A report prepared for the project

Lessons Learnt on Sustainable Forest Management in Africa

DEVELOPMENT OF WOOD-BASED INDUSTRIES IN SUB-SAHARAN AFRICA

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Development of wood-based industries in Sub-Saharan Africa

by

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ACRONYMS

AAS	African Academy of Sciences
AFORNET	African Forest Research Network
ATIBT	Association Technique Internationale des Bois Tropicaux
CEMAC	Economic and Monetary Community of Central Africa
CEPGL	Economic Community of the Great Lakes Countries
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
ECCAS	Economic Community for Central African States
ECOWAS	Economic Community for West African States
FAO	Food and Agriculture Organisation of the United Nations
FORIG	Forest Research Institute of Ghana
FSC	Forest Stewardship Council
FTEs	Full Time Equivalents
GDP	Gross Domestic Product
GVA	Gross Value Added
IMF	International Monetary Fund
ITTO	International Tropical Timber Organisation
KSLA	Royal Swedish Academy of Agriculture and Forestry
MTC	Malaysian Timber Council
NEPAD	New Partnership for Africa's Development
NGOs	Non-Government Organisations
SADC	Southern African Development Community
SAP	Structural Adjustment Programme
SODEFOR	Society for Forest Development (original in French)
UEMOA	West African Monetary and Economic Union
USSR	Union of Soviet Socialist Republics
WWF/GFTN	World Wide Fund for Nature Global Forest Trade Network

1.0 INTRODUCTION

1.1 Background

This study was undertaken as part of the initiative by the Royal Swedish Academy of Agriculture and Forestry (KSLA) in collaboration with the Forestry Department of the United Nations Food and Agriculture Organisation (FAO), and the African Forest Research Network (AFORNET) at the African Academy of Sciences (AAS) on **"Lessons Learnt on Sustainable Forest Management in Africa".** The initiative aims to:

- analyse and establish what lessons have been learnt from positive and negative experiences of various initiatives, projects and programmes focusing on the sustainable management, use and conservation of forests in sub-Saharan Africa;
- analyse and establish the ecological, economic, social and other pre-requisites for extending the positive lessons for wider application (i.e. to more people, larger areas, other countries, etc.); and
- based on the outcome of the above analyses, to identify the most urgent issues and concerns for Africa, and draw them to the attention of the various international processes.

1.2 Objectives of the study

The main objective of the study was to examine the following issues in relation to the development of wood based industries in sub-Saharan Africa:

- the current state of the development of wood based industry in sub-Saharan Africa and what factors determine the inter-country differences among wood based industries and their contribution to income and employment;
- success stories pertaining to the development of the major types of industries: saw milling; production of plywood and panel products (including veneer sheets); pulp and paper; and production of secondary wood products (especially furniture); including factors that have contributed to their success;
- the extent to which these industries have contributed to employment and income generation;
- the technical, economic, policy and institutional issues that have influenced the development of wood processing, including constraints and how they have been addressed;
- the prospects of small-scale wood industries, especially saw milling and furniture production, primarily to create rural employment;
- the impact of economic liberalization policies on wood based industries in Africa; and,
- how African wood industry can adapt to the changes in the global demand and supply of wood and wood products and increase its share in the trade.

1.3 Scope of the study

The study attempts to cover the whole of sub-Saharan Africa. However, due to the lack of data on the wood processing industries of many sub-Saharan African countries, the study concentrates on developments in the main tropical timber producing countries in Central and West Africa. As a result of their membership of the International Tropical Timber Organisation (ITTO), these countries are frequently included in various ITTO studies. Therefore reasonable information exists on the wood processing sectors of these countries. Together, these countries account for:

- 15% of the global tropical forest area; and
- 86% of the total forest area of western and central Africa.

As the only sub-Saharan African country with an economy that is well integrated in the global economy, some information also exists on South Africa's significant wood processing sector (which is based primarily on industrial tree plantations) with wood pulp, and pulp and paper being the main products. This study has drawn on relevant examples and comparisons from South Africa. However, it must be noted that the situation in South Africa is unique in the sub-Saharan African context. It has a first world economy and most of the necessary pre-requisites and infrastructure for successful industrialisation. These are lacking in many of the other African countries considered in this study.

1.4 Data sources and limitations

The major limitation of this study is that, due to time and financial constraints, it was based only on a literature review and no field work was undertaken. Notwithstanding this, the available literature has given a sound indication of the current state of sub-Saharan Africa's forest and wood products processing industry sector. However, the outcomes would have been further improved by fieldwork, even if it only served to verify some of the information obtained from the literature.

In addition to FAO sources, this study has drawn on the various studies on tropical timber undertaken by the ITTO and the Association Technique Internationale des Bois Tropicaux (ATIBT).

1.5 Definitions

The ITTO's definition of value adding in the forest and wood products industry comprises primary processing (saw milling, veneer and plywood production) and further processing (mainly furniture manufacturing).

1.6 Structure of the report

Chapter 1 describes the background to the study including objectives and the key issues to be addressed. ***Chapter 2*** presents an overview of the forest and wood products processing sector in sub-Saharan Africa, including contributions to sub-regional economies. ***Chapter 3*** reviews the main wood processing sectors. ***Chapter 4*** describes the wood processing sector in some of the key producing countries, including factors that have contributed to success or failure. ***Chapter 5*** describes the main institutional factors and policies that impact on sub-Saharan Africa's wood processing sector. The key challenges facing the sector in sub-Saharan Africa are considered in ***Chapter 6***, whereas ***Chapter 7*** addresses the lessons learnt by drawing on examples from sub-Saharan Africa, Asia-Pacific and South America. Chapter 7 also examines some of the constraints to increasing further processing in sub-Saharan Africa. ***Chapter 8*** looks at what needs to be done to accelerate the current low rate of wood processing in sub-Saharan Africa, including the role of the key players. ***Chapter 9*** presents the study's conclusions.

2.0 OVERVIEW OF WOOD PROCESSING IN SUB-SAHARAN AFRICA

Sub-Saharan Africa's colonial past has influenced the development, nature and ownership structure of its forest and wood products industry including the wood processing sector.

The location of wood processing facilities coincides with the availability of raw materials. Consequently, the majority of the existing processing facilities are found in West and Central Africa. In East Africa, Kenya appears to be the major producer of processed wood. In Southern Africa, South Africa is the most significant processor based on its extensive industrial plantations.

Buttoud et al. (2002), in a study on further processing in tropical timber producing countries in Africa, concluded that wood processing into sawn wood, plywood manufacturing and other value-added products remained lower during the 1990s compared with other tropical timber producers. During this period, nearly 38% of tropical timber produced in Africa was exported as unprocessed logs. While there are variations among the main producing countries, the overall level of processing in sub-Saharan Africa is low, particularly in the Congo Basin countries. The notable exceptions are Côte d'Ivoire and Ghana, which have had a long history of wood processing compared with the other countries and now process more than 95% of their log production.

In 1998, Ghana and Côte d'Ivoire accounted for 83% of total African exports. Since 1996, when log exports were banned, Ghana has been processing nearly 100% of its log production.

In the other sub-Saharan tropical timber producing countries, the rate of wood processing grew very little during the 1990s. Indeed it declined in the mid 1990s in many countries primarily as a result of the Asian log export boom.

The rates of processing in the Congo Basin countries began to recover only towards the end of the 1990s. For example in Gabon, domestic wood processing was higher in 1999 than it was in 1990. On the other hand, in Cameroon and Congo by 1999, domestic processing had not yet returned to the 1990 levels. In the case of the Congo, the civil war was a major contributory factor, and not only affected the wood processing

sector but all sectors of the country's economy. Regarding Cameroon, a politically stable country, the devaluation of the Central African franc (CFAF) may have been a contributory factor.

The low level of domestic processing is not unique to the forest and wood products sector. *Buttoud et al. (2002)* estimates that the average annual growth of the total manufactured value added in Africa decreased from 4.3% during the 1980s to 2% in the 1990s. According to them, this decrease in manufacturing was particularly significant in the Congo Basin countries. Over the period 1990-1999, the rate of growth in industrial production decreased from 6.9% to -2.2% in the Congo, from 10.4% to -1% in Cameroon, from 1.6% to -7.3% in the Democratic Republic of Congo and from 1.8% to 0.9% in Gabon.

Similarly, the level of investment in processing activities remained very low. For example, the investment in value added production in the forest and wood products sector decreased in Cameroon from 2.3% in 1996 to zero in 1999. In the Democratic Republic of Congo, the average annual growth rate in investment also remained low, ranging from negative 5.1% (-5.1%) in the 1980s to negative 2.7% (-2.7%) in the 1990s.

Some of the reasons for the generally low level of domestic wood processing in sub-Saharan Africa include:

- domination of the forest and wood products sector by foreign business interests;
- the small size of the national and international markets for their products;
- the use of obsolete processing equipment and its inability to handle the generally high quality logs produced. Logs are therefore exported to be processed in modern and sophisticated manufacturing facilities in Europe and Asia, particularly China;
- the generally low volumes of per hectare log production, which increases the unit cost of production; and,
- the increasing demand from Asian countries, particularly China, for high quality logs from tropical Africa.

In summary, some of the main features of Africa's wood production industry include:

- low value addition - nearly 91% of all round wood produced in Africa is used as fuel. In 2000, Africa's share of global wood fuel was 30%. On the other hand, its global share of sawn wood, wood-based panels, fibreboards and paper and paperboard products was only 1.8%, 1.1%, 0.7% and 0.9% respectively (*FAO*, *2002a*);
- only a few countries, primarily South Africa and some countries in Central and West Africa, produce most of Africa's industrial wood;
- with the exception of South Africa, which sources its industrial round wood entirely from plantations, industrial round wood in sub-Saharan Africa is mainly from natural forests;
- limited ownership of, and involvement in, harvesting and processing operations by local communities and entrepreneurs;
- over-representation of governments and quasi-government instrumentalities in the sector; and,
- substantial domination of external (overseas) interests, particularly in Central Africa.

There are sub-regional differences in the forest and wood products processing industries. The characteristics of the processing sector in the key producing sub-regions are described below.

2.1 Central Africa

Tables 1 and *2* show that the sub-region is emerging as an important producer and exporter of wood products, although production is dominated by industrial round wood and primary processing (mainly the production of sawn wood and wood-based panels).

Most of the primary processed wood products are exported. Historically, countries in Central Africa have been log exporters. However, in recent years many have enacted legislation to encourage domestic processing and value adding. This has been done largely in response to the economic crises in the 1980s, which saw the World Bank and other multi-lateral financial institutions impose stringent structural adjustment programs on countries in the region. In some countries, such legislation has led to some increase in the establishment of processing facilities. This is particularly the case in Cameroon. The *FAO (2002)* reported that Cameroon's experience appears to be having a positive influence on the other countries in the sub-region.

Table 1: Main processed wood products produced from Central Africa (CA)

Product	Production in 2000	Exports in 2000	CA % of total African production	Leading producers
Industrial round wood (mill. m^3)	12.731	4.689 (37%)	18.5	DRC, Cameroon, Gabon, CAR
Sawn wood (mill. m^3)	1.148	0.777 (68%)	15	CAR, Cameroon
Veneer sheets (mill. m^3)	0.146	0.141 (97%)	36.4	Cameroon, Gabon
Wood-based panels (mill. m^3)	0.326	0.260 (80%)	15.9	Cameroon, Gabon
Plywood (mill. m^3)	0.185	0.114 (62%)	26.9	Cameroon, Gabon, DRC
Particle-board (mill. m^3)	0	0	0	
Woodpulp (tonnes)	0	0	0	
Paper/paperboards (tonnes)	3	0	negligible	DRC

Source: FAO, 2002

Table 2: Exports of wood products from Central Africa between 1980 and 2000 (Percentage figures in brackets represent Central Africa's share of exports from Africa).

Product (1000 m3)	1980	1985	1990	1995	2000
Industrial round wood	2 314 (37.4%)	2 392 (52.6%)	2 897 (70.0%)	3 549 (81.8%)	4 688 (76.8%)
Sawn wood	278.4 (31.1%)	202.1 (22.8%)	283.3 (21.0%)	333.2 (23.5%)	776.7 (41.4%)
Wood-based panels	185.6 (55.9%)	156.6 (50.3%)	187.5 (42.7%)	108.6 (29.3%)	260.4 (37.3%)

Source: FAO, 2002

There are variations among the various countries in the sub-region regarding domestic value-adding. For example, further processing, albeit dominated by sawmilling, is far advanced in Cameroon, whereas Gabon continues to be a significant exporter of industrial round wood. The production of paper products is almost non-existent in the sub-region. On the whole, however, domestic further processing is small in the sub-region and is largely geared towards meeting demand from overseas. Due to historical ties, Europe has been the main export market for the sub-region's processed wood products, although China has become important in recent years.

Another feature of the wood processing industry in the sub-region is the domination by overseas interests, again from Europe and Asia. The majority of the sub-region's overseas investors have processing facilities in their home countries. Therefore, the main motivation in investing in the sector has been to secure logs to feed their home-based manufacturing plants. The impact of this has been that investments are often limited and aimed at circumventing government regulations for further processing by installing obsolete equipment. Often this constitutes the minimum requirement to acquire concessions, and also qualify for government incentives aimed at encouraging further processing domestically.

The main factors impacting on the sub-region's wood processing sector are:

- political instability, caused by civil wars, which is discouraging sustained long-term investment;
- negative perception in some of their traditional markets, particularly Europe, about unsustainable forest management practices resulting in increased deforestation and a diminishing resource base;
- weak economic structures, including small domestic markets; and,
- production inefficiencies caused by obsolete equipment and unskilled workforce.

2.2 West Africa

Similar to the Central African sub-region, primary processing is the dominant value-adding activity in West Africa. The sub-region's sawmilling industry is well-developed, largely based in Nigeria, Côte d'Ivoire and Ghana. Together, the three countries accounted for 93% of the sub-region's sawn wood production in 2000 (*FAO, 2002*). The overall level of sawn wood production in the sub-region declined from about 3.9 million m^3 in 1980 to 3 million m^3 in 2000. Much of this decline was attributed to Nigeria's reduction in production, which, after peaking at 3.3 million m^3 in 1995, declined to about 2 million m^3 in 2000.

The main exporters of sawn wood in the sub-region are Ghana and Côte d'Ivoire. Between 1980 and 2000, the export of sawn wood from the sub-region increased by about 93% - from 398,000 to 769,000 m^3. Ghana and Côte d'Ivoire together accounted for about 92% of the sub-region's sawn wood exports (*FAO, 2002*). Among the countries, Senegal has become an important importer of sawn wood, and in 2000, accounted for about 73% of imports. *Table 3* presents an overview of West Africa's wood industry.

Table 3: Main processed wood products produced from West Africa (WA)

Product	Production in 2000	WA share (%) of African production	Leading producers
Industrial round wood (mill. m^3)	18,166	26	Nigeria, Côte d'Ivoire, Ghana, Senegal, Guinea
Sawn wood (mill m^3)	3 057	40	Nigeria, Côte d'Ivoire, Ghana, Liberia
Plywood (mill. m^3)	230	33	Nigeria, Côte d'Ivoire, Ghana, Liberia
Newsprint (000 tons)	31	8	Nigeria
Print paper (000 tons)	1.0	0.2	Nigeria
Paper/paperboards (000 tonnes)	19.0	0.6	Nigeria

Source: FAO, 2002

As shown in *Table 3*, the sub-region's primary processing (mainly sawmilling) is well developed. However, production of further value-added products such as panel products and pulp and paper is less developed. Plywood production is limited to Côte d'Ivoire, Ghana, Liberia and Nigeria. However, with the exception of Nigeria, where plywood production is geared towards domestic consumption, a high proportion of the production in the remaining three countries is exported, mainly to Europe.

Nigeria is the only country in the sub-region producing pulp and paper, and produces only 6% of the sub-region's total paper products consumption. Almost all the other countries depend on imports to meet their domestic printing and writing paper products, newsprint and other paper and paperboard products needs.

The main characteristics of the wood processing sector in the sub-region are:

- dominance by small to medium enterprises (SMEs), most of which operate in the informal sector;
- dominance of obsolete equipment and low recovery rates; and
- high excess capacity in the sawmilling sector.

FAO (2002) reported that Nigeria has about 1000 wood-processing units (sawmills and units producing panels and matches, and 3 paper factories). Ghana has 130 wood-processing units. About 200 other enterprises produce furniture and parts. New facilities installed as a result of government incentives for the sector has increased the total installed processing capacity to about 3.7 million m^3 compared with the official sustainable annual allowable cut of between 1 and 1.6 million m^3. Côte d'Ivoire has about 150 processing units, mainly for sawn wood production.

The key challenges facing the sector in the sub-region are:

- diminishing resource base, particularly in Côte d'Ivoire and Ghana;
- lack of capital to re-tool, as most of the existing sawmills are geared to the processing of large logs. Previous over-harvesting for log exports has depleted the forests of their stock of large logs, and forced

the industry to increasingly depend on re-growth secondary forests and plantations, which produce relatively small logs.

2.3 Contribution to national economies

The information for this section has been based on data from an unpublished FAO study on the benefits of forestry to national economies.[1] Interpretation of the information has been done with caution, as there are some limitations associated with the data used. For example, where data was missing, these have been estimated by the FAO to give a more complete and consistent global and regional picture.

In the case of Africa, one of the issues to consider is the under-reporting, or in some cases, the complete exclusion in the data, of the informal sector which is significant in many countries (see *Box 1*). At best, the information provides broad trends of the benefits.

Box 1. Contribution of the informal sector in Togo

An FAO case study on Togo (*Forestry Outlook Study for Africa, 2003*) illustrates the importance of the informal sector in the economies of sub-Saharan Africa. Official government employment statistics show that in the forest sector, the public sector in Togo employs about 800 civil servants, representing 2.4 % of public administration personnel. About 1000 salaried personnel are employed by the private sector. Based on the volume of Togo's wood trade and processing, it is estimated that the informal sector contributes about 90 000 jobs, of which 70% is estimated to be held by women.

FAO applied its definition of wood industries for the study on trends in the contribution of the forest and wood products sector to national economies. However, the definition for furniture was non-specific in the FAO study. Therefore, the data for this product group must be considered carefully due to the possibility of overestimates from the inclusion of non-wood forest products such as cane and rattan (which is used in manufacturing commercial furniture in some countries).

Regarding employment, the FAO figures are reported in terms of full-time equivalents (FTEs), and represent "visible employment" which is a measure of the percentage of the total economically active population (i.e. the labour force). Again, this may result in under-estimates in the case of Africa due to the impact of part-time or seasonal employment, subsistence engagement and informal employment.

Gross Value Added (GVA) is a measure of the contribution to gross domestic product (GDP) by a sector. Percentage GDP refers to a sector's total gross value added contribution at factor cost (i.e. it excludes taxes but includes subsidies).

The wood processing sector is important to the economies of sub-Saharan African countries because of the potential for employment creation and the prospect of increasing foreign exchange earnings from exporting value-added products.

Battoud et al. (2002), however, reported that the significance of the total tropical timber exports from Africa is very low and represents only 12% of the international trade in tropical timber compared with Africa's share of 33% of the total global area of tropical forests. This is indicative of the generally "undynamic" nature of the African forest and wood products sector, which remains basically extractive in nature, and little of the earnings are re-invested in the sector in support of further processing and other value-adding activities.

2.4 Employment

Table 4 shows the contributions of the three main wood processing sectors (defined by the FAO) to employment in sub-Saharan Africa in 2000. The key observation is the dominance of the primary and secondary processing sectors (by the FAO definition), followed by furniture. At the sub-regional level, contribution to employment is highest in Southern Africa, perhaps reflecting the importance of value adding in the pulp and paper sector in South Africa.

[1] Trends and current status of the contribution of the forest sector to national economies (unpublished final draft), FAO, December 2003; prepared by Arvydas Lebedys.

Table 4: Contributions to employment by the three main sectors (primary and secondary processing, pulp and paper; and furniture) during 2000 in Sub-Saharan Africa.

Subregion (1000s)	Wood industries	Pulp/Paper industries	Furniture industry	Total
East Africa	24	17	10	51 (13%)
Southern Africa	88	53	53	194 (49%)
Central Africa	22	2	-	24 (6%)
West Africa	49	18	58	125 (32%)
Total	**183 (46%)**	**90 (23%)**	**121 (31%)**	**394 (100%)**

Source: Modified from Trends and current status of the contribution of the forest sector to national economies (unpublished final draft), FAO, December 2003 prepared by Arvydas Lebedys.

Employment contribution is second highest in West Africa, with Ghana and Côte d'Ivoire being the most important processors. The low level of contribution to employment by the wood processing sector in Central Africa reflects, among other factors, the comparative low processing capacity despite the sub-region having abundant natural forest resources.

Table 5 shows the Gross Value addition by the three key wood processing sectors. Again, the higher value additions from Southern and West Africa sub-regions stand out. The comparable value addition contributions by primary and secondary processed products and furniture may suggest two things. Firstly, the majority of the furniture produced may be sold on the domestic market where prices are generally lower than on export markets. Secondly, it may reflect overall lower prices for furniture from sub-Saharan Africa on the international market because of low quality.

Table 5: Gross Value Added by the three main sectors (primary and secondary processing, pulp and paper and furniture) during 2000 in Sub-Saharan Africa (Million constant 2000 US$).

Subregion	Wood industries	Pulp/Paper industries	Furniture industry	Total
East Africa	62	94	31	187 (6%)
Southern Africa	443	1 134	283	1 860 (59%)
Central Africa	164	20	1	185 (6%)
West Africa	199	222	511	932 (29%)
Total	**868 (27%)**	**1 470 (46%)**	**826 (26%)**	**3 164 (100%)**

Source: Modified from Trends and current status of the contribution of the forest sector to national economies (unpublished final draft), FAO, December 2003 prepared by Arvydas Lebedys.

In the absence of available information, data on GDP and Trade Balance have been used as substitutes for foreign exchange earnings.

Table 6 below shows that the forest and wood products sector makes some contribution to foreign exchange earnings in all sub-regions. However, without information on the contributions by the other sectors within the economies of each sub-region, it is not possible to determine the relative importance of the forest and wood products sector.

Table 7 below presents information on the key indicators of economic benefits for the main producers in the forestry sector for each of the four sub-regions. It shows the relative importance of the forest and wood products sector to the economies of wood producing countries in Central and West Africa.

2.5 Exports

Apart from South Africa, profiled wood (covering a variety of products ranging from sauna boards to furniture mouldings) is the main further processed product exported by sub-Saharan Africa. *Table 8* shows the export structure of further processed products by ITTO producers in Africa in 1998.

Table 6: GDP (%) and foreign exchange contributions (million constant 2000 US$) by the three main sectors (primary and secondary processing, pulp and paper, and furniture) during 2000 in Sub-Saharan Africa.

Sub region	GDP (Forest Sector)	Exports (excluding furniture)	Imports (excluding furniture)	Trade Balance
East Africa	15.1	41	154	- 113
Southern Africa	36.1	917	582	335
Central Africa	35.9	1 257	33	1 224
West Africa	56.0	598	305	293
Total		**2 813**	**1 074**	**1 739**

Source: Modified from Trends and current status of the contribution of the forest sector to national economies (unpublished final draft), FAO, December 2003 prepared by Arvydas Lebedys.

Table 7: Summary of key indicators of economic benefit for the most important players in the forestry sector for each of the four sub-regions in Sub-Saharan Africa.

Sub-region	Forest Sector GDP %	Employment wood industries	Employment Furniture	Employment in forest sector (1)
Eastern Africa				
Kenya	2	10,000	4,000	20,000
Southern Africa				
South Africa	1.6	82,000	43,000	172,000
Central Africa				
Cameroon	2.9	12,000	ns	32,000
CAR	4.5	3,000	ns	5,000
Congo	1.2	1,000	-	4,000
DRC	1.8	1,000	-	5,000
Gabon	5	3,000	-	6,000
West Africa				
Ghana	4	25,000	3,000	32,000
Côte d'Ivoire	2.4	11,000	ns	26,000
Nigeria	1	3,000	54,000	48,000
Africa	**1.5**	**218,000**	**153,000**	**547,000**

(1) excludes furniture but includes forest operations.

Source: Modified from Trends and current status of the contribution of the forest sector to national economies (unpublished final draft), FAO, December 2003 prepared by Arvydas Lebedys.

In 1998, profiled wood accounted for nearly 64% of processed wood products exported by the main nine ITTO producer countries. Manufacture of profiled wood is usually the first step in further processing in sub-Saharan Africa.

Export of furniture and parts, mainly garden furniture, is also increasingly important. In 1998, exports of furniture and parts from the ITTO producer countries represented nearly 23% of total exports. Builders' joinery products represented 13%, and appear to be losing ground in the overall African export picture these days.

As shown in *Table 8*, the composition of exported products varies considerably between the countries. Among the major ITTO exporting countries (Ghana, Côte d'Ivoire, Cameroon and DRC) furniture and parts appear to dominate exports from Ghana, whereas profiled wood is the dominant exports from the other three countries.

Table 9 above shows the share of each of the five countries. Cote d'Ivoire and Ghana were the main exporters. Among the nine ITTO producers in sub-Saharan Africa, Côte d'Ivoire, Ghana, Cameroon, DRC and the Congo were the main exporters of further processed wood products in 1999.

Table 8: Export structure of further processed products by ITTO producers in Africa in 1998.

Countries	Total export value (US$ m)	Wooden furniture (%)	Builders' joinery (%)	Profiled wood (%)
Côte d'Ivoire	21.4	3.1	17.7	79.2
Ghana	14.2	61.4	3.6	35.0
Cameroon	2.7	5.7	9.6	84.7
D R C	2.6	0.8	1.5	97.7
Congo	1.6	1.1	53.4	45.5
Togo	0.068	73.5	19.1	7.4
Gabon	0.094	28.7	1.1	70.2
CAR	0.078	59.0	0.0	41.0
Liberia	0.017	100.0	0.0	0.0
Total	**42.7**	**22.8**	**12.7**	**64.5**

Source: ITTO/ITC (2002)

Table 9: Exports of further processed wood products by the five major ITTO producer countries in sub-Saharan Africa in 1999 (in 1000s US $).

Cote d'Ivoire	Ghana	Cameroon	DRC	Congo
22,317 (49%)	13,491 (29%)	4,980 (11%)	3,872 (8%)	1,111 (3%)

Source: Modified from ITTO/ITC 2002

2.6 Markets

Europe has traditionally been the main export market for tropical timber for producers in Central and West Africa, and this continues to be so today. In 1998, Africa supplied 99% of tropical logs and 53% of tropical sawn wood imported to Europe. New market opportunities are opening up in Asia, but this is mainly for industrial round wood rather than further processed products. In the foreseeable future, Europe will continue to be the potentially viable market for further processed products from sub-Saharan Africa. The Arab countries of North Africa also present another opportunity. However, the full potential of these markets may not be realized until some of the major infrastructural constraints, such as shipping, have been addressed.

3.0 SUB-SAHARAN AFRICA'S MAIN WOOD PROCESSING INDUSTRY SECTORS

Figure 1 shows typical value-adding and supply chains for the forest and wood products sector in developed countries. In many developed countries the wood products sector comprises of a chain of successive, often complementary and overlapping activities, with the outputs of downstream processors providing inputs as raw material for each component further up the value chain. Thus along the chain, value is multiplied at each phase of further processing after the initial production (*ITTO/ITC, 2002*).

As already indicted in the overview section, the forest and wood products industries in most sub-Saharan African countries are dominated by harvesting and primary processing with very little or non-existent manufacturing or further processing. However, the current situation in sub-Saharan Africa could provide opportunities for further expansion of further processing in the forest and wood products industry. If this is to be achieved, it will require a positive combination of a number of important and inter-related factors, some of which will be discussed in subsequent chapters of this report.

3.1 The sawn wood sector

Almost 25% of industrial round wood produced in Africa is used for sawn wood. *Table 10* shows the production and consumption of sawn wood in sub-Saharan Africa by sub-region for 2000.

Table 10: Production and consumption of sawn wood in sub-Saharan Africa for 2000 (000 cubic metres).

Subregion	Production	Consumption
East Africa	1039 (14%)	1083 (17%)
Southern Africa	2221 (30%)	2472 (39%)
Central Africa	1148 (15%)	399 (6%)
West Africa	3057 (41%)	2363 (38%)
Total	**7465 (100%)**	**6317 (100%)**

Sources: Based on *FAO, 2002a* and *Rytkonen, 2001*

Table 10 above shows that Southern and West Africa are the main producers and consumers of sawn wood, reflecting among other factors differences in processing capacity and purchasing power. The lower production and consumption in East Africa is due to the low productivity of the sub-region. In Southern Africa, consumption is greater than production, whereas consumption in Central and West Africa is far less thus creating surplus for export.

Production of sawn wood in all the sub-regions is influenced by supply and demand factors. However, the informal sector, which is dominated by pitsawing (particularly in East and Southern Africa), also plays an important part in domestic production and consumption. While significant in the overall production of sawn wood, estimates of the economic contribution of pitsawing are unavailable due to the lack of official statistical information on the sector.

The FAO Division of Forest Industries is currently undertaking a project on pitsawing in Uganda in East Africa and Ghana in West Africa. It is expected that, when completed, this project would provide some quantitative information on the socio-economic contribution of this sector of sub-Saharan Africa's forest and wood products sector.

In addition to the informal sector, many small-scale sawmills in the formal sector play a significant role in meeting the local needs for sawn wood.

Overall, the sawn wood sector is characterised by:

- low utilization capacity, especially in the smaller sawmills;
- obsolete equipment resulting in low recovery rates; and,
- operational inefficiencies resulting in the generation of large amounts of waste.

Some of the major challenges facing the sector are:

- diminishing raw material, particularly in Central and Western Africa; and,
- fragmentation of the industry, making it difficult for governments to develop and implement coherent assistance strategies for their future development.

3.2 The wood panels sector

Rutten and Hock (2004) define two main groups of wood-based panels as follows:

- ***natural wood panels*** which are characterised largely by the wood species used and include two main types: veneer and plywood. Veneers are further divided into plywood veneers used for plywood production, and decorative veneers used mainly in furniture and cabinetry;
- ***reconstituted wood panels (engineered wood panels)*** which are manufactured from different types of wood particles bonded together with resins or other binding substances and pressed together to form panels. This group includes particleboard, medium density fibreboard (MDF) and oriented strand board (OSB).

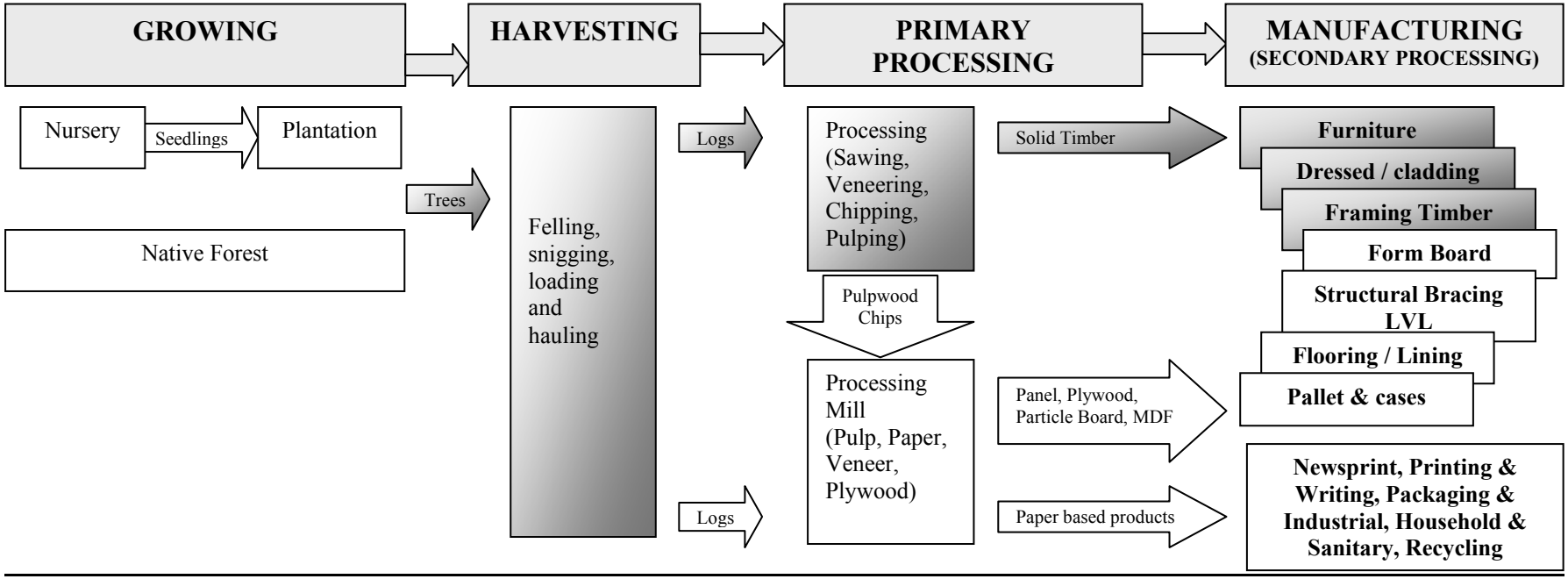

Figure: 1: Typical forest and wood products further processing value and supply chain

Similar to the sawn wood sector, the production and consumption of panel products in sub-Saharan Africa are determined entirely by supply and demand (market forces). *Table 11* shows the production and consumption of panel products for 2000. Again similar to sawn wood, West Africa and Southern Africa are the main producers, with South Africa as the lead producer. Central Africa also has the potential to become a significant producer.

Table 11: Production and consumption of panel in SSA for 2000 (000 m3).

Subregion	Production	Consumption
East Africa	91 (5%)	201 (14%)
Southern Africa	603 (35%)	608 (43%)
Central Africa	326 (19%)	118 (8%)
West Africa	716 (41%)	487 (35%)
Total	**1736 (100%)**	**1414 (100%)**

Source: Based on FAO, 2002a, Rytkonen, 2001

ATIBT (*personal communication*) indicated that apart from some particleboard and MDF produced in South Africa, plywood is the only wood-based panel product produced in the major tropical timber producing countries. ATIBT informed that Ghana, Côte d'Ivoire and Gabon are the only countries in sub-Saharan Africa producing some plywood for export. Cameroon and Nigeria also produce some plywood but mainly for domestic consumption.

3.3 The pulp and paper sector

Table 12 below shows the production and consumption of printing and writing paper in 2000 for sub-Saharan Africa. Similar to panel products, market forces and purchasing power are the main drivers.

The main characteristic of the sector is that production is entirely in South Africa due to the state of its technology and substantial investment in industrial forest plantations, as well as its integration with the global market.

Table 12: Production and consumption of printing and writing paper in SSA (000 m3).

Subregion	Production	Consumption
East Africa	29 (5.3%)	88 (9.5%)
Southern Africa	515 (94.5%)	671 (72.3%)
Central Africa	-	15 (1.6%)
West Africa	1 (0.2%)	154 (16.6%)
Total	**545 (100%)**	**928 (100%)**

Source: Based on FAO, 2002a, Rytkonen, 2001

3.4 Trade

Table 13 below shows sub-Saharan Africa's share in the value of global trade for the four product sectors considered in this study.

Africa has about 16.8% of the world's forested area and 13% of its population, but the continent's contribution to the international timber trade is small. In 2000, exports of wood products from the main ITTO producing countries in sub-Saharan Africa accounted for about 1% of the total exports from all ITTO producers (*Nair, 2004*). Africa's share of the international furniture trade was even lower at 0.1% despite the world trade in furniture and other further processed wood products growing at a much faster rate than both world GDP and global wood production. In recent years, both world GDP and global production of wood products have averaged at an annual rate of between 4-5 % and 3-4% respectively (*ITTO/ITC 2002*).

Table 13: Africa's share in the value of global trade for: industrial round wood, sawn wood, wood-based panels, paper and paperboard, and printing and writing paper in 2000 (in %).

Product	Import - proportion of global	Export - proportion of global
Industrial round wood	1.2	9.1
Sawn wood	3.3	2 6
Wood-based panels	1.3	1.6
Paper and paperboard	2.2	0.6
Printing and writing paper	2.1	0.02

Source: Based on FAO, 2002a.

Between 1980 and 2000, the value of worldwide exports of all forest products rose from about $US 57 billion to $US 143 billion. Africa's share in 1980 was $US 1.6 billion or 2.8% and in 2000 $US 2.9 billion or 2%. While there was a nominal increase in absolute terms, overall there was a substantial decline in Africa's share. The main observation from Table 13 is that Africa exports low value wood products (industrial round wood and sawn wood) and imports high value added products (paper and paperboard and printing and writing paper).

4.0 THE WOOD PROCESSING INDUSTRIES IN SOME OF THE MAJOR PRODUCING COUNTRIES

According to the *FAO (2002)*, three main factors account for sub-regional differences in sub-Saharan Africa's forest and wood products processing industries. These factors, which also account for variations within countries, are:

- countries that are major producers and consumers, with comparatively high domestic demand due mainly to large population (a typical example is Nigeria);
- countries that have a substantial surplus production, and hence are major exporters of wood and wood products. The largest of these are Côte d'Ivoire, Ghana and Liberia. In these countries, the industries are based largely on sawn wood and plywood production, except Liberia, which is still a major exporter of logs; and,
- forest-deficit countries in the Sahel, which are neither exporters nor importers. Apart from Senegal, all the other countries import negligible quantities of wood products.

This study identifies a possible fourth sub-regional variation which includes countries such as South Africa and Zimbabwe, whose industries are based largely on tree plantations, because they lack resources from natural forests. Kenya could also be included in this category.

4.1 Cameroon

In 1999, Cameroon introduced bans on log export. The aim of the policy, among other things, was to increase the country's domestic processing and value-adding capacity. Specifically, the policy aimed to add 28 new wood processing units to the existing 71 units by 2000.

At a recent media interview, the Cameroon Minister for forests reported that 11 processing units had already been set up in the past two years as a result of the new policy and 12 others were in the pipeline. In addition 8 old plants had been upgraded.[2]

Wood constitutes the second export product after crude oil. In 1992 and 1997 both processed and unprocessed wood represented 30% of total exports after oil. During the same period, the forestry sector contributed 8.3 % of internal revenue and employed 35,380 persons representing 0.8 per cent of total employment. Carpentry and furniture workshops alone are estimated to provide jobs to more than 20,000 persons. In addition, the sector contributes to the creation of the country's road infrastructure especially in remote areas.

[2] http://allafrica.com

According to *Eba'a Atyi (1998)* primary processing is the dominant value-adding activity in the Cameroon's forest and wood products industry. The main processing facilities include sawmills, veneer and plywood factories. *Table 14* shows the primary wood processing units by ownership.

Table 14: Primary wood processing factories by ownership in Cameroon in 1998.

Type of ownership	Type of processing unit	Number
Indigenous	Sawmills	20
	Rotary cut veneer mills	1
Foreign	Sawmills	26
	Rotary cut veneer mills	4
	Plywood mills	4
Joint ventures	Sawmills	3
	Rotary cut veneer mills	1
	Sliced veneer mills	1
Total		**60**

Source: Eba'a Atyi (1998)

In 1998, there were 60 primary wood processing facilities comprising: 49 sawmills, 7 veneer factories and 4 plywood factories. Among the veneer factories, one produced sliced veneer and the rest produced rotary cut veneers. Four factories were integrated units combining sawmilling and the manufacture of plywood and rotary cut veneers. Of the 60 factories, 34 belonged to foreign investors, 21 to indigenous Cameroon nationals and 5 were joint ventures.

The total installed capacity of these plants amounted to nearly 2 million m^3 of round-wood, and ranged from a small sawmill capable of processing 5000 m^3 raw logs per year to an integrated sawmilling, rotary–cut veneer and plywood manufacturing factory with a processing capacity of 168,000 m^3 of logs per year.

Eba'a Atyi (1998) reported that the value of primary processing represented only 55.3%, some 14.7% below the domestic value-adding target of 70% defined by the Cameroon government. This suggests that the factories are under-utilising their full processing capacity.

Exports are similarly dominated by foreign interests who have the ability to influence pricing and policy. As with other producers in sub-Saharan Africa, Cameroon's domestic market for processed timber products is very small, amounting to 29.3% of the total log production. The main products are: sawn wood, plywood and matches. Only the low quality products which cannot be exported are sold on the domestic market.

Eba'a Atyi (1998) further reported that illegal trade in processed wood products was an important component of the national market, although it had not been quantified, with part of what is considered to be local consumption being exported illegally to neighbouring countries (mainly Chad and Nigeria).

According to *Eba'a Atyi (1998)* the devaluation of the currency following the economic crisis of the mid 1980s impacted significantly on the harvesting sector of the industry. However, it would appear that the devaluation did not have a similar positive effect on the processing sector. He reported that in sharp contrast to increasing the number of logging enterprises, the devaluation did not increase substantially the capacity of the timber processing sector. Indeed, only five new sawmills and one rotary cut veneer factory were installed by foreign investors following the devaluation. The reason for this could be that while the devaluation improved the export competitiveness of Cameroon's products, it also increased the cost of imported inputs including machinery.

To increase the participation of indigenous Cameroon nationals in the further processing sector, the Government has implemented policies making it easier for nationals to obtain harvesting rights. The experience of other developing countries outside sub-Saharan Africa indicates that such policies only exacerbate over- harvesting of natural forests.

One of the major impediments to participation in the value-adding sector by indigenous Cameroon nationals is the lack of capital. To achieve the intended outcome of developing increased domestic processing capacity, liberal policies on access to natural resources also need to be accompanied by stronger government fiscal and financial incentives.

While it may be too early to gauge the full impact of the log export bans introduced in 1999, ATIBT reported that in 2003, only 10% of Cameroon's total wood production was exported in log form. However,

primary processing in the form of sawn wood continues to be the dominant value-adding activity, with 890,000 m^3 exported during 2003. Nevertheless, *ATIBT (2004)* observed that Cameroon represents the African country with the largest capacity for industrial processing of wood.

4.2 Democratic Republic of Congo (DRC)

Sawn wood production, or primary processing, continues to be the main value-adding activity in DRC. In 2002, the production of sawn wood rose by 4.8%, while the production of veneers fell by 16.5% despite the existence of four peeling units. In 2003, the DRC exported 37 000 m^3 of logs compared with 15 900 m^3 of sawn timber. *(ATIBT, 2004)*.

In 2003, the government introduced a new finance law aimed at encouraging increased value-adding. However, ATIBT has reported that with the exception of a few key companies, the government directive was largely being ignored.

Table 15: The main wood products including processed wood exported by the DRC between 1997 and 2003 (all in m3).

Year	Logs	Sawn timber	Veneers	Plywood	Total
1997	257 449	37 930	41 666	2 613	339 658
1998	272 969	58 764	48 258	1 106	381 097
1999	211 388	61 866	16 540	-	289 794
2000	293 825	63 475	8 005	-	365 305
2001	396 080	94 713	12 007	-	502 800
2002	640 516	127 424	17 508	-	785 448
2003	712 292	133 004	14 607	-	859 903
Rise/Fall (%) 2002/2003	**11.2**	**4.4**	**- 16.6**	**-**	**9.5**

Source: ATIBT, 2004

Table 15 above shows the main processed wood products exported by DRC between 1997 and 2003, compared with log exports. The main observations are the increasing export of logs and sawn wood and the decreasing production of veneers. The production of plywood appeared to have stopped after 1998.

4.3 Côte d'Ivoire

The wood industry in Côte d'Ivoire dates back to the 1880s. Today, the country has an important industrial sector, which is well organised, diversified and equipped for further processing of wood *(ATIBT, 2004)*. Before the *coup d'etat* and subsequent events of September 2002, sawmills in Côte d'Ivoire processed around 2.5 million m^3 of logs a year. *Table 16* shows the volume of the various processed wood products produced in 2003, and illustrates the dominance of primary processed products (sawn wood and peeled veneer) in the further processing sector.

Prior to the *coup d'etat*, the wood processing sector usually employed around 18,000 persons directly, with these individuals supporting around a further 300,000 persons. This excludes the forestry, harvesting and transport sectors which also employed a further 5,000 persons directly. There were about 133 companies involved in further processing, of which 98 produced sawn wood, sliced and peeled veneer; 21 companies produced glued-laminated parquet, plywood, mouldings and sauna boards; and 14 companies produced doors and window frames, doors and furniture.

In Côte d'Ivoire, most of the major companies engaged in further processing are integrated. The most common forms of integration are those combining the production of flooring or moulding with sawmilling, because of the compatibility of the equipment that produces the flooring strip and the moulding or picture frame. Such integration also offers increased efficiency and productivity resulting in better use of resource and reduction in waste.

Table 16: The main types of processed wood products produced by Côte d'Ivoire in 2003.

Product	Volume (m^3)
Sawnwood	472, 581 (60%)
Peeled veneer	217, 001 (27%)
Plywood	62, 378 (8%)
Parquet	14, 290 (2%)
Sliced veneer	12, 770 (2%)
Mouldings	10, 793 (1%)
Total	**789,813 (100%)**

Source: ATIBT, 2004

Côte d'Ivoire's wood processing enterprise centres on two locations: Abidjan (the capital) and San Pedro. The majority of participants in the sawmilling industry started out as practicing foresters and later built their own processing facilities to keep their wood harvesting rights. For many of these enterprises, kiln drying seems to be the logical first step, followed by the production of flooring strips and then later the production of mouldings, finger-jointing and edge-gluing.

Sectoral reforms introduced by the government in 1995 have contributed significantly to transforming the wood processing sector. The reforms included the establishment of the Society for Forest Development (SODEFOR) which is responsible for the sustainable management of the country's natural forests as well as the creation of industrial tree plantations.

In 1998, the government developed and commenced implementation of its Forestry Sector Development Plan (1998-2015). In addition to emphasising reforestation and the creation of industrial tree plantations, the plan also included an incentive package which provided tax reduction measures to encourage the private sector to invest in the sector.

In addition to strong government support, the successful enterprises have benefited from expatriate staff from foreign companies, who bring not only technical and managerial expertise but also distribution channels and market knowledge. For example, FIP (see *Box 2*), the largest secondary processed wood products plant in western and central Africa located in Adzope, is part of an international conglomerate with factories located in Italy, France and Indonesia.

The ***relative success*** of further processing in Côte d'Ivoire's forest and wood products industry can be attributed to the following:

- comparatively stable government until the recent *coup d'etat*; and,
- strong private sector participation, especially foreign companies and other expatriate staff.

The ***main challenges*** facing the wood processing sector in Côte d'Ivoire include:

- uncertain raw material situation;
- excess processing capacity compared with available resource; and,
- uncertain political climate.

Box 2. Fabrique Ivoirienne de Parquet (FIP)

FIP, owned by the Bruno family, was established in 1977 as a flooring plant. The company employs 1,050 people, of whom 24 are expatriates. It is a fully integrated plant with a sawmill processing 8,000 m^3 of logs per month.

Turnover in 1999 was US$15 million. The company's modern equipment includes 46 kiln cells with a total capacity of 3,500 $m^{3;}$ 10 moulders; and a state-of-the-art quality control laboratory.

The plant's main products (all exported) are: flooring (654,000 m^3 valued at US$ 3.5 million); furniture components (1,200 m^3 annually at a value of US$ 550,000) and finger-jointed blanks (300 m^3 /month).

Key challenges: Uncertain resource supply; competition from too many smaller units operating outside the regulatory regime; and taxation system which taxes inputs rather than outputs.

4.4 Gabon

In 2001, the forest and wood products sector contributed 3.8% to Gabon's GDP, and was the source of employment for nearly a third of the working population outside the public sector[3]. The industry is the second largest contributor to GDP after oil, and its main products are sawn timber, veneer and plywood. Gabon is the 5th largest world producer of timber behind Finland, Canada, Sweden and New Zealand.

The ATIBT reported that during 2002/2004, export of logs from Gabon fell by around 10-15% reflecting among other factors the increased local primary processing. The main products are sawn and/or peeled timber. Reliable figures are not available but ATBIT estimated that around 500,000 m^3 or 25% of total production was processed between 2000 and 2003. *Table 17* shows the main processed wood products exported by Gabon in 2003.

Table 17: The main processed wood products exported by Gabon in 2003.

Product	Volume m^3	Log equivalent m^3	Yield %
Veneers	195,000	325,000	60
Sawnwood	92,000	60,000	50
Plywood	30,000	287,000	32
Total	**317,000**	**672,000**	**47 (average)**

Source: ATIBT, 2004

Since 2001, Gabon has implemented World Bank-backed reforms in the forestry sector aimed at sustainable management and increasing revenue collection from the sector. The main challenge for the wood processing sector in Gabon is its domination by Chinese investors, whose main motivation is the procurement of logs to feed their processing plants back home. There is therefore little incentive for the Chinese companies to intensify domestic value-adding in Gabon. On a positive side, the concessions of the four largest Gabonese wood producers are now both under management plan and certified. This could provide additional investment opportunities in the sector.

4.5 Ghana

Sawmilling began in Ghana around 1948 by foreign companies, which also exported most of their production to Europe. Veneer and plywood production began in the 1950s and 60s.[4] In Ghana, the forest products sector represents 8% of GDP.

The official website of Ghana's Forestry Commission reports that Ghana's wood processing sector comprises approximately 200 registered sawmills. Nearly 50 companies export regularly, of which 28 account for 80% of the total exports.

Ghana's timber companies range in size from larger multi product businesses to small scale operations. Similar to Côte d'Ivoire, Ghana's wood products processing industry is mostly privately owned, and dominated by foreign interests.

Table 18 below shows the structure of Ghana's wood processing sector by product exported in 2002. It shows that the sector is dominated by sawn wood and profiled and machined timber.

Ghana's forest and wood processing sector is generally characterised by under- capitalisation, labour-intensiveness and obsolete equipment. There is a realisation within the industry that the processing sector cannot continue to expand simply by extracting more trees because of the diminishing resource base. To address this challenge, government policies emphasise more efficient use of harvested wood resources. Today, there is far greater interest in minimising waste and utilising off-cuts in further processing, to provide exports in shaped and machined mouldings, flooring, furniture components, dowels and similar added value items.

[3] http://www.worldinformation.com
[4] http://dhl-group.com

Table 18: The structure of Ghana's wood processing industry by product exported in 2002.

Product	Number of exporting companies[2]
Sawn timber[1] and sleepers	170
Profiled and machined timber	37
Dowels and broomsticks	7
Flooring	9
Furniture parts	4
Sliced veneer	19
Rotary veneer	20
Layons	1
Curls veneer	6
Plywood	23
Flush doors	1
Boules	4

Source: http://www.fcghana.com

[1] There are 100 companies exporting kiln-dried material.
[2] Some companies are exporting more than one product.

Institutional and policy reforms introduced by the government since 1999 have significantly transformed the structure of Ghana's forest and wood processing sector. Today, four main product groups, namely sawn timber, veneers, plywood and further processed timber/mouldings dominate Ghana's wood exports *(ATIBT, 2004)*.

Table 19 shows the various wood products that contributed to Ghana's wood exports in 2003.

Table 19: Processed wood products exported by Ghana in 2003.

Product type	%
Kiln dried lumber	27
Air-dried lumber	18
Rotary veneer	17
Plywood	15
Processed lumber	9
Sliced veneer	7
Others	7
Total	**100**

Source: ATIBT, 2004

In 2003, additional control measures aimed at ensuring sustainable management of the remaining natural forest resources placed limitations on the flow of logs to the processing mills. This further boosted domestic value-adding in the forest and wood products sector in line with the objectives of the country's Forest Sector Development Plan (1997-2010).

The increase in the export of kiln dried timber recorded in 2003 was the direct result of government policy of penalising the export of air-dried lumber through the imposition of export levies.

According to the ATIBT, the other products that showed significant increases in 2003 were railway sleepers and flooring, due to the increased demand for wooden flooring from Ghana's major markets, of which the country was able to take advantage due to its active overseas marketing and promotional activities.

There are around 20 medium-sized ***furniture manufacturers*** in Ghana. The leading manufacturer Scantyle, is also the largest garden furniture manufacturer in Africa, with an annual turnover of some US$ 7.0 million.

Ghana's ***export markets*** reflect historical trade relations from its colonial era. The main export markets for processed wood from Ghana are: UK, Germany, Italy and France, although the US and the Middle East are

also becoming increasingly important. *Table 20* shows the destinations of Ghana's processed wood trade in 2003.

Table 20: Exports of Ghana's processed wood products by destination.

Destination	%
Europe	60
America	15
Asia/Far East	11
Africa	7
Others	7
Total	**100**

Source: ATIBT, 2004

Principal ***importers*** of processed wood products from Ghana in 2003 are shown in *Table 21*.

Table 21: Principal importers of processed wood products from Ghana in 2003.

Products	Country	Volume m^3	Value (Euros)	Unit Value (Euros/ m^3)
Kiln dried lumber	Germany	26,195	8,020,499	306
Air dried lumber	Senegal	22,212	4,827,626	217
Sliced veneer	Italy	10,712	9,642,880	900
Rotary veneer	USA	33,969	7,599,453	223
Curls veneer	France	33	555,857	16,844
Furniture parts	UK	1,944	3,893,585	2 003

Source: ATIBT, 2004

In Ghana, both the processing and marketing of forest and wood products is dominated by foreign interests. Nearly 95% of exporters use foreign agents and brokers. Motivated by profit maximisation, brokers are not interested in product development, are not loyal to one customer (as they can switch to other suppliers easily depending on price), and are unwilling to provide information about customers and markets. The domestic market is characterised by low supply of lumber due to lower prices.

Success factors. A number of government initiatives (see *Appendices 1-3*) have assisted the growth of Ghana's forest and wood products processing sector. Some of these policies are described below. The ATIBT reported that, as a result of government support, the sector's objective of promoting lesser used species has achieved market results in the export of rotary veneers and plywood in particular, with three species namely: *Ceiba*, *Celtis* and *Otie* accounting for between 94 to 97% of rotary veneer export volumes.

Favourable government policies include:

- economic liberalisation which has provided a favourable enabling environment for investment in all sectors of Ghana's economy;
- bans on the export of unprocessed wood; and
- penalties on low value added (air dried wood) in favour of kiln drying;

The major ***institutional changes*** which have had a positive impact on the industry involve commercialisation of the forestry sector including autonomy and devolution of fiscal control. This has encouraged the Ghana Forestry Commission to incorporate private sector management principles in its operations.

Research and Development. Although it faces financial resource challenges, the Forest Research Institute of Ghana (FORIG) has a strong focus on, among other things, research on wood properties and utilisation. Such research provides some of the information needed to promote products from new species (lesser used

species) to export markets. Ghana has particularly been successful in sub-Saharan Africa in promoting new products from lesser used species in export markets, particularly in the USA.

Strong ***involvement of foreign dominated companies*** in the sector has both positive and negative impacts. On the positive side, involvement by foreign companies brings much needed capital, technical and managerial expertise and overseas markets and distribution channels. On the negative side, domination of foreign interests appears to impede indigenous participation in the sector.

Some of the ***key major challenges*** facing Ghana's forest and wood products processing sector are:

- diminishing raw material supply;
- excess processing capacity compared with available raw material base. Ghana's Investment Code introduced in 1989 encouraged over-investment in the milling sub-sector through fiscal incentives, a situation which continues today;
- obsolete equipment.

4.6 South Africa

In sub-Saharan Africa, South Africa is the main producer of pulp and paper, based on its well-managed industrial tree plantations. The country's pulp and paper industries expanded operations for export during the 1980s. The two major paper manufacturers are overseas owned: Mondi (owned by Anglo American) and Sappi (owned by Gencor).

Pulp and paper production in 2002 was 2.18 million tonnes and represented 1.2% of the world's production of 182 million tonnes, making South Africa the 14th biggest pulp producer in the world. In the same year South Africa exported 25% of its total pulp production (543,000 tonnes).

Paper production in 2002 was 2.69 million tonnes and represented 0.18% of world production. South Africa is the 23rd biggest paper producer in the world.[5]

Factors that have contributed to South Africa's success include:

- a well-developed manufacturing sector;
- well-performing economy, which is fully integrated into the world economy;
- comparatively well-skilled workforce; and,
- a well-developed private sector, with the necessary managerial expertise and leadership to manage large industrial complexes.

The pulp and paper industry makes a substantial contribution to South Africa's manufacturing sector. In 2002, forestry, wood and paper, publishing and printing contributed 2.17% of GDP. The manufacturing component of this amount was 9.3%, larger than the contribution of the gold mining sector. The forest and wood products industry is important for revenue and foreign exchange, and is a vital contributor to national employment. By far the largest part of the industry's activities takes place in rural areas where unemployment (particularly of semi-skilled people) is concentrated. Including timber growing and wood processing, the industry directly employs an estimated 140,000 persons. It is estimated that for every job in the industry, another four are created, resulting in a total of 560,000 additional job opportunities, or 700,000 persons employed overall. It is further estimated that if each of those employees supported four dependants (and often more), the industry could be said to be providing a livelihood for as many as 3 million persons, 7.5 percent of the total population.

4.7 Kenya[6]

Kenya's forest and wood products industry can broadly be divided into two sub-sectors: primary products and secondary products *(Ministry of Tourism, Trade and Industry, 1999*). The main products of the primary processing sub-sector include: poles, logs and sawn timber, while the secondary processing sub-sector

[5] www.highroad.co.za

[6] Note that the situation in Kenya described in this section refers to the period around 2000; since then, with the felling ban on timber, the industrial situation has deteriorated considerably.

produces mainly furniture and fixtures, pencil, match boxes, rulers, domestic and toiletry wares, toys and carvings.

Often, some ***sawmills*** combine the production of sawn timber with the manufacture of furniture and other joinery products. Many of the firms in the sector are small and belong to the informal sector. Medium to large firms are very few and located mainly in the urban centres.

In 1999, the Ministry of Tourism, Trade and Industry reported that there were 488 sawmills of which 444 (91%) were operational. The smallest sawmill has a capacity of less than 500 m^3 of wood per annum, producing around 200 m^3 of timber. The largest sawmill processes slightly greater than 20,000 m^3 of wood, producing 8000 m^3 per annum.

Average recovery rate is between 30 to 40% depending on the age and type of the equipment used. The total capacity of all sawmills is around 1.8 million m^3 of log per annum. Around 1.7 million m^3 is used for the production of peels and veneers.

There are 1,232 firms dealing in furniture and joinery. The smallest firm employs two persons and the largest employs 500. Medium firms on average employ around 50 persons each. The whole sector employs around 65,000 persons directly. Ninety percent of the wood used by the furniture industry is sourced locally, with the balance of 10% imported from Uganda, Tanzania and the United Kingdom.

Another important aspect of Kenya's wood processing sector are ***wood carvings***, which is estimated to utilise 600 tonnes of wood annually. The Kenyan wood carving industry generates estimated export earnings of US$ 20 million from markets in North America, Asia, and Europe.

Government policy for Kenya's forest and wood products sector aims to encourage the adoption of appropriate technologies which can reduce waste, as well as produce quality products, particularly furniture, which can be exported. Specific initiatives include:

- increasing the use of log branches for furniture manufacturing;
- design and production of knock down school desks, office desks and chairs; and
- research into the economic utilisation of waste such sawdust, wood shavings and off-cuts.

The ***pulp and paper sector*** plays a major role in Kenya's national economy, and contributes 2% to GDP. Paper production in Kenya started in 1959 by Kenya Paper Mills at Thika. The sector also provides useful backward and forward linkages among other sectors in the economy. The entire sector employs around 2,800 persons directly.

There are six firms in the sector with a total production capacity of around 126,000 metric tonnes of paper per year, against the total national annual demand of 220,000 metric tonnes per year. In other words, Kenya produces nearly 57% of its domestic paper and paper products needs.

The main products produced by the six firms include:

- writing and printing (newsprint) and stationery paper;
- sanitary (facial and napkin) tissues;
- packaging and wrapping paper;
- Kraft liner, flute medium, straw and paper boards and core paper

With the exception of the Pan Paper Mills, which is allowed to use virgin fibre for production, the remaining five companies use waste paper as their feedstock.

The development of Kenya's forest and wood products industry, particularly the pulp and paper sector, has been greatly assisted by the post-independence ***government's official policy*** of encouraging import substitution. As a result, Kenya quickly developed a number of industries providing consumer goods like beverages and tobacco, textiles, food products, petroleum products, electrical appliances and machinery, printing, paper products, sugar and confectionery. Today, Kenya leads East Africa in industrialisation.

In recent years, the government's policy concerning industry has shifted from import substitution to trade liberalisation and export promotion. As part of this policy, tariff groups have declined in number from 25 in 1988 to 3 in 1997, and during this period, the highest tariff rate was reduced from 135% to 25%. However, liberalisation of industry has failed in its goal to level the economic playing field for importers and manufacturers.

Kenya's forest and wood products sector has considerable potential, particularly as it is surrounded by many wood-deficit countries. However, ***key challenges*** including land tenure, resource constraints, and an uncertain political climate continue to hamper the sector's development and growth.

4.8 Mozambique

According to *SADC (1999)*, there are 91 sawmills in the country. Many of these were imported second hand from Portugal before independence. There are also two plywood plants, one panel plant, one veneer plant, three parquet flooring plants and a paper factory.

In 1996, Mozambique's total production of sawn timber was 43,000 m^3. Most of the timber produced in the country is exported, and its important markets include South Africa, Zimbabwe, Germany, Italy and Japan.

Table 22: Wood production and consumption for Mozambique in 2004.

Product	Production	Consumption
Industrial round wood (m^3)	1,294,000	1,252,600
• Sawlogs and veneer logs	128,000	128,000
• Other	1,166,000	1,124,600
Sawn wood (m^3)	28,000	18,729
Wood-based panels (m^3)	3,400	3,444
• Veneer sheets	2,800	2,800
• Plywood	600	600
• Particleboard	0	4
• Fibreboard	0	40
Paper and paperboard (tonnes)	0	480
• Newsprint	0	25
• Printing and writing paper	0	255
• Other paper and paperboard	0	200

Source: TimberWeb.com (2004)

Table 22 above and *Table 23* below show Mozambique's wood production and consumption, and imports and exports. The pattern is similar to other sub-Saharan Africa with sawn wood dominating as the main processed wood product.

Table 23 shows trends similar to other producers in sub-Saharan Africa. Exports are dominated by low value products (industrial round wood and sawn wood) and imports are dominated by high value-added products (paper products).

Table 23: Wood products imports and exports for Mozambique in 2004.

Product	Imports		Exports	
	Quantity (m^3)	US$ mill	Quantity (m^3)	US$ mill
Industrial round wood	0	0	41,400 (81%)	5,920 (69%)
Sawn wood	129 (20%)	12 (4%)	9,400 (9%)	2,660 (31%)
Wood-based panels	44 (7%)	14 (4%)	0	0
Paper and paperboard (tonnes)	480 (73%)	302 (92%)	0	0
Total (100%)	**653**	**328**	**50,800**	**8,580**

Source: TimberWeb.com (2004)

The forest and wood products sector has the potential to make a major contribution to socio-economic development in Mozambique. However, this potential is being limited by a number of factors including:

- the lack of strategic plan for the sector;
- the lack of forest tenure. Under Mozambique's previous forest law, which is now being modified, concessions were available in theory but in reality none were ever granted. The lack of forest tenure has limited private sector investment in the sector; and,

high start up costs, long lead government approval times and high commercial risk are also major disincentives to private sector investment in the sector.

5.0 INSTITUTIONAL FACTORS AND POLICIES THAT IMPACT ON THE INDUSTRY

5.1 Governments

The role of governments in the sector is still substantial, though it is changing, largely in response to economic reforms implemented as part of structural adjustment programmes during the eighties and nineties. The strong involvement of governments is partly historical because the forestry sector was seen as a public sector activity. In addition, governments were the only entities able to provide the substantial capital required for investment in the sector.

Political and institutional changes implemented in many sub-Saharan African countries are redefining the roles of government and changing the situation. Governments have now come to the realisation that some productive (economic) activities are best provided by the private sector. Overall, however, the rate of commercialisation and privatisation of the forestry sector varies across sub-Saharan Africa.

In Ghana, nearly all government-owned sawmills have now been divested and taken over by private sector interests. Similarly, the role of the private sector in the forestry sector is high in Cote d'Ivoire. On the other hand, the role of government is still strong in Central Africa.

5.2 Private sector

The absence of a thriving indigenous private sector has led to the domination of foreign companies, especially in harvesting, primary processing and transport. In most cases foreign companies are focused on immediate benefits rather than long-term investment. Nevertheless, in most cases foreign private investors have not only provided injection of much needed capital but also contributed technical and managerial expertise to the sector. It is not uncommon for companies to be the sole providers of social infrastructure such as roads, schools and clinics in the areas where they operate.

Unfortunately, the involvement of the private sector has not always brought the expected results. In Central Africa, for instance, the liberalisation of harvesting activities has increased the rate of timber extraction and the amount of unprocessed log exports, rather than boosting the domestic processing industry. In some cases, the rate of deforestation has increased.

5.3 Technology

The benefits of installation of modern technology in the wood processing sector include:

- increased efficiency and improved productivity;
- better utilisation of raw material resulting in increased recovery rates and less wastage;
- improvements to product quality; and
- better working environment including improved occupational health and safety outcomes.

Overall, the sector in sub-Saharan Africa is characterised by obsolete equipment. Lack of affordable capital, limited scientific and technological capacity and low investment in research and development have contributed to the very low rate of innovation and adoption of new technology in the sector. Often, new investment in the sector involves the installation of refurbished second hand equipment rather than state-of-the art technology. This is partly the result of weak institutional structures, which are incapable of monitoring and enforcing government regulations, particularly when confronted by powerful overseas investors.

5.4 Log export bans and timber export taxes

The major wood producing countries in West and Central Africa have in place either full or partial bans on the export of logs. The role of log export bans in promoting domestic processing in tropical timber countries has been the subject of several studies internationally.

The theoretical argument often made in favour of log export bans and timber export taxes is that they will increase job creation, capture more value-adding domestically and improve the scale and efficiency of domestic processing (*Kishor et al., 2001*). Log export bans and timber export taxes are considered a form of restrictive trade policies which countries pursue to encourage forest-based industrialisation, and to compensate their domestic processors for any disadvantage they face in foreign markets. It is generally believed that, by encouraging further downstream processing domestically, countries exporting primary products could increase value-adding, and as a result their foreign exchange earning capacity.

However, some economists have argued that bans on log exports may not be the most efficient way of resource utilisation in some countries because of overall high production costs resulting from lack of skills, technology and processing capacity. Imposing bans on log exports when a country does not have the capacity to embark on domestic processing competitively may be counter productive. Such policies should therefore be considered in the light of each country's individual circumstances.

Several authors (*Bhagwati, 1971; Wiseman and Sedjo, 1981; Devarajan et al., 1996*) have argued that these policies may bring benefits only where the implementing country has market power. In small, open economies that are price takers, the authors have argued that imposing export restriction policies could be harmful not only to exports but overall growth and welfare. As these policies are a form of subsidisation, they could end up encouraging the expansion of an inefficient downstream sector which is wasteful of natural resources because of the artificially low relative prices they create. Being a distortion, they can also result is large welfare losses.

Tropical timber export taxes and log export bans are often cited as reasons for the relatively high success rates which have been achieved in downstream processing in South East Asia. However, *Barbier et al. (1992)* and *Vincent and Binkley (1992)* have argued that these policies have proved only moderately successful in achieving the desired outcomes. While the policies encouraged expansion of processing capacity in Malaysia, Indonesia and the Philippines, the authors observed that these results were achieved at high economic costs, both in terms of the direct costs of subsidisation as well as the additional costs of wasteful and inefficient processing operations.

An IMF study examining the economic and environmental benefits of eliminating log export bans in Costa Rica also concluded that the country could achieve significant welfare gains as a result of reducing trade restrictions via the removal of log export bans.

Even in countries with the capacity to embark on further processing, it is arguable whether log export bans on their own are sufficient to encourage the private sector to invest. In sub-Saharan Africa, Ghana is perhaps the most notable example, where log export bans and timber export taxes have been used to promote further processing in the forest and wood products sector. A critical examination of the situation in Ghana indicates that introduction of other government fiscal incentive measures at the same time as the implementation of the log export bans and timber export taxes significantly contributed to the relative success the country has achieved in further downstream processing.

To date, the introduction of log export bans policies in producing countries in Central Africa has not led to any significant increase in further processing capacity. It will be important to monitor the impacts of the policy in these countries in the coming years to gauge its full impacts.

5.5 Investment policies

Until the 1980s, the economies of many sub-Saharan African countries were dominated by Soviet-style socialist systems, in which the state controlled almost all the productive sectors. Many sub-Saharan African countries fell under the influence of the Soviet bloc, and adopted that economic system because of the generous assistance the then USSR provided to help them in their struggles to achieve independence.

The state control of the economies of many of the countries, with its associated inefficiencies, resulted in economic depression in the 1980s. This resulted in the intervention of multilateral financial institutions such as the World Bank and the International Monetary Fund (IMF).

Since the 1980s, implementation of structural adjustment programmes (SAP) in many of the countries in sub-Saharan Africa aimed at liberalising their economies, has significantly changed their investment policies. Many countries are now openly and actively encouraging private sector investment in the productive sectors of their economies.

Unfortunately, the SAPs have not always achieved the desired outcomes. This is partly due to the inherent structural weaknesses in the economies of these countries, which have acted as disincentives to external private sector investment. Some of the main structural weaknesses include:

- lack of governance and true democracy in some of the countries;
- the absence of laws that guarantee property rights, and resolve conflicts based on the rule of law; and,
- the absence of effective civil society structures, able to monitor and influence government excesses.

To address some of these weaknesses and improve Africa's attractiveness as an investment destination, in 2001, African governments implemented the new partnership for Africa's development (NEPAD). NEPAD has the following principles:

- African ownership and leadership;
- self reliant development;
- promotion of good governance and sound economic management;
- recognition of the diversity of African countries;
- accelerated regional economic integration;
- promotion of partnerships with the private sector, civil society and the international community; and,
- a new partnership with highly industrialised countries and multilateral institutions based on mutual respect and responsibility.

As it is a relatively new initiative, it will take some time before the impact of NEPAD on the economies of African countries becomes evident.

6.0 KEY ISSUES FACING THE INDUSTRY IN SUB-SAHARAN AFRICA

Wood producers in sub-Saharan Africa face a number of significant challenges, which limit their ability to increase the rate of processing and be competitive in the international timber trade. Some of the main challenges facing the wood processing sector in sub-Saharan Africa are discussed in this chapter.

6.1 Raw material availability

Table 24 summarises the raw material situation in the main ITTO producer member countries in sub-Saharan Africa.

With the exception of Gabon, further processing in the major producer countries is based on a limited number of commercial species, which are fast declining in availability. As the volumes harvested are limited, it places a restriction on the ability to increase processing capacity. Lesser used species may provide additional opportunity, but they suffer from limited knowledge about their properties and utilization options in the major consumer markets. This situation may be addressed by research and aggressive promotion of lesser used species and their benefits.

The slow rate of creating well managed industrial tree plantations is also a major constraint to further processing in sub-Saharan Africa because of the diminishing natural forest resource base.

6.2 Competitiveness

Historically, low domestic input costs (labour and raw material) have provided a competitive advantage for sub-Saharan African forest and wood products processors. Over the years, this has been reduced by the high costs of imported inputs such as machinery, spare parts and fuel. The ability to transport semi-finished products efficiently over long distances has also removed the advantage previously provided by low labour

and raw material costs. As pointed out in the *ITTO/ITC Report (2002)*, comparative advantage derived purely from raw material endowment and low input costs tend to decline with the increasing degree of processing.

Table 24: Resource status in the major ITTO producing countries in sub-Saharan Africa.

Country	Forest area (000 ha)		Potential wood supply 2010 compared to 1996 potential
	Natural	Plantations	
Cote d'Ivoire	5,600	66	Slight decline
Ghana	9,000	14	Slight decline
Cameroon	19,500	23	Increase
DRC	109,200	42	Clear increase
Congo	19,500	37	Clear increase
Togo	1,250	6	Unclear
Gabon	17,800	21	Slight increase
CAR	29,900	6	Slight increase
Liberia	45,000	6	Slight decline

Source: ITTO/ITC 2002

While low domestic input costs are important for international competitiveness, the crucial factors tend to be:

- high total productivity as measured by the efficiency of overall resource utilisation (raw material, labour, capital, energy etc.);
- superior and consistent product quality including design; and,
- reliability of supply.

In relation to these factors, sub-Saharan African producers are not competitive compared with producers in South-East Asia and Brazil. Sub-Saharan African producers' competitive advantage appears to lie in the following:

- relatively lighter timbers compared with the heavier, utility timbers of tropical Asia and South America; and,
- less colour variation between species. This is important for European and North American markets where uniformity of colour is an important consideration for the majority of consumers.

These characteristics offer sub-Saharan African species substitution opportunities for some of the common temperate and tropical species. However, this would not occur without concerted efforts at promotion and education of consumers and traders about their properties and utilities, as well as the sustainability of the resource on which the industry is based.

6.3 Ability to improve technology

The majority of equipment used in the wood processing sector in sub-Saharan Africa is obsolete. This makes it impossible to manufacture products to international commercial and industrial standards.

Success on export markets also requires reliability of supply as well as the ability to meet tighter and often complex client specifications and requirements. Sub-Saharan processors are generally unable to meet these requirements, due to the high cost of equipment, unskilled workforce and poor infrastructure.

6.4 Certification

The rapid rate of forest depletion resulting from population pressures has turned global attention to the impacts of the degradation of forest ecosystems and the loss of biodiversity. Ability to demonstrate the sustainability of forest management is increasingly becoming a requirement for participation in the global forest and wood products trade.

Tropical timbers have particularly borne the brunt of international environmental NGO campaigns aimed at reducing the rate of depletion of tropical forests. One effect of the success of these campaigns has been that wood from tree plantations is now preferred in most markets over wood from natural forests, because of the perception that they are more sustainable than operations in natural forests.

Table 25 shows the percentage of certified forests in the world by region. In 2002, certified forests in Africa totalled 2.7 million hectares and represented only 3% of the global total, with the Congo having the largest certified forest of some 1.15 million hectares (*Eba'a Atyi and Simula, 2002*).

Table 25: Certified forests in the world by region in January 2002.

Region	% of Certified Forest
Europe	54
North America	38
Africa	3
Latin America	2
Asia-Pacific	2

Source: Eba'a Atyi and Simula 2002

At the continental level, the ATO and ITTO are jointly working on an important regional initiative in forest certification. Ghana appears to be the only sub-Saharan African country which has made substantial progress in developing a national certification scheme, a draft forest management standard which has seven principles based on the ITTO criteria and indicators. As a first step in the certification process, Ghana has implemented a digitised log-tracking scheme.

Global demand for certified timber is largely driven by marketing factors: competitive advantage, image risk aversion and options available to consumers (*Vilhunen et al., 2001*). On the other hand, *Eba'a Atyi and Simula (2002)* have observed that market development is constrained by limited demand, lack of supply, lack of price premiums and limited industry involvement, with demand mainly created by the WWF Global Forest and Trade Network (GFTN), which is currently operating in almost 20 countries. *Eba'a Atyi and Simula (2002)* estimate that the actual consumption of wood and paper products sold as certified or labelled is less than 5% of the total in the European market.

Rametsteiner (2001) has asserted that there is very little reason to expect any significant increases in the total demand for certified wood products. However, in some tropical timber markets in North America and Europe, the concerted campaigns by environmental groups can easily influence consumer behaviour. *Eba'a Atyi and Simula (2002)* found in their study that:

- in the United Kingdom, Denmark, the Netherlands, Belgium, Austria and USA, some local governments have introduced "green" procurement policies also covering wood and paper. Some local and State governments in Australia have also put in place similar green procurement policies;
- the most far-reaching government procurement decisions relating to sustainable forest management has so far been that taken by the United Kingdom government, which requires, as far as possible, that government bodies purchase "sustainably produced timber"; and,
- the Danish government has recently recognised the FSC label as an example of an instrument providing credible assurance that timber is legally and sustainably produced.

These findings suggest that environmental NGO campaigns linking the international trade in tropical wood products to the rapid rate of degradation of tropical forest ecosystems is sustaining the negative perception of tropical timber in some consumer-sensitive markets. However, as with timber generally, the major challenge is the increasing competition from substitutes: glass, steel, aluminium and concrete.

Other factors affecting the demand for timber, and which are likely to influence the rate of further processing in sub-Saharan Africa are end of service life recycling and utilisation, and occupational health and safety (OH&S) requirements. *ITTO and ITC (2002)* reported that some European ITTO consumer member countries are already imposing various laws, directives and agreements on furniture manufacturers

describing how to achieve environmentally friendly standards and to comply with rising demand for recycling, as well as the use of less harmful compounds.

As reported by *Nair (2004)*, some of the major constraints to wider application of certification in sub-Saharan Africa include:

- governments (the owners of the majority of forests and forestry authorities), are not yet convinced of the importance of certification in increasing market access for forest and wood products. Two factors may explain this: firstly, the failure of the "green price premium" (increased price for certified wood products) to materialise, and secondly, the increasing focus on Asian markets as export destinations for wood products from Africa. Unlike the consumer sensitive markets of Europe and North America, environmental considerations are not yet a major driver for consumer decisions in the purchase of wood products in Asia;
- the high cost of certification overall, and particularly implementing it, in tropical Africa has given the private sector (comprising mostly of European companies) little incentive to enter into certification processes;
- the weakness of indigenous African NGOs and other civil society organisations to integrate this new concept and make it a major priority; and
- the lack of national expertise to carry out the activities related to certification.

For the foreseeable future, all the indications are that certification is unlikely to be an important priority for the wood processing sector.

6.5 Tariffs

Tariffs are generally used by countries to protect their domestic industries. With the conclusion of the Uruguay Round of negotiations in 1994, and the advent of regional and bilateral negotiations on free trade, tariffs are gradually being reduced and in some cases eliminated altogether. Significant progress has already been achieved on reducing tariffs on primary processed and further processed wood products, although they still remain at a high level.

The Generalised System of Preferences (GPS) provides tariff-free access to value-added products from GSP countries. The traditional markets for most sub-Saharan African countries are in GSP countries, and therefore do not attract import tariffs. In terms of tariffs, sub-Saharan African wood producers have a competitive advantage compared with some of their competitors in South East Asia.

6.6 Non-tariff measures (NTMs)

APEC (1999) defines "non-tariff measures" as government laws, regulations, policies and practices that either protect domestically produced goods from the full weight of foreign competition or artificially stimulate exports of certain products. NTMs in the forest and wood products trade take different forms and are motivated by different considerations. The *WTO (2002)* divides NTMs into the following categories:

Socially and politically motivated NTMs, which include:

- government actions that ban or set quotas for exports of unprocessed logs, or stipulate minimum local processing quotas and differentiated export taxation according to the degree of processing;
- surcharges, import taxes and licensing, the use of designated trading enterprises and special free trade zones;
- import substitution schemes, foreign exchange regulations, procurement restrictions for public construction etc;
- the lack of national enforcement of GATT-required criteria to liberalise trade.

Health and safety motivated NTMs, which include:

- restrictions on phytosanitary and pest control grounds;
- prescriptive and culturally-varying building codes and standards;
- favouring the use of non-decaying, non-wood building materials (e.g. steel, plastics, concrete and aluminium) in certain applications;

- non-acceptance of foreign testing methods;
- non-transparent approval system for the acceptance of new wood products.

Environmentally motivated NTMs, which include:

- subsidies for afforestation or reforestation;
- direct harvesting restrictions;
- requirements for the certification and labelling of wood products;
- mandated minimum recycled fibre contents etc.

In addition to these, the WTO also lists other informal impediments to trade which include bans and boycotts by local authorities and retailers of wood products, particularly uncertified tropical timbers.

Anecdotal evidence suggests that where tropical timbers directly compete with temperate timbers in international markets, non–tariff trade barriers are used by the affected countries to limit market access. Further work will be required to quantify the extent of this market disadvantage.

6.7 Poverty alleviation

There is little doubt that a sustainable and flourishing forest and wood products industry, including efficient downstream processing (conversion of logs, sawn wood and plywood into value-added products), is crucial for alleviating poverty in developing forest-rich countries.

As observed by *Poore and Thang (2000)*, a vibrant forest and wood products sector exporting quality goods internationally can contribute to job and wealth creation initially for forest-dependent communities, with flow on benefits to the larger economy. Foreign exchange from exports can contribute to the financial resources available to governments for broader socio-economic development activities.

An efficient forest and wood products sector meeting the needs of forest-dependent communities will remove one of the biggest threats to forests, i.e. conversion to alternative and often more destructive land uses. This threat can be eliminated by making forestry profitable for all concerned.

The objective of forest-rich countries, both developed and developing, is to use their forest resources to create wealth for the benefit of their citizens, and this is certainly the case for countries in sub-Saharan Africa. However, the information available suggests that only in Ghana has an explicit recognition of using the country's forest resources to improve the standard of living of forest-dependent communities. Ghana's Timber Utilisation Contracts (the legal document executed between the government and commercial timber processors) impose on companies certain social obligations relating to the provision of employment and other community amenities aimed at improving living standards and alleviating poverty.

6.8 Illegal logging

Illegal logging is a major problem for all developing country timber producers and not just sub-Saharan Africa. Being predominantly an informal sector activity, there is very little information on the volumes of illegal timber entering the international timber trade. Based on the discrepancies between official government statistics on timber exports provided to the ITTO and those the organisation obtains from importing consumer member countries, the ITTO has estimated that the size of the illegal trade in timber is substantial for some producer member countries.

Governments are either unwilling or unable to control illegal logging because it is one of the main sources of wealth creation and employment generation in the informal sector of many developing country economies. The challenges to the formal sector from illegal logging are that:

- it undermines prices on the domestic markets. Having very low overheads, participants in illegal logging are able to sell their products far lower than the economic cost of production;
- it also competes with the formal sector for logs, and in some situations forces the formal sector to purchase logs at high prices thus increasing their cost of production and reducing their export competitiveness;
- it contributes to unsustainable harvesting practices and undermines incentives for the formal sector to adopt sustainable forest management practices. This exacerbates the perception that international trade

in tropical timber is destructive of the environment, and increases the determination of environmental NGOs to mount campaigns that limit market access for tropical timber in consumer sensitive markets; and,

- it reduces the income available to national budgets, thus limiting further the capacity of governments to implement sustainable management practices and industry development plans for the sector, as well as funding national socio-economic development measures.

As indicated by *Nair (2004)*, ultimately reducing illegal logging depends on the extent to which government policies can make the operations more costly and less profitable than legal operations. A dynamic and well-functioning domestic wood processing sector able to meet the wood needs of the domestic market at reasonable prices will also assist in reducing the size of the illegal trade. This will require improving the capacity of forestry institutions as well as commitment by governments to reinvest some of the profits from the sector to foster its further and sustained development.

6.9 Substitution

Increasing substitution of tropical timber by temperate timbers presents a major challenge to all tropical timber producers, not just those only is sub-Saharan Africa. With concerns about the ability of tropical timber producers to manage their natural forests sustainably, temperate species, particularly those produced in industrial tree plantations, will continue to threaten the market share of tropical timbers in the global forest and wood products trade. Without the recent emergence of China as a major importer of tropical timber, the reduced market access situation for tropical timbers would have been far worse, particularly as Japan, the one time major importer of tropical timber continues, to reduce its reliance on tropical timber. According to *Nair (2004)*, Japan's imports of tropical timber declined from about 5.8 million m3 in 1997 to about 2.1 million m3 in 2001, while China's imports increased from 2.8 million m3 to 7.3 million m3 during the same period.

6.10 Changes to the international trading regime

As global trade liberalisation measures from the conclusion of GATT take effect, they are likely to put further pressure on the already diminishing share of Africa's trade in forest and wood products. GATT free trade measures will have the effect of removing any protection to Africa's wood processing sector offered by tariffs. With the inability to increase its own share in the international trade, any additional demand created in African countries for further processed wood products such as furniture and paper products would be taken up by imports.

7.0 THE SUCCESSFUL WOOD PROCESSORS IN SUB-SAHARAN AFRICA – THE LESSONS LEARNT

The available information suggests that in sub-Saharan Africa, South Africa, Ghana and Côte d'Ivoire have been more successful with further processing in the forest and wood products industry.

Tables 26 and *27* above summarise the main factors that have contributed to successful further processing in sub-Saharan Africa (South Africa, Ghana and Côte d'Ivoire) and Asia-Pacific and Brazil respectively. They show that the factors common to the countries that have been successful in further processing domestically include:

- government policies that support the sector's development and also provide favourable climate for investment;
- availability of skilled workforce including good quality management;
- well developed manufacturing and institutional infrastructure including supporting and/or complementary industries; and,
- availability of dynamic domestic markets.

The experience of Malaysia, Philippines, Indonesia, Thailand and Brazil indicates that availability of raw materials and access to local cheap labour is not enough to encourage successful further processing. Other factors that also contribute to increase in further processing are discussed below.

Table 26: Summary of factors that have contributed to successful further processing in South Africa, Ghana and Côte d'Ivoire.

South Africa	Ghana	Côte d'Ivoire
Well managed industrial tree plantations that provide security of resource. A diversified economy which is well integrated into the global economy. Well developed manufacturing industry including availability of skilled workforce.	Economic liberalisation policies which have provided a favourable enabling environment for investment in all sectors of Ghana's economy. Bans on the export of unprocessed wood including penalties on low value added (air dried wood) in favour of kiln drying. Strong private sector participation. Well-developed sector development plan.	Stable government prior to the *coup d'etat*. Strong private sector participation, especially foreign companies and other expatriate staff. Liberal economic policies which favoured private sector investment. Sector development plan aimed at increased reforestation and value-adding.

Table 27: Summary of factors that have contributed to successful further processing in Asia-Pacific (Malaysia, Indonesia, Thailand and Philippines) and Brazil (South America).

Malaysia, Indonesia, Thailand and Philippines	Brazil
Significant increases in domestic wood consumption due to economic growth. Successful economic policies including devaluation of their currencies. Well developed manufacturing bases including skilled labour. Favourable government industry policies. Low production cost resulting in competitive export prices in international markets.	Successful macro-economic and currency stabilization program implemented in the mid 1990s. The creation of the MERCOSUR, the free trade area with Argentina, Paraguay and Uruguay. The devaluation of the Brazilian currency had improved the country's market competitiveness in international markets. Brazil's large domestic market and abundant supply of sawn wood and wood-based panels have sustained the growth of its furniture industry.

7.1 Supportive government policies

In Malaysia, Philippines, Indonesia and Thailand, strong government support for the sector has been the major factor in their success. In these countries, improved economic management has created a favourable investment climate, and supported the development and emergence of indigenous entrepreneurs. In addition, governments have recognised the potential of the forest and wood products sector to make major contributions to the socio-economic development of their respective countries, and strongly supported industrialisation in the sector.

In Brazil, microeconomic reforms including devaluation of the local currency have been major contributors to successful value-adding in the forest and wood products sector. Government industry policies which favour increased private sector participation and the establishment of industrial tree plantations have also been important contributory factors.

Ghana's relative success in sub-Saharan Africa has largely been due to government policies and reforms for the sector implemented since 1995. Similarly, in Côte d'Ivoire, government liberal economic policies, particularly during the period immediately after independence, have encouraged participation of the private sector. This has been instrumental in increasing value-adding domestically.

As previously indicated, South Africa is unique in sub-Saharan Africa. It is the only country with an advanced economy, which is fully integrated into the global economy. Continuation by post-apartheid governments of economic policies and monetary and fiscal measures, initiated by pre-apartheid governments, continue to assist increased investment in all sectors of the country's economy.

7.2 Availability of a skilled workforce

Two inter-related factors are considered here: the availability of good management skills and a well trained and skilled technical workforce.

Good quality management involves the ability to articulate a vision and provide leadership as well as to coordinate resources to achieve this vision successfully. Management in this context is separate from entrepreneurship. Management skills, including planning, administration, financial, sales and inventory control, are crucial for the success of any modern enterprise.

With the exception of South Africa, the pool of well-trained managers able to provide the leadership necessary for enterprises to be successful is small in sub-Saharan Africa. The lack of good quality management is not unique to the wood processing sector. The overall low level of industrialisation in many of the countries in sub-Saharan Africa limits opportunities for the development of managerial skills required for modern enterprises. This may change as the level of industrialisation increases.

A well trained technical workforce is just as important as good management. Some of the skills crucial for a modern wood processing sector are lacking in many sub-Saharan countries. These include: saw doctoring, timber engineering and knowledge of wood properties and their utilization options.

7.3 Well developed manufacturing and institutional infrastructure

Two critical factors are the presence of related and supporting industries, and good research and development infrastructure.

In developed countries, the presence of well-established supporting and related industries has been shown to offer many advantages in the industrialisation process. In addition to ready access to inputs, competitiveness can be further enhanced by supporting and related industries. For example, in the wood processing industry, the presence of companies manufacturing engineered wood products (such as particleboard and MDF) can contribute to the profitability of the sawmill sector by utilising the waste as raw material. It also contributes to better and more efficient utilisation of resources. Other advantages include close working relationships for mutual benefit, and access to foreign innovation and technology at competitive prices.

In the more advanced countries, and also in tropical timber producing countries such as Malaysia and Brazil, where the wood processing sector is relatively well advanced, government and industry investment in research and development has been crucial.

Research and development is necessary to address some of the important pre-requisites to successful entry into foreign markets such as quality control and the specific requirements of the importing markets.

7.4 Dynamic domestic markets

A dynamic domestic market is usually an important first step for gaining manufacturing experience. In most developed economies, active domestic markets linked to the building and construction industries underpin the wood processing sector. In sub-Saharan Africa, domestic markets could provide the much-needed training ground for "would be" further processors. At present, sub-Saharan Africa's low economic development is impeding the development of domestic markets. This may change as a result of the increasing democratisation coupled with restructuring of the economies taking place in many countries. Unfortunately, the pace of these changes is slow, and therefore may not have any significant impact in the short to medium term.

7.5 Constraints to increased domestic value–adding in sub-Saharan Africa

In examining the key constraints to further processing, the study compared the situation in sub-Saharan Africa with that the Asia-Pacific and South America. *Table 28* summaries the key constraints for each of the three regions.

Table 28: Key constraints to increased value-adding in sub-Saharan Africa compared with South America and Asia-Pacific.

Sub-Saharan Africa	Asia-Pacific	Latin American-Caribbean
The lack of government incentives for further processing. Lack of coherent forest sector development plans focusing on increased value adding. Focus on increased log harvesting to support economic development rather than achieving increased value through further processing. Political, social and civil unrest in some countries, which have constrained development and foreign investment. Concern about diminish-ing resource is discourag-ing new investments. Poor governance structu-res and weak institutions.	Reducing supply of raw materials. Low levels of innovation particularly in design. Lack of product diversify-cation and differentiation. Escalating input costs.	The lack of effective forest and industrial policies. Poor governance and law enforcement in the forests sector. Lack of government support for industrial development. High cost of investment capital. Low levels of institutional support for product devel-opment and promotion, quality labelling, and design and technology upgrading. Absence of domestic markets for wood products resulting in lack of incen-tives to develop necessary business/marketing skills required for export trade.

With the exception of Brazil, the situation in the most of the Latin American-Caribbean Region is similar to sub-Saharan Africa. In the Asia-Pacific region, further processing capacities in other ITTO producer countries (India, Cambodia, Fiji, Papua New Guinea and Myanmar) have not yet expanded to the scale in Malaysia, Indonesia, Thailand and the Philippines. Similar to the majority of countries in sub-Saharan Africa, they are exporters of unprocessed tropical logs, with sawmilling being the major further processing activity.

An important observation from *Table 28* is that the major constraints to the well-performing countries in the Asia-Pacific region relate mainly to transition to a higher level of industrialisation. In sub-Saharan Africa and the Latin American-Caribbean countries, they relate to transition from mainly log exporting to the first stages of primary and secondary processing.

The ***major constraints*** to increased further processing in sub-Saharan Africa include those described below.

7.6 Weak governance structures

Global capital is particularly sensitive to sovereign risk. In sub-Saharan Africa, the absence of adequate legal measures to safeguard property rights, and address disputes in a transparent manner, is a major disincentive to investors. Perhaps this constraint may be addressed by the recent initiatives under NEPAD to improve governance and increase transparency in government activities, although it will be some time before any benefit is apparent.

7.7 Lack of access to technology and capital

Access to technology and the capacity to develop appropriate technologies are linked to access to finance and/or capital investment. In many sub-Saharan African countries the high cost of obtaining finance, as distinct from the availability of finance *per se*, is the major issue.

In 1999, IMF estimated that the average domestic lending rates ranged from 17% per annum in Liberia to a fixed 22% in Cameroon, Gabon and the Congo. In Ghana it was 26%. Only in Togo and Côte d'Ivoire are domestic interest rates around 5% per annum. These high interest rates generally reflect the perception of the increased level of risk the banking institutions attach to lending money in sub-Saharan Africa. The high cost of finance affects the ability of borrowers to service the loan.

Although structural adjustment and improved economic management is gradually changing the situation in many sub-Saharan African countries, commercial bank interest rates remain too high for many small scale producers.

7.8 The size of the industry

The size of the industry in many sub-Saharan African countries is small. In addition, they are fragmented and not well organised. This limits their ability to take a lead role in lobbying and promoting the industry and bring about change. Also, there is still a prevailing view that industry development is the responsibility of governments.

7.9 Training

Sub-Saharan Africa lacks wood industry training, as well as workers with well developed technical skills to support a modern industrial economy. This is partly a result of post-independent governments investing substantially in traditional tertiary education, rather than technical and vocational education, to train qualified public administrators quickly to assume roles previously held by colonial administrators. This has been compounded by the prevailing perception within these countries that work other than the so called "white collar positions" are unglamorous and fit only for those who cannot complete a degree course.

The skills shortage covers all levels ranging from middle management and foremen to skilled and semi-skilled operators. Therefore, there is a reliance on expatriate staff within the wood processing sector.

Many of the workers currently employed in the wood processing sector have acquired their limited skills through experience rather than by formal training. Opportunities such as apprenticeships, used traditionally to train trades people and technical staff in developed countries, are generally not available in many sub-Saharan African countries.

7.10 Lack of support structures

The lack of institutional support structures, such as tool maintenance centres, research and development institutes, professional and trade associations, etc., has contributed to the wood processing sector's low level of development. In the more advanced countries, these structures provide an important supporting role to their industry sectors by providing services such as training and specialised advice. Professional and industry associations in more advanced countries are crucial in lobbying governments and representing strongly the interests of their industry sectors.

7.11 Small domestic markets

Overall, domestic markets in sub-Saharan Africa are small and unevenly distributed, particularly in the regional areas. Limited domestic markets for processed wood, due to low purchasing power, are impeding the establishment of viable further processing facilities. In general, lower grade products are sold on domestic markets at very low prices. This provides very little incentive for expanding domestic markets.

7.12 Limited intra-African trade

At present, inter-African trade is very small amounting to only 10% (*NEPAD, personal com*). Constraints to increasing intra-African trade include the following:

- Linkage between trade and investment. Historically, investments in sub-Saharan Africa's wood processing sector have come from Europe and in recent years from Asia. In many cases the investors have their own processing facilities in their home country and the primary motivation for the new investments is to obtain access to unprocessed logs to feed their processing facilities in the home countries. There is therefore little incentive to process wood for trade within Africa; and

- There is a limit to the wood products able to be traded among African countries. Paper and paper products are imported into Africa in significant quantities. Except South Africa, the production of high quality writing and printing paper on the continent is very low or almost non-existent in the forest-rich countries. This limits opportunities for increased trade among African countries. Regarding sawn timber and other wood products produced in reasonable quantities by some forest-rich countries, the ability to increase trade with the relatively affluent but forest-deficit North African countries is limited by poor shipping and land transport infrastructure, thus making it cheaper for these countries to import their wood requirements from Europe.

7.13 Lack of market information

Market knowledge is important for success in maintaining existing markets and creating new ones. At present, many sub-Saharan African countries lack this knowledge, and the ability to access and/or acquire it.

Access to market information, however, cannot be considered a constraint for the ITTO producer member countries in sub-Saharan Africa. These countries have access to the regular market update information produced by ITTO's Economic Information and Market Intelligence division. The real issue for these countries is the ability to analyse and make effective use of the market information provided by the ITTO.

8.0 IMPLICATIONS FOR FUTURE INTERVENTIONS

All major studies on trends in the international timber trade have concluded that the global trade in further processed wood will continue to expand on average by between 9 and 10% per year in the medium term, particularly in furniture and furniture parts. This suggests that sub-Saharan Africa, with its natural forest resources, especially in West Africa and the Congo Basin, could potentially be an important player in the international trade in processed forest and wood products. This section discusses what needs to be done to enable sub-Saharan African countries to take advantage of these emerging opportunities.

8.1 Policy and institutional changes

Institutional changes involving commercialisation of, and financial autonomy for, the Ghana Forestry Commission appear to have had a positive impact on the wood processing sector. Less government control and increased private sector participation in the industry in Côte d'Ivoire also seems to have assisted in the increased domestic value-adding achieved by the country. These institutional and policy changes have also started in the Congo Basin countries and need to be embraced by the other countries.

There is a role for governments' commercial involvement in the sector through joint venture partnerships with the private sector. However, such partnerships are useful only if governments remain at arms length from the business entities. These entities need to operate autonomously, based on private sector commercial principles, to make commercial decisions independently including reinvesting profits as necessary in new technology, market development and personnel training.

8.2 Technological improvements

ITTO/ITC (2002) described five levels of technological advancement based on UNIDO classification as follows:

1. facilities using basic portable tools and universal wood working machines;
2. facilities using basic woodworking machines (bandsaw, planer, thicknesser, spindle moulder, boring machine, etc.) to produce in small batches;
3. facilities such as in 2 but producing larger batches, using low cost mechanisation and jigs suitable for serial production wherever possible;

4. facilities that use special purpose machines (four-side moulders, copying lathes, edge-banders, CNC-computer numeric controls, moulders, etc.); and,

5. facilities with integrated machine lines (linked machines used for production of panel furniture, door, surface finishing, robots used for painting, integrated lines).

The ITTO/ITC study concluded that categories 1 and 2 typify the technological status of further processing in ITTO producer countries including those in sub-Saharan Africa. Available literature on sub-Saharan Africa reviewed for this study supports this conclusion. The processing facilities of many sub-Saharan countries are obsolete and inefficient.

Sub-Saharan Africa can have the advantage of not going through these categories sequentially in order to accelerate further processing. With good government policies, supportive of a financially viable and efficient national wood processing sector, it is possible for some sub-Saharan African countries to advance directly to category 3.

In addition, liberal economic policies, incorporating strong fiscal and financial incentives, are necessary to make sub-Saharan countries attractive investment destinations for foreign investors. New and innovative government policies aimed at making it attractive for indigenous entrepreneurs to work in mutually productive partnerships with foreign investors are also necessary.

8.3 Creating and supporting entrepreneurship

Sub-Saharan Africa does not lack entrepreneurship. This is demonstrated by the success (albeit limited) achieved in some of the main producing countries by indigenous processors in entering export markets. This has been achieved in the face of major constraints and significant challenges, and exemplifies the resourcefulness of local entrepreneurs. The main constraint to indigenous entrepreneurship relates to the lack of enabling environments underpinned by government policies that can develop and nurture entrepreneurs.

As reported by the *ITTO/ITC (2002)*, developing country governments tend to overlook small to medium enterprises (SMEs) in policy making because they largely operate in the informal sector. In more advanced countries, SMEs have generally been the spawning ground for entrepreneurs. While large enterprises are important, even in the more advanced countries, SMEs are the major source of employment and wealth generation. Being small and flexible, they can be innovative without incurring large overhead costs.

Innovative policies supportive of the development and growth of SMEs can play a major role in many sectors of the economies of sub-Saharan African countries, including the forest and wood products processing sector. Being labour-intensive, SMEs are much more able to make positive contributions to the general socio-economic development objectives of countries than larger enterprises.

Supportive policies that can assist the development and growth of SMEs should include those that:

- ensure equity in access to raw materials and other inputs at reasonable prices;
- assist access to new knowledge and technology;
- enable access to capital at affordable rates; and,
- provide access to managerial skills and training for the workforce in a cost effective and time-efficient manner.

8.4 Overcoming impediments to trade

The available information does not support the proposition that trade restrictions (both tariff and non-tariff) in the key export markets for processed wood from sub-Saharan Africa are a major contributory factor to the low levels of domestic value-adding. The available evidence suggests that tariff and non-tariff barriers to exports from sub-Saharan African countries are far lower and more favourable than for comparable exporters in South-East Asia and South America because of benefits under the Lome Convention and the Generalised System of Preferences.

It would appear that the cost of imported inputs (such as fuel, machinery and spare parts) combined with high international freight costs and domestic policies relating to shipping and custom services impact negatively on the efforts by sub-Saharan countries to achieve increased levels of industrialisation. Indeed, the domestic policies of many sub-Saharan countries incorporate substantial anti-export bias by significantly increasing the cost of imported inputs for value-adding domestically.

If sub-Saharan countries are to reverse the current low levels of further processing in their economies generally, it will be necessary to learn from the experience of countries which have successfully achieved this such as South Africa, Malaysia, Brazil, Indonesia, Thailand and the Philippines. In particular, sub-Saharan countries will need to integrate their economies into the global economy by quickly adopting appropriate trade and structural adjustment policies to enhance their international competitiveness, and permit their exporters to capitalise on opportunities in foreign markets. While there will be transitional costs in reforming these restrictive policies, undue delays in adopting efficiency-improving measures will further exacerbate the low levels of industrialisation, and consequently limit the ability of countries to alleviate poverty by capitalising on their forest and other natural resource assets.

8.5 Role of governments

Governments have a major role to play in increasing the rate of further processing in sub-Saharan Africa's forest and wood products sector. The role of governments should be supportive in creating the environment conducive for increased investment by the private sector. Criticisms about over-representation of sub-Saharan African governments in the sector relate to their involvement as owners of processing facilities, sometimes in competition with the private sector. In these situations, an uneven playing field is created whereby governments are able to use their significant financial and fiscal powers to prop up inefficient and loss-making state enterprises to the disadvantage of private sector participants. Some important roles that governments can play to assist industrialisation in the sector are described below.

Resource security. While the Congo Basin countries are endowed with abundant natural forest resources, this is not currently the case in countries like Kenya, Ghana and the Côte d'Ivoire. Even in the Congo Basin countries, there is concern that the current rates of harvesting for log exports could be threatening long term sustainability and therefore continued availability of the resource.

Property rights do not exist in many sub-Saharan African countries. Consequently, private ownership of natural forests, the main source of raw material for the processing sector, is either insignificant or non-existent. It is therefore important for governments to ensure secured access to forest resources by investors. In the more advanced countries, secure access to forest resources is usually one of the major preconditions the private sector imposes as prerequisite to investing in the forest and wood products sector. Rather than participating in the sector as owners of processing facilities, governments need to invest their limited resources in silvicultural improvements and policies that encourage the establishment of well-managed tree plantations to provide a secure supply of raw materials to the industry.

Sector development plans. While many sub-Saharan African countries claim to have forest sector plans, very few appear to have in place plans for the sustainable development of the processing industry sector. A well designed plan and the commitment to implement it, is crucial for sub-Sahara's forest and wood products sector. This requires that governments genuinely recognise the important role the sector can play in the socio-economic development of their countries. Having recognised its contribution, the sector should be given equal consideration in government policy and fiscal matters. To date, the sector's role as an important economic activity has been secondary in the overall policy frameworks of most countries. Supportive policies that create favourable environments for investment and wealth creation within the sector should be considered urgently by governments.

Structural adjustment. In countries such as Ghana and Côte d'Ivoire, where the diminished state of the resource has resulted in excess capacity of the installed processing facilities, governments can assist the industry by implementing structural adjustment policies which would ultimately match the available raw material with processing capacity. Such adjustments would, however, contribute to overall unemployment in the short to medium terms. Therefore, it should be accompanied by economy-wide reforms aimed at increasing the capacity of other sectors to absorb surplus or redundant employment from the forest and wood processing sector.

Training and Research & Development. The experience of countries such as Malaysia, Philippines, Indonesia and Thailand and Brazil shows that supportive infrastructure provided by their governments have been crucial in their relative success in increasing further processing beyond primary processing . These include:

- facilities for training workers, as well as middle and senior management staff; and,
- research institutions focusing on the utilization properties of the available wood species as well as efficient production systems.

A pool of well qualified staff coupled with good leadership in management will assist in addressing the perception in international markets that sub-Saharan African countries are unreliable suppliers. To remedy the situation, significant investments, which are currently not available, will be required. Regional training facilities which serve the industry's skills needs of several countries would offer a cost-effective solution. Another option is the pooling of common use facilities similar to that provided by Ghana's furniture industry sector for its members in Kumasi (see *Appendix 2*).

The regional co-operation mechanisms now taking seed in almost every sub-region in sub-Saharan Africa may provide the opportunity for governments to consider pooling their resources in the form of regional centres of excellence. The location of these centres could be based on the comparative advantages each country offers in providing training cost-effectively. Regional centres of excellence will also make it easier for donor countries to effectively support these facilities with equipment, expertise and finance.

Well-developed R&D facilities are necessary to support the development of the sector in sub-Saharan Africa. Substantial investment in R&D is required if the promotion of lesser used species (as alternatives to the well established premium species) is to be successful, particularly in countries where resource shortage is emerging as a major challenge to the wood processing sector.

Research in forestry in sub-Saharan Africa continues to focus on silviculture, perhaps in response to the global pressure to achieve and demonstrate sustainability of management practices. In many countries, the existing knowledge on wood properties and end use options was created during the colonial era, and little or no new investment in R&D has been made in this area since independence.

Reducing risk. Implementing transparent governance systems will contribute to addressing the high sovereign risk external investors attach to investments in sub-Saharan Africa. In developing countries, high interest rates generally reflect the high risk banking institutions attach to lending money. Good governance systems including liberalisation of the financial system and well defined property rights will assist in addressing these challenges. Policies aimed at creating a favourable investment climate will ensure access to capital at reasonable market rates, and can benefit the entire economy.

Market promotion. Successful entry into international markets depends, among other factors, on sustained and effective market promotion. This is partly achieved through participation in international exhibitions and trade fairs. Governments can use their extensive networks of diplomatic and trade missions overseas to identify and facilitate participation by domestic companies in these fairs. These international fairs and exhibitions provide the opportunity for companies to enter into new relationships including joint ventures for new investments. They also provide cost-effective opportunities for learning about new markets and their requirements, and they assist in technology and innovation transfer.

Apart from South Africa, Ghana appears to be the only country with an office overseas to promote its processed wood products and developing new markets. Ghana's apparent success has been assisted by partnerships with experienced foreign companies, which already have access to distribution channels in the major markets. Indeed, the majority of Ghana's wood processing companies are foreign owned.

Malaysia's success as a major furniture exporter is also partly attributed to the "aggressive" manner in which the Malaysian Timber Council (MTC) has spearheaded the development of new overseas markets for the domestic industry through market and product promotion.

Increasing domestic demand. Despite the small size and low prices for products from domestic markets, they are important for the majority of small producers as well as the informal sector. Increasing the standard of living and purchasing power of the citizens is one of the ways to boost domestic demand for manufactured good including forest and wood products. Achieving this will require genuine efforts by African governments to implement policies that increase economic growth and create sustainable employment for their citizens. The experience of several Asian countries indicates that this is achievable with visionary and committed leadership.

Domestic markets also serve as training grounds for successful entry into international markets. However, this is unlikely to happen in the short to medium term because of the inability of domestic markets in sub-Saharan Africa to absorb in viable quantities products manufactured to international quality standards, mainly for price reasons.

8.6 Regional markets

Demand for processed wood in the resource deficit regions of Southern, Eastern and Northern Africa could provide a boost for increased further processing in Central and West Africa. For this to occur, sub-Saharan Africa would need to implement measures to eliminate obstacles, such as poor transport and shipping

infrastructure, which are presently impeding intra African trade. Also, governments would need to address the excessive costs on country-to-country trade arising from bureaucratic inefficiencies.

Regional markets, resulting from inter-country cooperation and regional integration are increasingly becoming important in sub-Saharan Africa. Some of the most important ones are: the Common Market for Eastern and Southern Africa (COMESA), the Economic Community for West African States (ECOWAS), the Economic Community for Central African States (ECCAS), the East African Community (EAC), the Economic and Monetary Community of Central Africa (CEMAC), the Economic Community of the Great Lakes Countries (CEPGL), the West African Monetary and Economic Union (UEMOA), and the Southern African Development Community (SADC).

A common aim of these regional economic groupings is enhanced trade through unifying and reducing customs duties. These regional economic groups provide the basis for the development of future regional markets for intra-African trade in goods and services including processed wood. For now, the usefulness of these regional groupings for intra-African trade is limited because of poor infrastructure, particularly for road, sea and air transport.

8.7 The use of Internet technology

Increasingly the Internet is becoming an important facility for information exchange and international trade and commerce. It is a cost-effective means for providing real time information to existing and potential customers and gaining access to markets. Governments can assist by improving access to the Internet by local companies. The telecommunication infrastructure in many sub-Saharan African countries is barely functional. Rather than continuing to rely on obsolete telecommunication technology, it may be cost-effective for governments to facilitate investment in, and access to, the newer generation technology.

8.8 The private sector

One of the principal roles of the private sector is to influence government policy positively for the benefit of the industry sector and contribute to local economic activity. A dynamic and well functioning processing sector provides the opportunity for the private sector to create wealth and increase employment using the available forest resources.

It is important that the private sector is genuinely committed to the sustainable development of the industry. Instances exist in sub-Saharan Africa where the private sector, driven by short term financial gain, has adopted a “resource mining” attitude and contributed to unsustainable harvesting practices.

In some situations too, the private sector has undermined genuine government industry development policies by offering tokenistic solutions. The current proliferation of obsolete equipment in the forest and wood products processing sector in sub-Saharan Africa can partly be attributed to some private sector companies importing old equipment, rather than new ones, to qualify for government incentives. Such practices are not in the long term interest of the sector.

8.9 Non-government organizations (NGOs)

Environmental NGOs have been very effective globally in alerting civil society to unsustainable practices by both governments and the private sector. As domestic value adding increases in sub-Saharan Africa, this watch dog role will continue to be important, to ensure that the benefits of values-adding (better and more efficient use of available resources) are achieved.

NGOs have also been effective in drawing the attention of governments in more advanced countries to some of the adverse impacts of “globalisation” on developing countries. Ensuring “fairness” in international trade, including for forest and wood products, is crucial for sub-Saharan Africa’s industrial development.

Other important considerations involve workers’ rights and occupational health and safety issues. NGOs have played a very crucial role in these areas, and their contribution will continue to be important.

8.10 Industry and professional associations

Industry and professional associations play an important role in lobbying governments and participating in policy development processes on behalf of their members. They are also important in transferring new innovations and technologies to their industry sectors. Often relationships with overseas counterparts provide useful market access and product and market intelligence information for their members. More

importantly, they can be a catalyst for positive changes in the industry including providing technical and managerial training. As in the case of Ghana, industry associations and professional bodies can assist in achieving economies of scale by pooling together common use resources for the benefit of members. In Brazil and Malaysia, the *ITTO/ITC (2002)* study identified the professional and industry bodies of these countries as having been instrumental in the success the countries have achieved in further processing in their respective forest and wood product industries.

9.0 CONCLUSIONS

The major conclusion from the study is that the rate of wood processing in sub-Saharan Africa is low. The sector is dominated by obsolete equipment, inefficiency and low productivity. Some of the reasons for the generally low level of domestic wood processing in sub-Saharan Africa include:

- domination of the forest and wood products sector by foreign business interests;
- lack of affordable capital;
- the small size of the national and international markets; and,
- the increasing demand from Asian countries, particularly China, for high quality logs from tropical Africa.

The economies of many sub-Saharan African countries have inherent structural weaknesses, which will take considerable effort and time to address. Some important steps have already been taken in many countries in economic reforms and implementation of democratic governments (according to NEPAD there are 20 countries in sub-Saharan Africa with democratic governments). However, it is unlikely that the challenges and constraints facing the wood processing sector will be reduced in the short to medium term.

Taking into consideration the current state of the wood processing sector in sub-Saharan Africa, an important question to answer is *What kinds of wood industries are appropriate for sub-Saharan Africa?*

Should countries in sub-Saharan Africa aim to transform their wood processing sectors into capital intensive facilities similar to those in developed countries or continue with incremental changes to the status quo? The former goal is unattainable, at least in the short to medium term, and the latter option will not immediately offer the opportunities sub-Saharan Africa needs to utilise its significant forest resources in addressing pressing socio-economic development challenges such as poverty alleviation.

One advantage sub-Saharan tropical timbers have over timbers from other tropical wood producing regions is the consistency of their light colours. Capitalising on its other competitive advantage of low labour cost, sub-Saharan Africa may be able to create a sustainable processing industry focusing on the production of secondary processed products such as garden furniture and parts, flooring, dowels, profiled wood, doors and other builders' joinery products. These are products for which the region already has considerable experience in their production, both for the domestic consumption and export.

Concentrating on these products, and producing them to high international quality standards, sub-Saharan African may be able to create niche markets focusing on discerning consumers who may be willing to pay premium prices. However, these customers are likely to be located in consumer markets that are sensitive to environmental issues, and therefore demand evidence that shows that the products have been sourced from well managed forests. Giving urgent attention to managing its natural forests sustainably is therefore important for the long term survival of the existing processing industries in sub-Saharan Africa.

Securing the future of existing processing industries, let alone expanding them and/or creating new ones, will depend on the ability of governments to address several of the challenges and constraints identified in this report, the key ones being:

- creating an enabling climate conducive to private sector investment and wealth creation;
- implementing economic policies aimed at accelerating the growth of national economies and thereby increasing purchasing power and demand;
- enhancing regional co-operation and implementing policies that encourage inter- and intra-African trade;
- understanding the needs and requirements of key export markets including commitment to quality and reliability of supply;
- increasing the pool of trained management and technical personnel; and,

- addressing the perception of diminishing natural forests due to unsustainable practices.

While these are daunting challenges, addressing them successfully is possible with visionary and committed leadership.

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APPENDIX 1

SUMMARY OF GHANA'S FORESTRY SECTOR POLICIES

In 1995, the Government suspended log exports to reduce pressure on forests as a result of a boom in log exports to the Far East. The policy was aimed at reducing log harvesting levels and bringing log harvesting within the annual allowable cut (AAC). Export levies were also imposed on selected species to:

1. promote kiln drying as a first phase for the development of the value added sector and discouraging the export of primary (main traditional commercial) species in green or air dried lumber form; and,
2. provide a mechanism for reducing harvesting, and increasing production of, threatened species.

The Forestry Commission of Ghana was created in 1999 as part of institutional efforts aimed at improving co-ordination and capacity building for implementing the new forest policies and the 1997 forest sector development plan.

Forest Sector Policy (1997–2010)

The Plan is the main mechanism for implementing forest and forest industries policies. The key features are:

1. development of further processing through the provision of incentives and facilities for upgrading skills in the wood sector including the establishment of the Wood Industries Training Centre;
2. removal of bureaucratic controls to encourage private sector initiatives in resource development and marketing wood products;
3. provision of assistance and guidance through incentive schemes for the development of a kiln-drying sub-sector, promotion of lesser-used species, and the modernisation of existing plant and equipment to allow increased efficiency and a more judicious use of raw materials;
4. additional resource development through the establishment of plantations. A forest plantation development fund was established from revenue generated by the levy on air-dried timber exports of threatened species and supports the development of commercial tree plantations; and,
5. use of fiscal instruments to achieve a balance between resource availability and processing capacity by discouraging investment in primary processing in favour of promoting the tertiary processing sector.

APPENDIX 2

GHANA'S FURNITURE AND WOOD PRODUCTS ASSOCIATION (FAWAG)

FAWAG is committed to the sustainable development and growth of the furniture and wood processing industries in Ghana. FAWAG's membership includes over 120 producers of furniture and a wide variety of wood-based products. FAWAG's primary objectives are to:

- provide a forum for the promotion of the interest of furniture and wood processing industries in Ghana;
- represent the industry's interests to government;
- encourage and promote large scale exports of Ghana-made furniture and wood products by organising and participating in fairs and exhibitions both at home and abroad; and,
- to ensure effective communications among all sectors of the industry.

Since 1991, the Association has established a Wood Village Project in Kumasi, spreading over a total area of 150 acres. The Village is managed through a subsidiary company, Kumasi Wood Estate Limited (KWEL), to ensure that the project is run in a business-like manner. The Village upgrades the skills of producers in the wood industry aimed at improving their productivity and processing skills and ensure the better utilisation of Ghana's forests.

FAWAG services its members through organising seminars and workshops on industry issues and challenges

APPENDIX 3

GHANA'S WOOD WORKING SECTOR DEVELOPMENT PROGRAMME (WSDP)

Ghana's secondary processing sector has been greatly enhanced by the WSDP. The Programme's objective is to stabilise and increase the exports of value-added products in the sector by improving technical, marketing and managerial skills in the sector.

Funding for the project (4.76 million Euros over three years) was provided by the Centre for Development of Industry (CDI) in Brussels. CDI is an instrument of the Treaty of Lome charged with assisting the industrialisation of African, Caribbean and Pacific countries (ACP).

The Programme provides training in management, marketing and productivity, kiln drying, moulding and gluing.

Training and assistance is provided in the following areas:

1. Technical: sawmilling, saw-doctoring, kiln-drying, wood machining, moulding, turning, machine maintenance, benchmarking;
2. Commercial design and management: business planning, marketing, product development, furniture design and promotion of lesser used species;
3. Education and training: provision of technical materials and books to technical institutions; and,
4. Financial: the WSDP provides subsidies (export incentive subsidy) and grants to promote the use of lesser used species (10% of the FOB value of the value-added LUS exported) and the acquisition of kiln-drying equipment.

Through a newsletter, the WSD disseminates information on its activities.