpus</i>	Max 5 Mean 0 Min 0	0.3
					<i>Baikiaea</i>	Max 19 Mean 4 Min 0	2.69
Savannah Woodland, 64% of Namibia's land area.	East and South Tsumkwe, Otjinene & Okakarara Districts	8 212 477	<i>Acacia</i> - <i>Terminalia</i>	101	<i>Pterocarpus</i> *	0	0
					<i>Baikiaea</i> *	0	0
	Ongadjera Community Forest	128 200	<i>Mopane</i> - <i>Acacia</i>	10	<i>Pterocarpus</i> *	0	0
					<i>Baikiaea</i> *	0	0
	Uukwaludhi Community Forest	82 520	<i>Mopane</i> - <i>Commiphora</i> - <i>Terminalia</i>	53	<i>Pterocarpus</i> *	0	0
					<i>Baikiaea</i> *	0	0
	Omusati Region**	1 383 924	<i>Mopane</i> - <i>Terminalia</i> - <i>Acacia</i>	33	<i>Pterocarpus</i> *	0	0
					<i>Baikiaea</i>	Max 6 Mean 0 Min 0	0.01

	Oshana Region	259 675	<i>Mopane-Diospyros</i>	12	<i>Pterocarpus</i> *	0	0
					<i>Baikiaea</i> *	0	0

Notes on Table 2:

Timber volume means the volume of the main tree trunk excluding branch wood.

* *P. angolensis* and *B. plurijuga* were not found in the sample in these areas.

**There is a little bit of *Baikiaea plurijuga* in the north west of Omusati Region, in Uunkolokadhi Community Forest.

Riverine Woodlands are important dry season grazing areas and support a variety of plants and animals, including the human populations that directly depend on them. The ecological value of the ephemeral rivers such as Kuiseb, Huab and Swakop in draining and giving life to the Namib Desert is one of the most outstanding features of Namibia. The agricultural value of the Kunene, Kavango, Kwando, Chobe and the Zambezi rivers in the northern regions and the Orange River in the south are also crucial. Forest inventories still need to be carried out also in the Riverine Woodlands.

1.2. Wood products

The Savannah and Woodland natural forest resources are being exploited for: commercial timber production for domestic and export markets; fuelwood (firewood and charcoal) for selected domestic and export markets; raw material (*mopane* roots) for export markets in ornamental wood; raw material for domestic wood carving industry; and wood mainly for domestic fencing and construction in rural communities. Prices charged for harvesting forest products are shown in Appendix 6.

The Directorate of Forestry estimates the current total economic value of forest resources exploitation to be N\$ 1058.2 million per annum. A breakdown of this estimate into various common uses of forest resources is given in Table 3.

The main wood-products produced, consumed and traded in Namibia are sawn timber, firewood, charcoal, mopane roots, wood for carvings (curios) and poles for fencing and construction. Other wood products such as wood based panels, transmission poles, paper and paperboard etc are imported into the country. However, data on local production, consumption and trade, including trends during the last 5 years are not readily available. Available import/export data are shown in Tables 7a, 7b, 8, 9a and 9b.

Sawn timber: The forestry industry is not very strong in Namibia. One of the major constraints in the development of a viable forestry industry is the inadequate forest resources and an environment not conducive to large industrial plantations.

Most of the timber produced locally from Namibian sawmills is mainly used for furniture production. Between 1993-95 about 4 410 m³ of sawntimber were produced.

Klaeboe and Omwami 1997 reported that softwoods imports, mainly from South Africa, in 1996 were estimated at 25 000 m³ valued at N\$ 25 million. However, it is unknown whether this is roundwood or sawnwood. On the other hand data from Central Bureau of Statistics (CBS), Tables 7a and 7b, show that about 31000 m³ of soft sawnwood valued at N\$47 million were imported between 1995-99. For the same period 4800 m³ of sawn hardwood valued at N\$14.7 million was imported.

Charcoal: Namibia's charcoal industry is one of the well-organised in Africa. Most of the commercial charcoal is made from bush encroachment species such as *Acacia mellifera*. A process has started to certify that the charcoal production conforms to environmental and sustainable management standards. This charcoal production is not associated with deforestation, but to remove unwanted bush on beef production farms. In 1997/98 13 537 tons and 433 tons of charcoal (DoF 1997/98 Annual Report) were exported to South Africa and Europe respectively. The size of the domestic market for charcoal is unknown. An estimate, probably, on the high side, is that this market is about 1000 tons annually with a retail value of N\$1.5 million.

The export sales in 1996 is estimated at 6 000 tons to Europe and South Africa (Klaeboe and Omwami 1997). According to CBS 12000 tons were exported in 1997 while between 1997-999 a total of 25700 tons were exported (Tables 7b).

Firewood: Firewood is traded both in the formal and informal markets. However, data on the quantities and value of the firewood traded is not readily available. The total firewood consumption in Namibia in 1996 was estimated at 672 331 tons valued at N\$ 103 899 000 (See Table 4). It is estimated that the total firewood consumption in Namibia will be 1 071 500 tons in the year 2006. Between 1997-99 over 1 500 m³ (See Table 9b) were exported.

Mopane roots: Mopane roots, harvested from *Colophospermum mopane*, are used as ornaments in fish aquaria and for decorative purposes. It is estimated that about 900 tons of mopane roots are harvested annually. The estimated quantity and value of mopane roots exported in 1996 is 625 000 Kg valued at N\$ 1 242 000 (Table 5).

In 1997/98 four hundred and thirty six (436), tons of Mopane roots were exported to South Africa, 29 tons to United States and 152 tons to Europe. Other exported roots, including mopane roots, are shown in Table 8. According to the Directorate of forestry's forest permit system, 15000 tons of mopane roots were exported between 1997-1999.

Carvings (curios): In Kavango and Caprivi Regions, local organisations are involved in making curios for sale to tourists. Individuals obtain licences from the Directorate of forestry to cut trees or collect dead material for such activities. No data is readily available on the number or volume of trees used for curio production, the value (N\$) and quantity of curios produced and traded. It is estimated that the carvers use a total of 440 tons of wood annually. About 38 tons in 1997 and 2 tons in 1998 of ornamentals (including curios) were exported (Table 8).

Poles for construction and fencing: The amount of poles for construction and fencing mainly in northern Namibia was estimated at 4 602 000 cubic meters in 1996, corresponding to about 3.3 million tons (Klaeboe and Omwami 1997). It takes about 9.5 years to replace used poles. It is estimated that by the year 2006 the consumption of poles will decrease to about 4 395 000 m³ or 3.15 million tons due to use of substitutes for poles.

Poles for transmission: Namibia needs transmission poles for its electrical grid and telecommunications system. Since the country does not have plantations to supply the poles, they are imported. Between 1993-95 a total of about 15 000 poles were imported.

1.3. Imports and exports

Since Namibia does not have wood industries such as pulp and paper, particleboard etc., these wood

products are imported. Among the main wood products imported are; Chipwood, Fibre board, Household and Sanitary, Newsprint, Paper and Paperboard, Particle board, Plywood, Printed Matter, Pulp (Chemical, Mechanical, Semi Chemical), Roundwood, Sawnwood (Hard and Soft), Sleepers, Veneer sheets, Wafer board, Woodwool, and Wrapping and Packaging.

Wood products worth a total of N\$1.93 billion (CIF) were imported into the country between 1995-1999 (Table 7a). A total of 35700 tons of assorted wood products and about 99000 m³ of Chipwood, fuelwood, roundwood, sawnwood and sleepers were imported (Table 7b).

Wood products worth N\$314.3 million were exported (Table 9a). Among the locally produced wood products, charcoal is Namibia's main wood product export. Over 25700 tons valued at N\$23.6 million were exported between 1997-99 (Tables 9a and 9b). Most of the other wood products exported seem to be re-exports or goods in transit through the country.

2. Current Status of National Forestry Statistics related to Wood-products

2.1. Type of information presently collected at local and national level related to wood-products

In case of the Forest Permit System the following information is collected: Firewood, in Tons; Charcoal, in Tons; Mopane Roots, in Tons; Ornaments (including Curios), in Tons and no. of pieces, Poles, in Tons and no. of pieces; Timber, in m³ and Tons.

Other information collected includes number of timber logs produced, and volume of sawn timber.

The National Planning Commission Secretariat (Central Bureau of statistics), Customs and Excise collect import/export data on various wood products including paper and paper board, plywood, sawntimber, fibreboard, particle board etc. The main wood products categories recorded are: Chipwood, Fibre board, Household and Sanitary, Newsprint, Paper and Paperboard, Particle board, Plywood, Printed Matter, Pulp (Chemical, Mechanical, Semi Chemical), Roundwood, Sawnwood (Hard and Soft), Sleepers, Veneer sheets, Wafer board, Woodwool, and Wrapping and Packaging.

2.2. Existing methodologies for data collection

- Direct measurement. For example, the number of logs cut in the field for concessions and from individual permit holders are recorded on forms.
- Data recorded on forest permits, e.g. transport, harvest and export permits. The permits are issued by Directorate of Forestry officials
- Measurement of sawn timber produced from sawmills.
- Count of furniture produced.
- Border checkpoints for Customs and Excise. Here various wood products imported and exported are recorded on customs forms.
- Ad hoc wood consumption surveys.

2.3. Existing methods for data compilation, validation and dissemination.

Presently, there are no obvious routine mechanisms for data compilation, validation and dissemination.

The Directorate of Forestry disseminates information through its annual reports (Table 8).

2.4. Ministries, departments, agencies, organisations, NGO's and other national institutions involved in collection, analysis and dissemination of data related to wood-products.

The following are the main institutions involved in collection, analysis and dissemination of data related to wood-products:

- Ministry of Environment and Tourism (Directorate of Forestry). Data on forest permit issues is collected and disseminated through the directorate's annual reports.
- Ministry of Trade and Industry (Import/Export Permits). They have a list of companies dealing

in wood products trade in Namibia.

- Ministry of Finance (Customs and Excise). They record import/export data.
- National Planning Commission Secretariat (Central Bureau of Statistics). They have a database of import/export data obtained from Customs and Excise.

2.5. The most important wood-products produced, consumed and traded

Although the contribution of the forestry sector to GDP has not yet been adequately assessed, wood products play a significant role in the Namibian economy. The Directorate of Forestry estimates the current total economic value of forest resources exploitation to be N\$1058.2 million per annum. A breakdown of this estimate into various common uses of forest resources is given in Table 3.

Table 3: Estimated annual economic value of forest resources exploitation

Product	Main species	Annual value (million N\$)	% of total value
Construction poles	Mopane	383	36.19
Tourism	Ecosystem	218	20.60
Fences for crop protection	Mopane	175	16.54
Firewood	Mopane, <i>Acacia spp</i>	131	12.38
Medicine	Various species	31.5	2.98
Kraals	Mopane	31	2.93
Charcoal	Various bush invaders	22.4	2.12
Crafts and implements	Various species	21	1.98
Mahangu baskets	Mopane	12.4	1.17
Goat forage	Various species	9.5	0.90
Fencing poles	Mopane	6.6	0.62
Food	Marula oil	4.6	0.43
Basketry	<i>Hyphaene spp</i>	4	0.38
Commercial logging	<i>Pterocarpus, Baikiaea</i>	2.4	0.23
Mortar and pestle	Various hardwood	1.5	0.14
Beverages	Various species	1.5	0.14
Ornamental roots	Mopane	1.1	0.10
Carvings	Various species	1	0.09
Mopane worm forage	Mopane	0.5	0.05
Food	Mangetti kernels	0.2	0.02
Total Economic Value		1058.2	100

Source: Namibia Forestry Strategic Plan 1996

The main wood-products produced, consumed and traded in Namibia are sawn timber, firewood, charcoal, mopane roots, wood for carvings (curios) and poles for fencing and construction.

Sawn timber: The forestry industry is not very strong in Namibia. One of the major constraints in the development of a viable forestry industry is the inadequate forest resources. Forest resources are mainly found in the north east of the country, in Kavango and Caprivi Regions. The most sought after and over exploited commercial species, *Pterocarpus angolensis*, does not regenerate very well.

Most of the timber produced from Namibian sawmills is mainly used for furniture production.

Between 1993-95 about 4 410 m³ of sawntimber were produced.

Softwoods imports, mainly from South Africa, in 1996 were estimated at 25 000 m³ valued at N\$ 25 million (Kleabo and Omwami 1997). However, it unknown whether this is round or sawnwood or both. The CBS data (Table 7a and 7b) show that between 1995-99 about 31100 m³ soft sawnwood were imported. During the same period over 4800 m³ sawn hardwood were imported.

Furniture/Joinery: There are several wood working shops involved in furniture making. The main local species used is *Pterocarpus angolensis*. Some of the timber is imported. Data on quantities and value (N\$) of furniture/joinery products is not readily available.

Charcoal: Namibia's charcoal industry is one of the well-organised in Africa. Most of the commercial charcoal is made from bush encroachment species such as *Acacia mellifera*. A process has started to certify the charcoal. It is not associated with deforestation, but to remove unwanted bush on beef production farms. In 1997/98 13 537 tons and 433 tons of charcoal were exported to South Africa and Europe respectively. The size of the domestic market for charcoal is unknown. An estimate, probably, on the high side, is that this market is about 1000 tons annually with a retail value of N\$1.5 million.

The charcoal export in 1996 is estimated at 6 000 tons, to Europe and South Africa. The Directorate of Forestry permits system shows that over 61000 tons of charcoal was exported between 1997-99 (Table 8). Data from the CBS (Table 9b) shows that about 25700 tons were exported between 1997-99.

Firewood: Firewood is traded both in the formal and informal markets. However, data on the quantities and value of the firewood traded is not readily available. Table 4 shows the total firewood consumption in Namibia in 1996. About 670000 tons (or 924000 m³) worth N\$104 million of firewood were consumed. Over 1300 m³ valued at N\$2.7 million were imported between 1995-99 (Tables 7a and 7b).

Table 4: Total firewood consumption in Namibia 1996 (Source: Klaeboe and Omwami 1997)

Firewood Market	Commercial Estimated Volume, in tons	Subsistence Estimated volume, in tons	Commercial Estimated value, in N\$	Subsistence Estimated value, in N\$
Windhoek	34,992	3,168	17,469,000	1,545,000
Ondangwa, Oshakati & Ongwediva	11,023	4,144	4,299,000	1,616,000
Rundu	8,149	4,155	1,059,000	541,000
Other towns	62,000	48,000	11,000,000	9,000,000
Rural		460,000		55,200,000
Export	700		350,000	
Charcoal	35,000		1,750,000	
Other users	1,000		270,000	
Total	152,864	519,467	36,197,000	67,702,000
		672,331		103,899,000

It is estimated that the total firewood consumption in Namibia will be 1 071 500 tons in the year 2006.

Mopane roots: Mopane roots, harvested from *Colophospermum mopane*, are used as ornaments in fish aquaria and for decorative purposes. In 1997/98 four hundred and thirty six (436) tons of Mopane roots were exported to South Africa, 29 tons to United States and 152 tons to Europe.

It is estimated that about 900 tons of mopane roots are harvested annually. Table 5 shows the estimated quantity and value of mopane roots in 1996.

Table 5: Estimated quantity and value of 1996 exports

Export product	Quantity in Kg	Value, in N\$
Processed roots rest of the world - FOB value	275,000	1,100,000
Processed roots for RSA - FOB value	40,000	80,000
Unprocessed roots RSA _ FOB value farm	310,000	62,000
Total export	625,000	1,242,000

The Directorate of Forestry permit system indicates that 1500 tons of mopane roots were exported between 1997-99. This is approximately 500 tons annually. It must be borne in mind that the data capture for the permit system is still on going. Some of the data on the datasheets has not yet been entered into the computer.

Carvings (curios): In Kavango and Caprivi Regions, local organisations are involved in making curios for sale to tourists. Individuals obtain licences from the Directorate of forestry to cut trees or collect dead material for such activities. No data is readily available on the number or volume of trees used for curio production, neither the value (N\$) and tonnes of curios produced and traded. It is estimated that the carvers use a total of 440 tons of wood annually (Klaeboe and Omwami 1997).

Poles for construction and fencing: Table 6 shows the amount of poles for construction and fencing mainly in northern Namibia.

Table 6: Standing volume of wood in homesteads 1996 (Klaeboe and Omwami 1997)

Type of homestead	Population by homestead type	Number of homesteads	Consumption of wood in m ³
Traditional Homestead	489,000	601,000	3,906,500
Mixed modern/traditional	174,000	21,400	695,500
Modern house	36,000	4,400	0
Mixed non-traditional	25,000	3,100	0
Total	724,000	89,000	4,602,000

4.6 million cubic meters corresponds to about 3.3 million tons. It takes about 9.5 years to replace used poles. These figures are estimates of old and new wood currently in use in the homesteads. The annual consumption, which represents wood for *new homes* and *replacements*, is certainly much lower. It is estimated that by the year 2006 the consumption of poles, or poles in use in homesteads, will decrease to about 4 395 000 m³ or 3.15 million tons due to use of substitutes for poles.

Annual import/export figures of wood and wood products: Various private companies are engaged in the import/export trade of wood products. The Directorate of Forestry does not keep wood products import/export records. It is the responsibility of the Ministry of Trade and Industry and the Ministry of Finance (Customs & Excise) to keep such records. The Customs and Excise captures the data and sends it to the National Planning Commission Secretariat (Central Bureau of Statistics).

Tables 7a, 7b, 9a, and 9b and summarised from this data. The imported items were grouped into the following major wood products categories: Charcoal, Chipwood, Fibre board, Fuelwood, Household and Sanitary, Newsprint, Paper and Paperboard, Particle board, Plywood, Printed Matter, Pulp (Chemical, Mechanical, Semi Chemical), Roundwood, Sawdust, Sawnwood, Sawnwood (Hard and Soft), Sleepers, Veneer sheets, Wafer board, Woodwool, and Wrapping and Packaging.

Imports

Data on imports and exports were obtained from the Central Bureau of Statistics (CBS). It is interesting to note that Namibia is an active importer of wood products. The available import data is for the years 1995 to 1999. For 1999, the data is for the period January to June only. Table 7a shows the value, CIF N\$, of imports.

Wood products valued at N\$1.9 billion (CIF) were imported between 1995-99. The major imports are paper and paperboard, printed matter, fibreboard, Chipwood, sawnwood and roundwood.

Roundwood and sawnwood are important for the construction industry, which cannot meet consumption from local resources.

Table 7a: Imports of wood products 1995-1999 value in CIF N\$

Wood Product	Year					Total Imports	% of Total Imports
	1995	1996	1997	1998	1999 Jan-Jun		
Charcoal	1,050,782	2,366,840	1,826,806	1,599,770	276,029	7,120,227	0.37
Fibre board	7,736,158	11,645,535	9,966,377	23,391,727	2,737,921	55,477,718	2.87
Household and Sanitary	45,910,430	56,729,846	77,988,654	93,519,173	27,827,942	301,976,045	15.63
Newsprint	1,601,874	3,099,584	1,111,400	1,009,387	284,158	7,106,403	0.37
Paper and Paperboard	170,605,859	148,660,344	162,932,813	137,769,588	72,751,187	692,719,791	35.85
Particle board	1,084,315	1,165,524	3,112,092	5,598,914	5,478,398	16,439,243	0.85
Plywood	855,963	2,409,445	4,711,200	4,926,685	1,405,215	14,308,508	0.74
Printed Matter	95,816,932	108,344,888	115,201,631	226,025,738	123,472,416	668,861,605	34.62
Pulp	145,783	329,535	279,311	691,270	138,299	1,584,198	0.08
Pulp Chemical	11,898	82,777	41,514	23,824	948	160,961	0.01
Pulp Mechanical	18,954	58,928	19,362	0	147	97,391	0.01
Pulp Semi Chemical	300,748	976,651	1,542,827	4,337,119	697,338	7,854,683	0.41
Sawdust	334,777	984,709	168,600	347,578	61,771	1,897,435	0.10
Veneer sheets	1,194,742	546,620	569,319	374,812	413,895	3,099,388	0.16
Wafer board			6,046,867	3,904,378	383,770	10,335,015	0.53
Woodwool	41,628	68,387	48,382	12,257	8,646	179,300	0.01
Wrapping and Packaging	2,269,529	1,338,306	2,628,086	2,407,014	674,183	9,317,118	0.48
Chipwood	5,850,039	9,038,112	8,507,576	12,269,203	5,166,260	40,831,190	2.11
Fuelwood	1,041,814	870,120	177,643	497,302	124,473	2,711,352	0.14
Roundwood	3,744,852	4,003,682	7,859,856	6,238,417	2,887,698	24,734,505	1.28
Sawnwood Hard	4,800,094	2,309,645	3,022,855	3,670,936	920,602	14,724,132	0.76
Sawnwood Soft	6,850,920	11,576,193	9,479,184	12,765,764	6,510,527	47,182,588	2.44
Sleepers	583,709	255,611	1,568,693	912,447	41,562	3,362,022	0.17
Total	351,851,800	366,861,282	418,811,048	542,293,303	252,263,385	1,932,080,818	
% of total Imports	18.21	18.99	21.68	28.07	13.06		100.00

(Data source: Planning Commission Secretariat)

The consumption trends of a few selected imported products (Table 8) used in the construction industry, such as fibreboard, plywood, and sawnwood, are briefly analysed below. The 1999 figures are for Jan-Jun only. The Projected 1999 figures mentioned in the following descriptions are projections based on the reported Jan-Jun 1999 data, which were multiplied by 2.05.

Fibreboard: starting with 1412 tons in 1995 the quantity increased by 123.6% to 3157 metric tons in 1996. From 1996 to 1997 the amount decreased by -55.7% to 1397 tons. From 1997 to 1998 the quantity decreased by -0.8% to 1386 tons. The projected 1999 figure is 1367 tons. There seems to be a declining fibreboard consumption trend.

Plywood: Consumption increased by 411.3% from 88 tons in 1995 to 450 tons in 1996. From 1996 to 1997 the amount increased by 127.3% from 450 tons to 1023 tons. In addition, from 1997 to 1998 the quantity increased by 127.6% to 2329 tons. There seems to be an increasing consumption trend in plywood between 1995 and 1998. The projected 1999 figure is 600 tons.

Sawnwood: Sawnwood is used by the construction and furniture industry. **Hard sawnwood** decreased by -48.4percentage from 1232 m³ in 1995 to 636 m³ in 1996. From 1996, it increased by 7% to 683 m³. From 1997, the amount increased by 182.8% to 1929 m³. The projected 1999 consumption is 701 m³. There seems to be an up-and-down trend in hard sawnwood consumption.

On the other hand **Soft sawnwood** increased by 17.3% from 3307 m³ in 1995 to 3880 m³ in 1996. From 1996, the amount increased by 5.8% to 4106 m³ in 1997. Moreover, from 1997 the amount increased by 70% to 6984 m³ in 1998. The projected 1999 consumption is 8725 m³. There is a steady increasing trend in the consumption of soft sawnwood.

Table 7b: Imports of wood products 1995 - 1999; Quantity, Tons & Cubic Metre (M³)

Wood Product	Unit	Year					Total Imports
		1995	1996	1997	1998	1999 Jan-Jun	
Charcoal	Tons	3,989	845	587	670	333	6,424
Fibre board	Tons	1,412	3,157	1,397	1,386	667	8,019
Household and Sanitary	Tons	8,422	47,646	34,843	74,390	38,600	203,901
Newsprint	Tons	98	193	191	163	37	683
Paper and Paperboard	Tons	43,700	10,867	11,174	20,470	11,677	97,888
Particle board	Tons	245	714	739	1,293	2,145	5,136
Plywood	Tons	88	450	1,023	2,329	293	4,182
Printed Matter	Tons	4,498	7,229	3,487	5,797	1,624	22,635
Pulp	Tons	9	5	24	89	24	151
Pulp Chemical	Tons	0.564	6	4	2	0.092	13
Pulp Mechanical	Tons	2	1	2		0.002	5
Pulp Semi Chemical	Tons	80	510	328	1,222	166	2,305
Sawdust	Tons	216	708	40	234	86	1,286
Veneer sheets	Tons	180	177	152	32	106	647
Wafer board	Tons			934	1,662	133	2,730
Woodwool	Tons	53	43	89	17	1	202
Wrapping and Packaging	Tons	241	82	380	364	90	1,157
Sub-total	Tons						357,359
Chipwood	m ³	4,635	6,578	7,277	15,073	6,179	39,742
Fuelwood	m ³	359	357	153	343	135	1,346
Roundwood	m ³	1,263	2,340	2,998	4,564	2,289	13,455
Sawnwood Hard	m ³	1,232	636	682	1,929	342	4,821
Sawnwood Soft	m ³	3,307	3,880	4,106	15,631	4,256	31,181
Sleepers	m ³	323	55	6,935	1,212	84	8,610
Subtotal	m ³						99,155

(Data source: Planning Commission Secretariat)

Note: Chipwood, Fuelwood, Roundwood, Sawnwood and Sleepers were originally recorded in

kilograms. A conversion factor of 1 m^3 of wood = 0.725 Tons was used to derive the cubic meters.
 m^3

Exports

The Directorate of Forestry maintains records of export permits issued to exporters of wood products. A computerised Forest Permit System was established in December 1999 at the Directorate of Forestry Head Office to capture data from forest permits on wood products traded. This is a significant step towards the directorate's efforts to improve forestry data collection and reporting. A similar step will need to be taken by other institutions involved in forestry data collection so that their data can be fed into the Directorate of Forestry Forest Permit data base. In this way, a much more realistic and reliable picture of trade in wood products in Namibia would emerge.

Table 8 shows wood products exports obtained from permit issues at the Directorate of Forestry. On the other hand Tables 9a and 9b show exports based on the data from Central Bureau of Statistics.

Table 8: Exports of wood products based on issues of permits at Directorate of Forestry

Item	Unit					Total
		19 96 /9 7	1997/ 98	1998/99	1999/2000	
Firewood	Tons		1,89 4.12	1,278.03	1,680.68	4,852.83
Charcoal	Tons		13,7 36.5 8	13,818.06	33,448.10	61,002.74
Wood carvings	No. of pieces		564. 00	770.00	1,313.00	2,647.00
Roots,	Tons		617. 30	698.35	230.58	1,546.23
Ornamentals (including Curios)	Tons		37.8 5	2.22		40.07
Ornamentals (including Curios)	No. of pieces				111.00	111.00
Poles	Tons		15.0 0	14.00		29.00
Poles	No. of pieces			200.00		200.00
Timber	m^3			236.00	0.13	236.13

Between 1996-1999 61000 tons of charcoal, 48000 tons of firewood, and 1500 tons of (mopane) roots were exported. The reporting of the data follows the financial year of the Government of Namibia, from the 1st April to the 31st March of each year. This data only shows the data that has been collected by the permit system. Data entry is still on going.

Table 9a: Exports of wood products 1997 - 1999 Values, FOB N\$,

Wood Product	Year			Total Exports	% of Total Exports
	1997	1998	1999		
Charcoal	12,522,619	8,417,942	2,732,871	23,673,432	7.532
Fibre board	51,459	70,503	43,003	164,965	0.052
Household and Sanitary	6,330,726	8,445,696	2,154,427	16,930,849	5.387
Newsprint	27,250	59,362		86,612	0.028
Paper and Paperboard	18,669,296	24,134,342	13,955,416	56,759,054	18.058
Particle board	28,270	183,682	1,565	213,517	0.068
Plywood	163,633	23,010	2,640	189,283	0.060
Printed Matter	21,780,071	12,070,542	174,852,942	208,703,555	66.400
Pulp	6,525	0		6,525	0.002
Pulp Chemical	0	12,714		12,714	0.004
Pulp Mechanical	11,366	258		11,624	0.004
Pulp Semi Chemical	1,500	369		1,869	0.001
Sawdust	868,595	11,850	8,700	889,145	0.283
Veneer sheets	555	1,590		2,145	0.001
Wafer board	4,789	5,320		10,109	0.003
Woodwool	39,539	21,606		61,145	0.019
Wrapping and Packaging	4,237	24,156	2,116	30,509	0.010
Chipwood	438,075	1,309,521	444,451	2,192,047	0.697
Fuelwood	75,605	271,588	59,676	406,869	0.129
Roundwood	224,609	236,763	100,583	561,955	0.179
Sawnwood Hard	306,430	256,644	10,975	574,049	0.183
Sawnwood Soft	119,385	267,115	110,077	496,577	0.158
Sleepers	2,335,782	0		2,335,782	0.743
Total Imports	64,010,316	55,824,573	194,479,442	314,314,331	
% of Total Imports	20.4	17.8	61.9		100.000

(Data source: Planning Commission Secretariat)

Wood products worth N\$314.3 million were exported between 1997-99. Namibia is exports a significant amount of charcoal. 25700 tons valued at N\$23.6 million were exported between 1997-99. Most of the other wood products seem to be re-exports of imported wood products, that is goods in transit through Namibia to other countries.

Appendices 2 to 5 show wood products imports and exports by country, imported from, and exported to. The neighbouring Republic of South Africa is the major trading partner.

Table 9b: Exports of wood products 1997 - 1999 Quantity, Kg and m³,

Wood Product	Unit	Year			Total Exports
		1997	1998	1999	
Charcoal	Tons	12,040	9,539	4,165	25,744
Fibre board	Tons	0.949	38	0.052	39
Household and Sanitary	Tons	1,731	2,741	587	5,059
Newsprint	Tons	0.08	27		27
Paper and Paperboard	Tons	5,843	9,089	4126.352	19,058
Particle board	Tons	11	3	0.085	14
Plywood	Tons	51	4	1.04	56
Printed Matter	Tons	75	213	49.801	338
Pulp	Tons	30			30
Pulp Chemical	Tons		0.001		0.001
Pulp Mechanical	Tons	24	0.001		24
Pulp Semi Chemical	Tons	0.05	0.005		0.055
Sawdust	Tons	92	2	1	95
Veneer sheets	Tons	0.006	0.051		0.057
Wafer board	Tons	0.834	0.054		1
Woodwool	Tons	109	53		162
Wrapping and Packaging	Tons	0.725	0.608	0.023	1
Sub-total					50,648
Chipwood	m3	252	1,014	645	1,910
Fuelwood	m3	152	1,108	283	1,543
Roundwood	m3	243	345	12	600
Sawnwood Hard	m3	45	170	2	217
Sawnwood Soft	m3	38	105	68	210
Sleepers	m3	1,021			1,021
Sub-total	m3				5,501

(Data source: Planning Commission Secretariat)

2.6 The most important wood-industries presently active in the country

Appendix 1 shows the companies engaged in wood products trade in Namibia.

The main wood industries in the forestry sector are Amalgamated Commercial holdings (AMCOM) and Development Brigade Corporation (DBC). AMCOM produces indigenous sawntimber for use in its furniture factory. DBC produces indigenous sawntimber for sale to other companies. Production and consumption figures for these companies were not readily accessible.

Table 10: The most important wood-industries presently active in the country

Name	Nature of activity	Unit	capacity of production,	quantities produced	Quantities consumed	Comment
AMCOM	Sawmilling	m ³ /annum	2,200	1,200		<i>Pterocarpus angolensis</i>
	Furniture (Doors)	Units	36,000	18,000		
DBC	Sawmilling	m ³ /annum	500			<i>Pterocarpus angolensis</i>

(Source: AMCOM, Forestry Office-Grootfontein)

3. Evaluation of the data collected and the methodology used

3.1. Evaluation and assessment of the reliability of the currently available information on wood-products

Overall, the available limited data provides an indication of the state of the wood products consumption and trade in Namibia. The little data available is certainly better than no data at all. It is not easy to give figures on the accuracy of the data. However, when looking at these data the following points must be borne in mind:

- (1) Some of these data are based on surveys which may not be representative. For example, some of the data on firewood is based on a survey carried out in June 1996 mainly in the northern regions of the country. The town surveyed were Windhoek, Ondangwa, Oshakati, Ongwediva and Rundu. The southern regions were not included in the survey. The data are therefore not representative of the country.
- (2) The data from the Directorate of Forestry Permit system and other official statistics may not reflect the true quantities exported or imported. An exporter's permit, for example, indicates the quantity the exporter is allowed to export, but since, for example, the firewood or charcoal weight is not verified by the relevant authorities either at the point of loading or at the border exit, the reported figures may be under- or over- statements from the actual figures. Presently this error is unknown.
- (3) There seems to be some inconsistencies in the Import/Export data from Customs and Excise. E.g., increase in sawnwood imports from 85,445 Kg in 1997 to 500,190,735 Kg in 1998. This can be due to some mistyping errors when entering data from the Customs forms, e.g. 5,190,735 typed as 500,190,735.
- (4) There might be double reporting of data. People obtaining export permits at forestry may have reported the same quantities to Customs and Excise.

There is an apparent inconsistency that Namibia exports wood products. There is confusion between export and import data in that the same wood product categories imported are exactly the same as those exported. Namibia does not produce most of the wood products reported as exported (Tables 9a and 9b).

The CBS expressed reservations regarding the accuracy and reliability of the import/export data. The data needs to be verified for typing errors, coding errors and other errors.

- (5) The categorisation of items exported/imported into the major categories such as Household and Sanitary, Newsprint, Paper and Paperboard, Particleboard, Wrapping and Packaging etc is source of error. In some cases, there is some doubt as to which category an item should be assigned. There is need to agree on itemisation into categories by all relevant authorities.

3.2. Strengths and weaknesses in the existing system of national data collection, analysis and dissemination.

There is no existing system of national data collection, analysis and dissemination. However, the following points may be considered as advantages towards the development of a system for statistics on wood products:

- (1) Various institutions are engaged in trade and utilisation of wood products (See Appendix 1). These companies record their production data, which is not readily accessible to the public. These organisations need to be surveyed periodically.
- (2) There are several institutions collecting data on wood products in Namibia. They have both the manpower capacity and equipment. The organisations directly involved in forestry data collection are:
 - Ministry of Environment and Tourism (Directorate of Forestry). The Directorate of Forestry is the main institution responsible for forestry development in Namibia. It has the Forest Inventory and Mapping Section, which is involved in carrying out forest inventory. There is also the National Remote Sensing Centre engaged in various projects related to forestry data collection. However, these sections do not collect data on production, consumption and trade of wood products. The Directorate of Forestry has established a Permit System at the Windhoek District Forestry Office to capture data from issues of forest permits. Similar subsystems will be set up shortly at Grootfontein and Ongwediva Forestry Offices to feed into the System at Windhoek. The Directorate of Forestry, through its Forest Permit System has made an initial step towards the improvement of forestry statistics in Namibia.
 - Ministry of Trade and Industry (Import/Export Permits). They have the data on the companies dealing commercially in wood products.
 - Ministry of Finance (Customs and Excise). They record data on imports/exports and forward it to national Planning Commission Secretariat.
 - National Planning Commission Secretariat (Central Bureau of Statistics). One of the duties of the Secretariat is co-ordinating data collection, processing and dissemination. (NDP1 1995/1996-1999/2000). They store the data, from Customs & Excise, on wood products imports and exports with a view to analyse it for national planning purposes.

The main weakness is that there is no existing co-ordinated system of national data collection, analysis and dissemination *involving all the above institutions* to compile the information into one comprehensive document, say annually, for users. Consequently, at present it is not easy to obtain a publication providing information on wood products consumption, imports/exports, trade etc. in Namibia.

In the case of the Directorate of Forestry, most of the data on wood production is recorded in the form of correspondence. Some correspondence has been misfiled making it difficult to access the information.

3.3. How data is used and disseminated to other related agencies, to the public, press, etc.

Now there is no single publication on wood products statistics in Namibia. The various organisations engaged in the collection of forestry data do not publish this information.

In the case of the Directorate of Forestry, information from the Permit System is incorporated into the annual reports, which are disseminated to various government ministries and other interested organisations. In addition, if any forestry data is to be released to the press this is done through the ministry's Public Relations Office.

4. Improvements of National Forestry Statistics Process

The data already collected such as the statistics on the status of standing forest resources and from the forest permit system is being used to make informed predictions or to project future trends based on economic forecasts, population etc. For example, this information has been used in the preparation of the Second National Development Plan (NDPII).

National Forestry statistics on wood products have not been systematically and periodically reported in Namibia. Therefore, a process needs to be started to improve the collection and compilation of National Forestry Statistics. Appendix 1 shows the list of companies dealing with wood products in the country. Data on wood products production, consumption and trade must be collected systematically from these institutions. A centralised system of national data collection, analysis and dissemination must be established.

4.1. Proposed practical, cost effective, measures for improvement of data collection, data processing and regular dissemination of statistics related to wood-products.

The following are some measures that should be considered towards the improvement of data collection, data processing and regular dissemination of statistics related to wood products:

- (1) Ministry of Trade & Industry, Ministry of Finance (Customs and Excise) and National Planning Commission (Central Statistics Bureau) should have databases for the capture of forestry data.
- (2) The Directorate of Forestry must become the focal point for regular data processing and regular dissemination of statistics related to wood-products in Namibia. It should design specific forms for recording wood products data from other institutions that are engaged in the collection of wood products data. These relevant ministries/institutions should periodically complete and forward the forms to the Directorate of Forestry. On the other hand, the Directorate of Forestry should obtain copies of the digital data from the above institutions for analysis.
- (3) In view of item 2 above, there will be need for a full time official in the Directorate of Forestry to follow up this exercise to ensure that the forms are indeed completed and returned to forestry and the data entered into the forestry data base and analysed.
- (4) The Chamber of Commerce (Companies dealing in wood products) should be consulted and their co-operation sought about the need to systematically and periodically report on

wood products produced and traded in their companies. This information is beneficial to them because it will eventually show their contribution to the forestry sector, which in turn contributes to the Namibian economy.

Send out a questionnaire regularly to the dealers in wood products (Appendix 1). This list needs to be updated. This contact will enable and facilitate the sharing of important technical and trade information with the wood products dealers to create a friendly relationship which is good for data collection.

- (5) The Directorate of Forestry should produce annually a publication on *Wood-Products Statistics in Namibia*. This document should provide statistics of the whole forestry sector.

4.2 How these proposals can be integrated into the existing organisation.

A forest Official should be appointed to periodically liaise with other organisations/ministries involved in collection of forestry data. A committee, chaired by Directorate of Forestry, should be set up comprising of officials from relevant organisations so that they can meet regularly to exchange views on forestry data collection, compilation and dissemination. They can also form the editorial board for the publication *Wood-Products Statistics in Namibia*.

An expanded wood products database to capture all other wood products statistics currently not covered by the Forest Permit System should be created at the Directorate of Forestry. The new system must be designed in such a way that it is able to store data from other institutions and is easier to retrieve the information to produce the *Wood-Products Statistics in Namibia* being a publication in some agreed format. In this way, the information can be quickly disseminated to the public. The designated Forestry official could collect the raw data from the participating relevant institutions and enter it into the forestry wood products database.

The Forest Inventory and Mapping Section, the Windhoek District Forestry Office (hosting the Forest permit System) and National Remote Sensing Centre (NRSC) are the possible candidates to easily play a role in the data capture, analysis and dissemination of wood products information. The data capture and processing can be handled by the Forest Inventory/Mapping Section and the Windhoek District Forestry Office while production of wood products information in map and other graphic form can be handled by the National Remote Sensing Centre.

5. References and sources

Appendix 1: List of wood products manufacturers

- (1) Registry Files (Correspondence). Directorate of Forestry, Windhoek. Primary source.

The District Forestry Officers collect data in the field, e.g. from concessions and individual permit holders. Primary source.

- (2) Forest Inventory Reports. Directorate of Forestry, Windhoek. Primary Source.

The Directorate of Forestry's Inventory and Mapping Section is carrying out forest inventories in the wooded areas of the northern parts of the country.

- (3) Strategic Plan. Directorate of Forestry, Windhoek. Secondary source.

- (4) Forest Policy. Directorate of Forestry, Windhoek.

- (5) Draft Forest Act. Directorate of Forestry, Windhoek.

- (6) A Guidebook for Manufacturers in Namibia. 1998. Ministry of Trade and Industry. Windhoek. Primary source.

A survey was carried out in 1993 to assess the manufacturers in the country. Dealers in wood products are listed in this document. However, the list needs updating.

- (7) Forest policy for Sustainable Utilisation of the Woodlands and Savannahs of Namibia: A Study on Consumption Patterns of major Wood and Wood Products in Namibia. J. Klaeboe, R. Omwami 1997.

This is both a primary and secondary source. Information was obtained from both secondary sources as well as from questionnaires sent out to respondents in 1996.

- (8) Forest Permit System. Directorate of Forestry, Windhoek. Primary source. The system captures data from permit data sheets and produces summary reports.

- (9) Report on Apparent Consumption of Wood Products in Namibia. B. Siyambango. Directorate of Forestry. March 1996. Both primary and secondary source. Some data were obtained directly from the producers, importers and distributors of wood products.

- (10) 1997/98 Annual Report, Directorate of Forestry. Windhoek.

- (11) The Role of Wood Energy in Africa. Forest Department. Wood Energy Today for Tomorrow (WETT). Regional Studies. July 1999. FAO Working paper FOPW/99/3. (Reference to Definitions, Conventions and Conversion Factors?).

- (12) First National Development Plan (NDP1) Volume 1. 1995/1996-1999/2000. National planning Commission. Windhoek. Namibia.

- (13) Personnel consulted:

Ministry of Trade and Industry: Ms. A.S. Ipinge and Mr. E. Haihambo Tel: 2837326

Ministry of Finance (Customs and Excise): Mr. I Murangi, Tel 2092130

Appendix 1: List of wood products manufacturers

National Planning Commission Secretariat: Ms. Hilda Ampweya, Economist. Tel: 2834025

6. FAO's Yearbook on Forest Products

There is no data reported for Namibia in the FAO's Yearbook on Forest Products on the FE Website. Therefore, it is not possible to review or comment.

It is expected that based on this review the next FAO Yearbook on Forest Products will contain some data on Namibia.

Appendix 1: List of wood products manufacturers

7. Conclusion

Availability of statistics on production, consumption and trade of wood products in Namibia is scanty and to a certain extent non-existent. Presently, there is no systematic and routine national mechanism in place for collection and regular dissemination of wood products statistics in Namibia. Therefore, there is a need to set up such a system.

The Directorate of Forestry has made a start towards improvements in this area through the established Forest Permit System. The Forest Permit System captures data from permits issued by the Directorate of Forestry officials. However, there is need for wider collaboration with and participation of other stakeholders, both private and government institutions, involved in data collection of wood products, in order to develop a complete and reliable picture of wood products production, consumption and trade in the country.

There is a need for, and it is therefore recommended to carry out, a comprehensive survey of institutions dealing with wood products in the country to reliably ascertain the quantities and values of wood products traded. It seems that presently, private institutions are reluctant to providing information to individuals. An officially organised survey would yield more results that are useful.

The data collected must be analysed and interpreted in a user-friendly manner to enable laymen to easily understand it. The analysis should include information mainly in two parts: trade in locally produced wood products; and trade in imported/exported wood products. The data on locally produced wood products should include their quantities and prices, production capacities and actual production of the various wood products dealers in the country, the different categories of wood products dealers and their estimated contribution to the forestry sector etc. The data on imported/exported wood products must critically analyse products actually produced in Namibia and exported, wood products imported and not locally produced, wood products that are re-exported etc. Only in this way will a clear picture of the contribution of the forestry sector to the Namibian economy emerge.

Appendix 1: List of wood products manufacturers

Appendix 1

List of wood products manufacturers

ISIC*	Establishment name	Locality	Physical address	P.O. Box	Tel	Fax
33	Manufacture of Wood and Cork Products					
331	Wood and Cork Products except Furniture					
3311	Sawmills, Planing and other Wood Mills					
	North Trading Namibia (Pty) Ltd	Okahandja	18 Townlands 277	837	0621 501176	0621 502315
	Wood Joiners	Windhoek	Kallie Roodt Street NDC Industrial Units	22662	061 216304	061 216310
3312	Wooden and cane Containers and small Caneware					
	Interbel Holdings/t/a	Okahandja	519 Mangan Street	1349	0621 503344	n/a
	Namibia Burial Services Society & Master W	Ondangwa	Ondangwa	1405	06756 40821	06756 40821
	Metal Box namibia (Pty) Ltd	Walvis bay	224 3 rd Street East	420	064 203051	064 202462
	Mervander (Pty) Lts	Windhoek	76 Rendsburger Street	5102	061 261522	061 215005
3319	Wood and Cork Products					
	Northern Funeral Services	Grootfontein	Toivo Ya Toivo & Sam Nujoma	135	067 242431	067 242431
	Wooden Ways	Omaruru	Wilhelm Zerua Street	285	064 570032	064 570594
	Otjiwarongo Skrynerkers	Otjiwarongo	Edison Street	764	0651 302407	0651 302943
	Namibia Mbangura Woodcarvers Cooperative	Rundu	Namwoco Street	86	067 255406	0671 55608
	Hobby Horse Picture Framing	Swakopmund	Shop No. 2 The Arcade Roon Street			
	A-Z Suppliers	Windhoek	48 Rendsburger Street	6719	061 222951	n/a
	AVBOB Namibia (Pty) Ltd	Windhoek	46 Newcastle Street	5035	061 217497	061 217863
	Callesen Picture Framing	Windhoek	Independence Avenue			
	Kavango Art	Windhoek	Post Street Mall	20947	061 227776	061 228300
	Moderne Picture Frames	Windhoek	14 Volans Street	1234	061 227413	061 225991
	Namibia Crafts Centre	Windhoek	40 Tal Street	24204	061 242222	061 242222
3320	Furniture and Fixtures					
	JJJ Joiners	Gobabis	Roesener Streets	65	061 562500	n/a
	Solid Hardwood Furniture	Gobabis	Kanumas	745	061 562345	061 562345
	Terminalia Furniture	Gobabis	563 Roesener Street	450	061 563073	061 562909

Appendix 1: List of wood products manufacturers

ISIC*	Establishment name	Locality	Physical address	P.O. Box	Tel	Fax
3320	Furniture and Fixtures					
	Grootfontein Puik Skrynwerker	Grootfontein	265 Olienhout Street	840	067 242633	067 242828
	Albert Illmer Tischlerei	Karibib	Fracht Street	64	064 550054	n/a
	Amalgamated Commercial Holdings (Pty) Ltd	Katima Mulilo	Mpacha Road	1003	0677 3020	0677 3408
	Katima Furniture and Repair Shop	Katima Mulilo	Industrial area	544	0677 3364	n/a
	G & L Meubileerders	Keetmanshoo p	Mittle Street	661	063 223314	063 223532
	Keetmanshoo Stoffeerders	Keetmanshoo p	7de Laan	398	063 222553	n/a
	Pape Bau & Moebeltischlerei	Lüderitz	Schintz Street	152	063 202461	n/a
	Mariental Stoffeerders	Mariental	36 Mark Street	427	063 242051	n/a
	E Schoemetzler Tischlerei	Okahandja	115 Uitspannelweg	210	0621 501237	n/a
	Mku Enterprises (Pty) Ltd	Okahandja	40 West street & Ackerman	217	0621 501038	n/a
	Tischlerei Hoch	Okahandja	527 Corner Ackermann and West St	666	0621 501031	0621 501032
	Buchmann Tischlerei	Omaruru	Hof Street	213	064 570176	n/a
	Ehafo Woodwork	Oshakati	Industrial Area 1305	84	06751 20395	06751 23095
	Nembiya Furniture	Oshakati	Oshakati	1437	06751 20387	n/a
	Du Plessis Skrynwerker	Outjo	Station Road	142	0654 313188	0654 37350
	G Britz Skrynwerkers	Rehoboth	Erf 13 Unit No. 4	3343	0627 522249	n/a
	PF Skrynwerker	Rehoboth	Erf 1046 Block E	3096	0627 522507	n/a
	Reho-Line Furniture cc	Rehoboth	Erf 12 Block H	4621	0627 524485	n/a
	Palm Joineries	Rundu	Kwatoko street	P/Bag 2081	067 250211	067 250211
	C Rau Nachfolger H Lorenz Joinery	Swakopmund	5 Feld Street	371	064 402295	064 402295
	DG Fritze Joinery & Cabinetmakers	Swakopmund	MC Hugh Street	673	064 461143	064 461974
	HH Joiners	Swakopmund	12 Phillip Street	3750	064 4062741	n/a
	Johan Retief JR Kitchens	Swakopmund	52 Feld Street	230	064 404981	064 404983

Appendix 1: List of wood products manufacturers

	Swakop Tischlerei	Swakopmund	8 Feld Street	1580	064 202245	n/a
	Ahrens KWH	Tsumeb	5 Verlaengerung	782	067 221361	n/a
	George Gruber Cabinet Makers	Tsumeb	Banhof Street	461	067 222084	n/a
	The Wood Connection CC	Windhoek	Cullianan Street	11158	061 246104	061 246103

ISIC*	Establishment name	Locality	Physical address	P.O. Box	Tel	Fax
3320	Furniture and Fixtures					
	Hofmann Bau und Moebel Tischlerei	Usakos	Erf 205 4 th Street	73	064 530158	n/a
	Dias Kithcens	Walvis Bay	273 11 th Street	478	064 204919	064 209213
	Bernad's antique Gallery	Windhoek	Mutual Platz Post St	3143	061 221546	061 221546
	Beuck Tischlerei	Windhoek	20 Krupp Street	n/a	061 230307	n/a
	Business Furniture Manufacturers	Windhoek	Silver Street	11507	061 227000	061 226670
	Carlo Upholstery	Windhoek	3 Voigt Street	2596	061 227162	061 236339
	City Kitchens	Windhoek	2 Nasmyth Street	6630	061 263085	061 216688
	Executive Office Collections (Pty) Ltd	Windhoek	Milton Street	11507	061 227000	061 231052
	Feracor Joinery Works (Pty) Ltd	Windhoek	4 Nasmyth Street		061 233141	061 33142
	Grote Bau & Möbel Tischlerei	Windhoek	Florence Nightingale Street	10245	061 212640	n/a
	Grote Joiners	Windhoek	Erf 2295 Hibiscus street	10245	061 212640	
	H Jensen Bau & Möbeltischlerei	Windhoek	8 Nasmyth Street	5289	061 233623	061 233644
	Modern joinery shop	Windhoek	Hostel Street	7647	061 216172	n/a
	Modules Cupboard	Windhoek	42 Tal Street	5160	061 232337	061 232337
	Namibia Wood Industry (Pty) Ltd	Windhoek	Danzing Street	5536	061 263231	061 263231
	Scandia Furniture	Windhoek	Joule & Smyth Street	5319	061 225026	061 233970
	Schoemans Namibia	Windhoek	4 Goethe Street & Nelson Mandela	2600	061 238320	061 232201
	Tischlerei werner (Pty) Ltd	Windhoek	30 joule Street	11106	061 225506	061 236482
	Upholstery Services	Windhoek	28 Lazrett Street	6128	061 236136	061 225669
	Versi Struct (Pty) Ltd	Windhoek	Dr. Michael de Kock Street	1597	061 262800	061 263058
	Universal Wood Industries of namibia	Katima Mulilo	High Way Garage-Mpacha Road	P/Bag 1003	0677 3020 Ext 138	0677 3408
34	Manufacture of Paper and Paper Products					
3411	Manufacture of Pulp, Paper and Paperboard					
	Walpak (Pty) Ltd	Walvis Bay	Oceana Street UFE Property	2847	064 204881	064 209273
	Napcon Industries (Pty) Ltd	Windhoek	Newcastle Street	9859	061 218454	061 218455
3412	Containers and Boxes of Paper and Paperboard					
	Kohler Packaging (Pty) Ltd	Walvis Bay	216 3 rd Street East	399	064 203121	064 204192

3419	Pulp, Paper and Paperboard Articles					
	Frieden Stationery Manufacturers	Windhoek	Zinc & Nickel Street	23084	061 234971	n/a
	Windhoek Stationers (Pty) Ltd	Windhoek	13 Tommy Muller Street	23008	061 262177	061 217775
3420	Printing, Publishing and Allied Industries					
	Eloc Printing Press	Ondawa	Oniipa	Ondangwa P/Bag 2013	06756 40211	06756 40536
	Nation Press	Tsumeb	Erf 139 4 th Avenue	1021	067 222092	067 222093
	Coastal Printers	Walvis Bay	18 th Road	732	064 202488	064 207072
	Marine moulding (Pty) Ltd	Walvis bay	Oceana Street	1695	064 205293	064 203240
	All Printing and Publishing (Pty) Ltd	Windhoek	Newcastle Street	24535	061 250535	061 214070
	Capital Press	Windhoek	Corner of Church and Bismark Sts	6248	061 221012	061 221015
	Contact Price Marking Labels	Windhoek	148 Republic Road	31386	061 238747	061 226077
	Democratic Media Holdings (Pty) Ltd	Windhoek	49 Stübel Street	3436	061 230331	061 239638
	Die Republikein Newspaper and Printing Group	Windhoek	49 Stübel Street	3436	061 230331	061 239635
	Gerhard Botha	Windhoek	44 Indepence Avenue	21907	061 235551	061 232350
	Inter-Africa outdoor Advertising (Namibia)	Windhoek	12 Krupp Street	24139	061 229019	061 225158
	Multi Services	Windhoek	43 Tal Street	9240	061 237905	061 222927
	Namib Graphics (Pty) Ltd	Windhoek	7 Gutenberg Street	24153	061 220095	061 229045
	Pidgeon Screenprint	Windhoek	30 Hochland Road	671	061 227865	061 229924
	Prime Press	Windhoek	13 Diehl Street	30287	061 232887	061 226883
	Progressive Typesetters (Pty)	Windhoek	47 Marconi Street	5668	061 223778	061 221669
	Sign-On	Windhoek	Ranckel Street Shop no. 15 NDC	21771	061 211474	061 211802
	Studio Print	Windhoek	145 Stübel Street	1586	061 238277	061 220399
	Studiographix (Namibia) (Pty) Ltd	Windhoek	25 Schönlein Street	9298	061 222813	061 220104
	Typoprint (Pty) Ltd	Windhoek	Macadam Street	1762	061 228777	061 221401
	Printech	Windhoek	17 Nickle Street	10482	061 261201	061 261695

Appendix 2

Imports of wood products by country 'imported from', CIF in N\$

Wood Product	Country	Year					Total Imports
		1995	1996	1997	1998	1999	
Charcoal	Angola	346	100				446
	Botswana		385	300			685
	S. Africa	995,882	2,344,724	1,820,492	1,599,770	276,029	7,036,897
	Zambia	400	518	6,014			6,932
	Zimbabwe	54,154	21,113				75,267
Chipwood	Angola	290	130		448		868
	Botswana		874	406			1,280
	Germany	8,522					8,522
	S. Africa	5,816,630	8,882,788	8,502,549	16,837	5,166,260	28,385,064
	Spain				575		575
	Zambia	24,597	460	1,325			26,382
	Zimbabwe		153,860	3,296	61,581		218,737
Fibre board	Brazil			36,743			36,743
	France	43,074					43,074
	Germany	443					443
	Kenya			3,468			3,468
	S. Africa	7,692,641	11,645,535	9,926,166	23,391,727	2,737,921	55,393,990
Fuelwood	Angola	105,000	3,402	800			109,202
	Germany			236	2,430		2,666
	Ghana				499		499
	Japan				2,801		2,801
	Malawi		150	500			650
	S. Africa	936,814	936,814	936,814	936,814	936,814	4,684,070
	Tanzania			330			330
	Zambia		6,884	2,293			9,177
Household and Sanitary	Angola	2,857	583		330		3,770
	Antartica		23,009				23,009
	Austria	242,740					242,740
	Azerbaijan			3,780	1,133		4,913
	Belgium				10,216		10,216
	Botswana	9,181	10,565	2,128	53,310	21,338	96,522
	Cameroon				3,000		3,000
	Canada	241				1,372	1,613
	China	32,747	14,293	24,955	80,337	7,110	159,442
	Denmark		2,208	62			2,270
	Finland				60		60
	France	1,085	2,178	120,524			123,787
	Germany	211,098	114,234	209,255	207,851	86,062	828,500
	Ghana	6,227	6,059	7,733	1,022	509	21,550
	Hong-Kong	32,816	13,334	17,779	6,525		70,454
	India				9,867	8,568	18,435
	Israel			1			1

Appendix 1: List of wood products manufacturers

Household and Sanitary	Italy			586	1,695		2,281
	Japan		2,111		2,508		4,619
	Kenya	2,504	4,509	18,653	2,641	300	28,607
	Malawi	2,350	994	820	2,700	2,338	9,202
	Malaysia	4			3,984		3,988
	Mali		1,000				1,000
	Netherlands				19,033		19,033
	Philippines			2,200			2,200
	Portugal				2,652		2,652
	Russia	1,307					1,307
	S. Africa	44,853,345	56,284,106	77,458,671	93,003,009	27,662,273	299,261,404
	Spain	54,933	43,210	20,607	3,731	19,558	142,039
	Sweden	640			1,803		2,443
	Switzerl.	150		1,215	5,500		6,865
	Taiwan	2,689		1,044	4,180	2,005	9,918
	Tanzania	4,746	227		1,350		6,323
	Thailand	149				26	175
	Uganda		694				694
	UK	241,955	139,370	40,317	21,956	13,059	456,657
	USA	3,649	24,082	7,160	21,263	2,974	59,128
Zambia	146,207	5,721	2,311	20,228		174,467	
Zimbabwe	56,810	37,359	48,853	27,289	450	170,761	
Newsprint	S. Africa	1,601,874	3,099,584	604,713	1,009,387	284,158	6,599,716
	Sweden			506,687			506,687
Paper and Paperboard	Angola		6,900	316	2,929		10,145
	Australia	134,325			181	11,196	145,702
	Austria				1,018		1,018
	Azerbaijan				2,721		2,721
	Belgium	71	312				383
	Botswana			573			573
	Canada	4,003		1,292	4		5,299
	Chile				142		142
	China			4,236		21,745	25,981
	Cyprus	113					113
	Czech&Slovak			72,668			72,668
	Denmark	191,740	171,889	59,044	106	2,214	424,993
	Emirates				1,602	1,458	3,060
	France	93		12	9,614		9,719
	Germany	365,854	525,346	504,744	341,635	155,178	1,892,757
	India	1,695	5,824	6,070	8,751		22,340
	Indonesia				91,491		91,491
	Ireland			225	50		275
	Israel	43					43
	Italy	36			1,000	53,924	54,960
	Japan	2,239	25,769	24,794	825	20,777	74,404
	Lebanon	864					864
	Malaysia		8,349	38	65		8,452
N.		142,725	317			143,042	

Appendix 1: List of wood products manufacturers

Paper and Paperboard	Zealand						
	Netherlands	5,926		25		3,769	9,720
	Norway	1,342	31,767	37,106			70,215
	Panama			30,151			30,151
	Poland			236			236
	Portugal		5,860				5,860
	Russia	148	12,573				12,721
	S. Africa	168,659,439	147,263,217	161,974,997	135,272,893	71,745,327	684,915,873
	Singapore			0	35,296		35,296
	Spain	10,560	390,297	171,501	1,681,912	679,835	2,934,105
	Sweden		11,013	429	35	125	11,602
	Switzerl.		1,191	3,099			4,290
	Taiwan				6,030		6,030
	Thailand					742	742
	UK	14,353	4,005	28,926	265,495	48,900	361,679
	USA	9,332	21,710	9,976	44,592	5,997	91,607
	Zambia	91,012					91,012
Zimbabwe	1,112,671	31,597	2,038	1,201		1,147,507	
Particle board	Germany	6,601			412	6,496	13,509
	Japan				5,685	14,760	20,445
	S. Africa	1,077,714	1,165,524	3,112,092	5,592,817	5,457,142	16,405,289
Plywood	Canada	262					262
	Germany	32,290			2,136	3,126	37,552
	Japan				462		462
	Kenya			300			300
	S. Africa	686,923	2,015,788	4,570,219	4,908,719	1,400,962	13,582,611
	Spain		2,091				2,091
	Taiwan				13,892	1,127	15,019
	USA				1,476		1,476
	Zimbabwe	136,488	391,566	140,681			668,735
Printed Matter	Algeria		1	2			3
	Angola		366	258	4,899	1,108,980	1,114,503
	Australia	1,653	12,556	1,000	1,561	5,901	22,671
	Austria	1,888	35,020	22,474	76,102		135,484
	Azerbaijan			225			225
	Bangladesh			1			1
	Belgium	7,930	5,199	421	110,772	38,481	162,803
	Bermuda	50					50
	Bhutan		1				1
	Botswana	9,477	7,471	45,645	11,343	2,773	76,709
	Brazil			2	217		219
	Bulgaria	50		2,120			2,170
	Canada	6,770	396	9,701	21,439	24,163	62,469
	Cayman Is.		1				1
	Chile			48			48
	China	1,137	50,940	801	18,397	10,465	81,740
	Cuba	760	1,010	401			2,171
	Cyprus	141		161			302
	Denmark	9,985	11,839	45,208	35,566	11,971	114,569

Appendix 1: List of wood products manufacturers

Egypt	520	769	1,616			2,905
Emirates	200				6	206
Ethiopia	300	414	51			765
Falkland I		1				1
Finland	4,947	14,515	1,711	58,862	6,633	86,668
France	77,428	161,680	35,713	212,047	100,486	587,354
Germany	480,292	635,314	1,088,927	1,513,242	1,138,677	4,856,452
Ghana		192	1,824			2,016
Grenada	35					35
Guinea		50				50
Hong-Kong	179,230		6,838	373,817		559,885
Iceland		136	567	3,412		4,115
India	972	9,397	914	59,146	52,043	122,472
Indonesia	2	212	9			223
Iran		10	5		3,000	3,015
Ireland			59,656	75,350	140,690	275,696
Israel	27,622				121	27,743
Italy	4,506	2,026	20,426	38,322	10,673	75,953
Japan	1,009,203	1,525	4,138	71,618	36,176	1,122,660
Kenya	12,985	8,949	10,098	58,377	16,437	106,846
Libya	122	72	2			196
Liechtenst				67		67
Luxembourg		58,666		239,529	2,000	300,195
Macau				50		50
Malaysia		103	1,098	27,600	15,202	44,003
Mali		346		533,638	79,527	613,511
Malta	50	1	50			101
Mexico				868	5,913	6,781
Monaco		329				329
Mozambique	270	364				634
Muaritius	5,000					5,000
N. Zealand			10			10
Neth. Ant.					101,969	101,969
Netherland	194,666	5,836	1,965,536	285,212	1,090	2,452,340
Nieu			50			50
Nigeria	300	828	250	2,000		3,378
Norway	37,897	123	3,646	100		41,766
Oman					6,218	6,218
Pakistan			48			48
Panama				1,164		1,164
Philippine	50	121	2,021			2,192
Poland		3,726	3,048			6,774
Portugal	1	24	90	11,812	7,690	19,617
Russia	989	514	100		50	1,653
Rwanda		6				6
S. Africa	90,637,437	105,782,865	96,021,722	202,972,405	66,673,976	562,088,405
S. Korea		3,360		8,047	10,137	21,544
Saudi Arab			6,300			6,300

Printed Matter

Appendix 1: List of wood products manufacturers

Printed Matter	Singapore	640,517			27,406	103,653	771,576
	Slovenia				50		50
	Spain	6,282	16,133	31,659	38,067	1,990	94,131
	Surinam	50					50
	Sweden	54,259	13,485	9,681	35,783	26,249	139,457
	Switzerl.	24,890	548,819	13,090,503	16,350,225	611,749	30,626,186
	Taiwan		187	531	52	972	1,742
	Tanzania				50		50
	UK	1,041,978	655,668	2,462,396	1,915,004	52,963,855	59,038,901
	Ukraine			1			1
	USA	901,005	210,578	139,848	594,591	123,439	1,969,461
	Venezuela	260	294				554
	W. Sahara		57				57
	Zaire	50					50
	Zambia	380	204	16,051			16,635
Zimbabwe	432,396	82,189	86,029	237,529	29,061	867,204	
Pulp	Germany	8,187	4,888	857	9,766		23,698
	S. Africa	137,596	324,647	278,346	681,504	138,299	1,560,392
	Spain			108			108
Pulp Chemical	S. Africa	11,898	82,777	37,914	23,824	948	157,361
	Zimbabwe			3,600			3,600
Pulp Mechanical	S. Africa	18,954	58,928	19,362		147	97,391
Pulp Semi Chemical	S. Africa	300,748	976,651	1,542,827	4,337,119	697,338	7,854,683
Roundwood	Andorra		1,433				1,433
	Angola	360					360
	Botswana		29,909				29,909
	Denmark			71			71
	Kenya			2,438			2,438
	Malaysia	78,704					78,704
	S. Africa	3,490,725	3,897,083	7,854,440	6,238,348	2,710,770	24,191,366
	Taiwan				69		69
	Zambia	107,479		2,777			110,256
	Zimbabwe	67,584	75,257	130		176,928	319,899
Sawdust	Malawi	300					300
	S. Africa	334,377	984,509	168,600	347,578	61,771	1,896,835
	Zambia	100	200				300
Sawnwood Hard	Angola	231,267	31,518				262,785
	Austria	30,268					30,268
	Botswana		1,999	1,513			3,512
	Canada			6			6
	Denmark				13,224	8,277	21,501
	Germany	90,939	798	26	50,728		142,491
	Kenya				632		632
	Malaysia	49,473	16,925				66,398
	Nigeria	100					100
	S. Africa	4,181,803	1,898,148	3,007,080	3,589,419	912,325	13,588,775
	Singapore		198,316				198,316
	Tanzania				150		150
	Zambia	74,086	31,473	14,230	16,650		136,439

Appendix 1: List of wood products manufacturers

	Zimbabwe	142,158	130,468		133		272,759
Sawnwood Soft	Angola	150		10,000			10,150
	Botswana		150				150
	Germany	42,489				1,370	43,859
	S. Africa	6,424,976	10,760,710	9,169,717	12,755,271	6,509,157	45,619,831
	Zambia	319,746	550,766	235,519	10,493		1,116,524
	Zimbabwe	63,559	264,567	63,948			392,074
Sleepers	S. Africa	583,409	255,611	1,568,693	912,447	41,562	3,361,722
	Zambia	300					300
Veneer sheets	Angola	26,701					26,701
	Denmark					70,057	70,057
	Germany	582					582
	S. Africa	1,167,279	546,620	569,319	374,812	343,838	3,001,868
	Zambia	180					180
Waferboard	S. Africa			6,046,867	3,904,378	383,770	10,335,015
Woodwool	Germany	3,674					3,674
	S. Africa	37,954	68,037	48,382	12,257	8,646	175,276
	Zambia		350				350
Wrapping and Packaging	Germany			438			438
	India	6					6
	S. Africa	2,269,523	1,338,306	2,598,829	2,407,014	674,183	9,287,855
	Spain			28,819			28,819

Appendix 3

Imports of wood products by country 'imported from', in Kg

Wood Product	Country	Year					Total Imports
		1995	1996	1997	1998	1999	
Charcoal	Angola	2	2,000				2,002
	Botswana		1	1			2
	S. Africa	3,989,429	842,772	586,825	669,692	332,939	6,421,657
	Zambia	1	2	14			17
	Zimbabwe	1	1				2
Chipwood	Angola	2	1		1		4
	Botswana		3	1			4
	Germany	16					16
	S. Africa	3,294,645	4,753,187	5,275,494	10,868,370	4,479,862	28,671,558
	Spain				50		50
	Zambia	65,445	3	2			65,450
	Zimbabwe		15,921	2	59,609		75,532
Fibre board	Brazil			20,190			20,190
	France	15,400					15,400
	Germany	1					1
	Kenya			250			250
	S. Africa	1,396,222	3,156,584	1,376,915	1,386,133	666,983	7,982,837
Fuelwood	Angola	1	1,300	1			1,302
	Germany			15	200		215
	Ghana				66		66
	Japan				140		140
	Malawi		1	1			2
	S. Africa	259,992	257,734	110,662	248,328	97,752	974,468
	Tanzania			1			1
	Zambia		9	6			15
	Angola	14	4		30		48
	Antartica		638				638
	Austria	9,556					9,556
	Azerbaijan			4,032	31		4,063
	Belgium				414		414
	Botswana	224	344	16	1,001	316	1,901
	Cameroon				955		955
	Canada	14				3	17
	China	1	68,325	202	2,869	160	71,557
	Denmark		449	1			450
	Finland				1		1
	France	5	1	70,231			70,237
	Germany	9,502	7,446	24,180	16,307	60,312	117,747
	Ghana	1,119	359	689	96	114	2,377
	Hong-Kong	3,921	1,680	224,000	2,375		231,976
	India				503	284	787
	Israel			1			1
	Italy			104	81		185

Appendix 1: List of wood products manufacturers

Household and Sanitary	Japan		14		27		41
	Kenya	818	1,272	4,708	1,469	154	8,421
	Malawi	5	2	1	2	2,157	2,167
	Malaysia	2			129		131
	Mali		1				1
	Netherland				850		850
	Philippine			18			18
	Portugal				32		32
	Russia	200					200
	S. Africa	8,318,553	47,472,635	34,510,671	74,355,771	38,532,979	203,190,609
	Spain	45,716	30,309	136	413	710	77,284
	Sweden	140			17		157
	Switzerl.	25		343	252		620
	Taiwan	1,886		32	600	1,260	3,778
	Tanzania	1,267	1		139		1,407
	Thailand	10				1	11
	Uganda		21				21
	UK	5,904	50,314	1	316	982	57,517
	USA	21	1,697	1,317	184	35	3,254
	Zambia	14,427	1,125	1,318	2,009		18,879
Zimbabwe	8,835	9,785	1,206	2,773	50	22,649	
Newsprint	S. Africa	98,249	193,287	33,686	163,445	37,033	525,700
	Sweden			157,729			157,729
Paper and Paperboard	Angola		1	2	4		7
	Australia	600			114	56	770
	Austria				9		9
	Azerbaijan				1		1
	Belgium	14	2				16
	Botswana			24			24
	Canada	28		110	4		142
	Chile				5		5
	China			89		225	314
	Cyprus	2					2
	Czech&Slov			13,448			13,448
	Denmark	12,808	6	6,415	14	12	19,255
	Emirates				1,105	204	1,309
	France	15		8	105		128
	Germany	12,216	12,895	52,896	21,306	6,156	105,469
	India	50	140	170	146		506
	Indonesia				26,892		26,892
	Ireland			58	4		62
	Israel	1					1
	Italy	1			1	42,960	42,962
	Japan	13	679	772	19	69	1,552
	Lebanon	60					60
	Malaysia		1	21	8		30
	N. Zealand		606	17			623
	Netherland	1		30		33	64
	Norway	78	2	1			81
Panama			1,620			1,620	

Appendix 1: List of wood products manufacturers

	Poland			13			13
	Portugal		1				1
	Russia	25	1				26
	S. Africa	43,201,346	10,679,997	11,079,572	20,170,075	11,593,477	96,724,467
	Singapore				8,976		8,976
	Spain	1,581	169,908	18,004	207,116	33,345	429,954
	Sweden		282	7	1	7	297
	Switzerl.		1	1			2
	Taiwan				378		378
	Thailand					41	41
	UK	320	58	201	31,766	435	32,780
	USA	390	728	109	2,232	205	3,664
	Zambia	43,956	0				43,956
	Zimbabwe	426,288	1,449	197	13		427,947
Particle board	Germany	105			150	1,540	1,795
	Japan				44	4	48
	S. Africa	244,763	713,811	738,947	1,293,279	2,143,243	5,134,043
Plywood	Canada	34					34
	Germany	1,324			4,500	450	6,274
	Japan				20		20
	Kenya			96			96
	S. Africa	66,294	312,988	1,014,230	2,312,351	290,062	3,995,925
	Spain		25				25
	Taiwan				11,000	2,000	13,000
	USA				657		657
	Zimbabwe	20,073	136,961	8,502			165,536
	Algeria		1	10			11
	Angola		45	6	236	3	290
	Australia	101	375	7	198	3,990	4,671
	Austria	365	914	296	154		1,729
	Azerbaijan			27			27
	Bangladesh			61			61
	Belgium	466	113	51	8,409	574	9,613
	Bermuda	3					3
	Bhutan		1				1
	Botswana	1,273	1,277	2,322	1,399	49	6,320
	Brazil			19	14		33
	Bulgaria	9		30			39
	Canada	273	183	550	2,562	370	3,938
	Cayman Is.		1				1
	Chile			3			3
	China	144	805	96	665	236	1,946
	Cuba	99	102	61			262
	Cyprus	2		11			13
	Denmark	54	180	269	196	67	766
	Egypt	121	96	132			349
	Emirates	5				1	6
	Ethiopia	76	278	7			361
	Falkland I		1				1
	Finland	313	391	147	1,478	422	2,751

Appendix 1: List of wood products manufacturers

Printed Matter	France	1,680	806	1,108	1,899	1,078	6,571
	Germany	13,720	16,154	30,943	61,263	24,279	146,359
	Ghana		1	25			26
	Grenada	652					652
	Guinea		1				1
	Hong-Kong	13,543		218	358		14,119
	Iceland		1	29	55		85
	India	136	736	370	458	195	1,895
	Indonesia	35	44	50			129
	Iran		10	20	0	153	183
	Ireland			1,344	1,719	1,229	4,292
	Israel	14				2	16
	Italy	718	407	761	392	499	2,777
	Japan	593	32	111	593	93	1,422
	Kenya	947	90	264	125	122	1,548
	Libya	5	4	11			20
	Liechtenst				17		17
	Luxembourg		4		1,461	10	1,475
	Macau				87		87
	Malaysia		5	204	490	206	905
	Mali		28		2,701	57	2,786
	Malta	1	1	10			12
	Mexico				17	36	53
	Monaco		4				4
	Mozambique	40	21				61
	Muaritius	121					121
	N. Zealand			3			3
	Neth. Ant.					5,518	5,518
	Netherland	1,758	740	22,365	1,539	217	26,619
	Nieu			1			1
	Nigeria	655	53	25	126		859
	Norway	1,120	35	23	200		1,378
	Oman					6	6
	Pakistan			1			1
	Panama				16		16
	Philippine	4	2	208			214
	Poland		1	4			5
	Portugal	19	5	47	763	408	1,242
	Russia	197	59	4		10	270
	Rwanda		1				1
S. Africa	4,357,021	7,186,614	3,364,461	5,595,811	1,559,762	22,063,669	
S. Korea		405		302	830	1,537	
Saudi Arab			1,785			1,785	
Singapore	7,517			533	904	8,954	
Slovenia				28		28	
Spain	523	1,424	6,989	434	102	9,472	
Surinam	6					6	
Sweden	796	161	316	9,147	60	10,480	
Switzerl.	1,211	179	3,448	22,244	165	27,247	
Taiwan		15	25	9	670	719	
Tanzania				38		38	

Appendix 1: List of wood products manufacturers

	UK	28,351	9,654	37,644	34,157	19,501	129,307
	Ukraine			60			60
	USA	62,383	5,189	7,468	43,526	2,077	120,643
	Venezuela	38	31				69
	W. Sahara		11				11
	Zaire	9					9
	Zambia	7	5	356			368
	Zimbabwe	1,048	1,105	1,719	973	426	5,271
Pulp	Germany	1,443	233	9	11		1,696
Pulp	S. Africa	7,224	4,547	24,137	89,338	24,239	149,485
Pulp	Spain			18			18
Pulp Chemical	S. Africa	564	6,410	3,986	1,653	92	12,705
	Zimbabwe			6			6
Pulp Mechanical	S. Africa	1,519	1,156	2,143		2	4,820
Pulp Semi Chemical	S. Africa	79,522	510,361	327,757	1,221,581	165,654	2,304,875
Roundwood	Andorra		1				1
	Angola	26					26
	Botswana		1				1
	Denmark			10			10
	Kenya			1,260			1,260
	Malaysia	26,279					26,279
	S. Africa	749,259	1,514,674	2,172,286	3,308,788	1,582,688	9,327,695
	Taiwan				300		300
	Zambia	129,008		9			129,017
	Zimbabwe	11,036	182,000	10		77,094	270,140
Sawdust	Malawi	1					1
	S. Africa	216,460	707,838	40,486	234,482	86,442	1,285,708
	Zambia	1	1				2
Sawnwood Hard	Angola	45,769	406				46,175
	Austria	400					400
	Botswana		2	2			4
	Canada			1			1
	Denmark				4,455	9,240	13,695
	Germany	3,231	13	20	7,582		10,846
	Kenya				16		16
	Malaysia	2	8,315				8,317
	Nigeria	1					1
	S. Africa	662,993	330,572	494,092	1,378,018	238,534	3,104,209
	Singapore		52,292				52,292
	Tanzania				100		100
	Zambia	111,429	29,126	8	8,409		148,972
Zimbabwe	69,550	40,700		27		110,277	
Sawnwood Soft	Angola	1		20,000			20,001
	Botswana		1				1
	Germany	3,216				2,853	6,069
	S. Africa	2,208,328	1,988,147	2,843,337	11,332,800	3,082,897	21,455,509
	Zambia	185,919	739,535	36,647	3		962,104
	Zimbabwe	1	85,470	77,006			162,477

Appendix 1: List of wood products manufacturers

Sleepers	S. Africa	234,332	40,104	5,028,071	878,851	61,040	6,242,398
	Zambia	1					1
Veneer sheets	Angola	120,000					120,000
	Denmark					13,860	13,860
	Germany	1					1
	S. Africa	59,953	176,686	151,831	31,868	92,385	512,723
	Zambia	2					2
Waferboard	S. Africa			934,368	1,661,893	133,320	2,729,581
Woodwool	Germany	1,350					1,350
	S. Africa	51,303	43,332	88,651	16,647	1,035	200,968
	Zambia		1				1
Wrapping and Packaging	Germany			102			102
	India	1					1
	S. Africa	240,927	82,466	378,538	363,995	90,156	1,156,082
	Spain			1,000			1,000

Appendix 4

Exports of wood products by country 'exported to', FOB in N\$

Wood Product	Country	Year			Total Exports
		1997	1998	1999	
Charcoal	Argentina	22			22
	Belgium	127,446	130,000	602,305	859,751
	Botswana	8,330	43,500		51,830
	Bulgaria		72,000		72,000
	Germany	858,111	136,000	100	994,211
	Japan	560			560
	Panama	118			118
	S. Africa	11,063,007	6,741,229	1,946,369	19,750,605
	Spain	135,071			135,071
	UK	329,954	1,295,213	184,097	1,809,264
Chipwood	Angola	15,837	200	2,621	18,658
	S. Africa	422,238	1,309,271	441,830	2,173,339
	USA		50		50
Fibre board	Angola	1,656	932	3,003	5,591
	S. Africa	49,803	69,241	40,000	159,044
	USA		330		330
Fuelwood	Germany	15			15
	S. Africa	75,570	271,588	59,676	406,834
	Taiwan	20			20
Household Sanitary and	Angola	420,802	163,733	182,737	767,272
	Argentina	3,982			3,982
	Australia	2,753	3,000	4,375	10,128
	Austria	12,099	3,258	850	16,207
	Belgium	129,163	139,453	91,147	359,763
	Botswana	804	447		1,251
	Brazil	92			92
	Canada		800	5,000	5,800
	Chile	143,842			143,842
	Czech&Slov	33,634			33,634
	Denmark	333,670	88,182	55,667	477,519
	Egypt		572		572
	Emirates			35,000	35,000
	Finland		120		120
	France	109,086	172,542	108,195	389,823
	Germany	211,808	771,659	223,453	1,206,920
	Ireland		3,000		3,000
	Italy	76,086	48,723	35,571	160,380
	Japan	1,100			1,100
	Latvia		300		300
Liechtenst	22,000			22,000	
Malaysia	28,172			28,172	
Neth. Ant.	120			120	
Netherland	650	4,350	500	5,500	

Appendix 1: List of wood products manufacturers

	Norway	267	398		665
	Panama	38		5,427	5,465
	Portugal	650	10,449		11,099
	Russia	5,104	40	352	5,496
	S. Africa	4,471,196	6,276,637	1,092,467	11,840,300
	Slovak		36,711		36,711
	Spain	48,599	126,457	61,280	236,336
	St Vincent			142	142
	Sweden	17,203	20,683		37,886
	Switzerl.	11,483	12,945		24,428
	Taiwan	31,812	61,945	150	93,907
	Uganda		3,650		3,650
	UK	83,705	368,672	199,525	651,902
	Ukraine	188			188
	USA	130,618	126,970	52,589	310,177
Newsprint	Angola		1,120		1,120
	Botswana	490			490
	Germany		1,500		1,500
	S. Africa	26,760	56,742		83,502
Paper Paperboard	Amer Samoa		1		1
	Angola	615,561	739,171	309,401	1,664,133
	Argentina	84,396	27,500		111,896
	Australia	67,500		1,026	68,526
	Bahamas			813,288	813,288
	Barbados		148,420	28,215	176,635
	Belgium	135,000		2,000	137,000
	Belize			19,846	19,846
	Botswana		1,239		1,239
	Canary	174,394	48,770		223,164
	Cyprus	42,075			42,075
	Denmark			14,213	14,213
	Falkland I	333,500			333,500
	Gambia			36,173	36,173
	Germany	500		150	650
	Greece	294,750			294,750
	Iceland	47,373	11,160		58,533
	Ireland	50			50
	Italy		38,600		38,600
	Jamaica	139,688			139,688
	Japan	221,993	280,289	132,995	635,277
	Lithuania		514,000	4,472	518,472
	Luxembourg	1,720			1,720
	Mozambique			51,400	51,400
	Netherland		3,534		3,534
	Norway	15,550			15,550
	Panama	90,000	56,694	1,671	148,365
	Portugal	12,345			12,345
	Romania	125,000	486,444		611,444
	Russia	6,194,940	7,938,047	3,792,820	17,925,807
	S. Africa	4,735,073	3,494,604	1,053,326	9,283,003
	Spain	332,236	31,669	100	364,005
St Vincent	4,533,170	10,115,449	7,608,845	22,257,464	

Appendix 1: List of wood products manufacturers

	Tanzania		7,154		7,154
	UK		50	43,602	43,652
	Ukraine	422,982	119,250		542,232
	USA	49,500	72,297	41,823	163,620
	Zambia			50	50
Particle board	Muaritius		1,025		1,025
	S. Africa	28,270	182,657	1,565	212,492
Plywood	Angola	4,864		2,640	7,504
	Faeroe Is.	4,454			4,454
	S. Africa	154,315	23,010		177,325
Printed Matter	Algeria	1			1
	Angola	65,337	75,585	43,942	184,864
	Argentina	364			364
	Australia	1,240			1,240
	Austria	260		110	370
	Azerbaijan	50			50
	Belgium	520	500		1,020
	Botswana	29,845	5,774		35,619
	Brazil	51	100		151
	Cambodia	800			800
	Canada	2,512	120	400	3,032
	Chile	77			77
	China	250	120		370
	Cuba	200		50	250
	Denmark			50	50
	Egypt	241			241
	Emirates			50	50
	Ethiopia	250			250
	Finland	4		20	24
	France	770	760	20,000	21,530
	Germany	262,537	88,672	29,459	380,668
	Iceland		3,412		3,412
	India	108		10,500	10,608
	Indonesia	5			5
	Iran	6			6
	Israel	1,000			1,000
	Italy	550		8,117	8,667
	Japan	23			23
	Kenya	801	120	50	971
	Lesotho	15,990			15,990
	Libya	11			11
	Liechtenst	20			20
	Madagascar	10,000			10,000
	Malawi		450		450
Malaysia	255		1,450	1,705	
Malta	1			1	
N. Zealand	150			150	
Netherland	133		100	233	
Nigeria	250			250	
Panama	364		2,707	3,071	
Portugal	20	22,829		22,849	
Russia	830		50	880	

Appendix 1: List of wood products manufacturers

	S. Africa	21,091,927	11,608,626	164,860,423	197,560,976
	Saudi Arab		50		50
	Spain	664	19,270	50	19,984
	Sudan			1,500	1,500
	Sweden	1,500	25,398	70	26,968
	Switzerl.	339	102,297	15,000	117,636
	Tanzania		850	600	1,450
	Turkey		2,000		2,000
	UK	282,538	106,411	9,850,136	10,239,085
	USA	6,632	6,048	6,008	18,688
	Venezuela	141			141
	Zambia		1,070	100	1,170
	Zimbabwe	504	80	2,000	2,584
Pulp	Angola	175			175
	S. Africa	6,350			6,350
Pulp Chemical	S. Africa		12,714		12,714
Pulp Mechanical	Angola		258		258
	S. Africa	11,366			11,366
Pulp Semi Chemical	S. Africa	1,500	369		1,869
Roundwood	Angola	15,021	8,516	4,609	28,146
	Germany	520	100		620
	S. Africa	209,068	228,147	84,200	521,415
	USA			11,774	11,774
Sawdust	Italy	450,120			450,120
	S. Africa	418,475	11,850	8,700	439,025
Sawnwood Hard	Angola	3,050	12,577	9,472	25,099
	Barbados		583		583
	Germany	4,200			4,200
	Honduras	12,422			12,422
	Russia	140			140
	S. Africa	49,727	239,578	1,503	290,808
	St Vincent	1,950	1,906		3,856
	Switzerl.	41			41
	USA	234,900	2,000		236,900
Sawnwood Soft	Angola	51,413	5,715	1,226	58,354
	Botswana		103,174		103,174
	Germany	2,486			2,486
	S. Africa	65,486	158,226	108,851	332,563
Sleepers	S. Africa	2,335,782			2,335,782
Veneer sheets	S. Africa	555	1,590		2,145
Waferboard	S. Africa	4,789	5,320		10,109
Woodwool	Belgium		10,606		10,606
	Germany	11,224			11,224
	S. Africa	28,315	11,000		39,315
Wrapping Packaging and	Angola	1,220			1,220
	S. Africa	2,017	24,156	2,116	28,289
	Tanzania	1,000			1,000
Total		64,010,316	55,824,573	194,479,442	314,314,331

Appendix 5

Exports of wood products by country 'exported to',
in Kg

Wood Product	Country	Year			Total Exports
		1997	1998	1999	
Charcoal	Argentina	20			20
	Belgium	393,355	250,000	432,685	1,076,040
	Botswana	2,502	6,031		8,533
	Bulgaria		54,900		54,900
	Germany	1,343,638	101,750	59	1,445,447
	Japan	70			70
	Panama	10			10
	S. Africa	9,497,790	7,411,061	3,370,961	20,279,812
	Spain	259,652			259,652
	UK	543,358	1,714,888	361,156	2,619,402
Chipwood	Angola	3,320	1	920	4,241
	S. Africa	179,045	735,090	466,531	1,380,666
	USA		4		4
Fibre board	Angola	3	1	12	16
	S. Africa	946	38,203	40	39,189
	USA		26		26
Fuelwood	Germany	30			30
	S. Africa	110,277	803,468	204,911	1,118,656
	Taiwan	2			2
Household Sanitary and	Angola	83,141	14,880	25,394	123,415
	Argentina	30			30
	Australia	588	274	24	886
	Austria	597	113	37	747
	Belgium	29,647	25,457	14,660	69,764
	Botswana	2	100		102
	Brazil	2			2
	Canada		10	14	24
	Chile	7,009			7,009
	Czech&Slov	6,920			6,920
	Denmark	6,562	12,303	172	19,037
	Egypt		48		48
	Emirates			5,000	5,000
	Finland		5		5
	France	24,130	30,746	30,000	84,876
	Germany	23,168	97,481	21,096	141,745
	Ireland		34		34
	Italy	12,010	5,682	5,664	23,356
	Japan	18			18
	Latvia		1		1
Liechtenst	76			76	
Malaysia	5,200			5,200	

Appendix 1: List of wood products manufacturers

	Neth. Ant.	10			10
	Netherland	55	46	35	136
	Norway	23	12		35
	Panama	12		712	724
	Portugal	57	161		218
	Russia	790	2	28	820
	S. Africa	1,469,303	2,434,336	437,927	4,341,566
	Slovak		6,380		6,380
	Spain	9,717	18,685	6,678	35,080
	St Vincent			6	6
	Sweden	4,400	4,900		9,300
	Switzerl.	1,032	2,363		3,395
	Taiwan	1,500	14,271	6	15,777
	Uganda		2		2
	UK	14,600	61,775	31,622	107,997
	Ukraine	40			40
	USA	29,980	10,848	8,173	49,001
Newsprint	Angola		2		2
	Botswana	1			1
	Germany		168		168
	S. Africa	79	27,157		27,236
Paper Paperboard	Amer Samoa		200		200
	Angola	104,580	119,069	27,367	251,016
	Argentina	21,480	5,000		26,480
	Australia	15,600		93	15,693
	Bahamas			164,417	164,417
	Barbados		24,419	4,857	29,276
	Belgium	31,200		140	31,340
	Belize			4,647	4,647
	Botswana		51		51
	Canary	94,634	6,631		101,265
	Cyprus	9,818			9,818
	Denmark			2,024	2,024
	Falkland I	60,320			60,320
	Gambia			7,460	7,460
	Germany	153		37	190
	Greece	68,120			68,120
	Iceland	7,599	1,964		9,563
	Ireland	17			17
	Italy		6,230		6,230
	Jamaica	30,000			30,000
	Japan	52,838	51,677	24,221	128,736
	Lithuania		105,000	906	105,906
	Luxembourg	5			5
	Mozambique			10,500	10,500
	Netherland		779		779
	Norway	5,265			5,265
	Panama	21,000	11,646	339	32,985
	Portugal	5,460			5,460
	Romania	39,000	102,145		141,145
	Russia	1,454,373	1,882,481	758,688	4,095,542

Appendix 1: List of wood products manufacturers

	S. Africa	2,608,037	3,957,281	1,574,182	8,139,500
	Spain	69,223	16,825	18	86,066
	St Vincent	1,033,029	2,763,256	1,545,301	5,341,586
	Tanzania		311		311
	UK		10	40	50
	Ukraine	100,009	27,825		127,834
	USA	11,440	6,138	1,110	18,688
	Zambia			5	5
Particle board	Muaritius		1		1
	S. Africa	10,992	2,917	85	13,994
Plywood	Angola	4		1,040	1,044
	Faeroe Is.	400			400
	S. Africa	50,700	3,803		54,503
Printed Matter	Algeria	4			4
	Angola	3,809	5,368	4,629	13,806
	Argentina	15			15
	Australia	340			340
	Austria	45		42	87
	Azerbaijan	43			43
	Belgium	48	25		73
	Botswana	423	90		513
	Brazil	11	18		29
	Cambodia	256			256
	Canada	5	85	27	117
	Chile	10			10
	China	121	50		171
	Cuba	17		12	29
	Denmark			10	10
	Egypt	40			40
	Emirates			7	7
	Ethiopia	29			29
	Finland	24		5	29
	France	193	515	400	1,108
	Germany	8,115	8,725	5,399	22,239
	Iceland		55		55
	India	53		304	357
	Indonesia	20			20
	Iran	18			18
	Israel	61			61
	Italy	166		174	340
	Japan	5			5
	Kenya	60	1	15	76
	Lesotho	8			8
	Libya	11			11
	Liechtenst	4			4
	Madagascar	180			180
	Malawi		150		150
	Malaysia	37		495	532
	Malta	11			11
	N. Zealand	90			90
	Netherland	195		45	240

Appendix 1: List of wood products manufacturers

	Nigeria	27			27
	Panama	2		264	266
	Portugal	3	1,987		1,990
	Russia	218		20	238
	S. Africa	48,494	185,680	33,186	267,360
	Saudi Arab		8		8
	Spain	122	360	96	578
	Sudan			88	88
	Sweden	101	361	43	505
	Switzerl.	252	1,455	1,438	3,145
	Tanzania		287	75	362
	Turkey		15		15
	UK	9,999	7,171	2,182	19,352
	USA	1,519	591	477	2,587
	Venezuela	30			30
	Zambia		199	30	229
	Zimbabwe	57	10	338	405
Pulp	Angola	1			1
	S. Africa	30,003			30,003
Pulp Chemical	S. Africa		1		1
Pulp Mechanical	Angola		1		1
	S. Africa	24,185			24,185
Pulp Semi Chemical	S. Africa	50	5		55
Roundwood	Angola	404	401	640	1,445
	Germany	355	500		855
	S. Africa	175,103	249,290	8,020	432,413
	USA			166	166
Sawdust	Italy	39,979			39,979
	S. Africa	52,104	1,990	1,000	55,094
Sawnwood Hard	Angola	2	1,877	1,360	3,239
	Barbados		80		80
	Germany	168			168
	Honduras	1,250			1,250
	Russia	100			100
	S. Africa	22,551	119,380	162	142,093
	St Vincent	250	2,000		2,250
	Switzerl.	4			4
	USA	8,000	68		8,068
Sawnwood Soft	Angola	9	2	85	96
	Botswana		22,922		22,922
	Germany	162			162
	S. Africa	27,063	53,035	49,002	129,100
Sleepers	S. Africa	740,141			740,141
Veneer sheets	S. Africa	6	51		57
Waferboard	S. Africa	834	54		888
Woodwool	Belgium		8,000		8,000
	Germany	15,375			15,375
	S. Africa	94,001	45,000		139,001
Wrapping and Packaging	Angola	30			30
	S. Africa	631	608	23	1,262
	Tanzania	64			64
Total Exports		21,278,1	23,697,7	9,662,25	54,638,1

Appendix 1: List of wood products manufacturers

	29	95	9	83
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