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JOINT REPORT

OVERVIEW OF THE TIMBER TRADE IN EAST AND SOUTHERN AFRICA:

National Perspectives and Regional Trade Linkages

FEBRUARY 2017

Kahana Lukumbuzya and Cassian Sianga



TRAFFIC
the wildlife trade monitoring network





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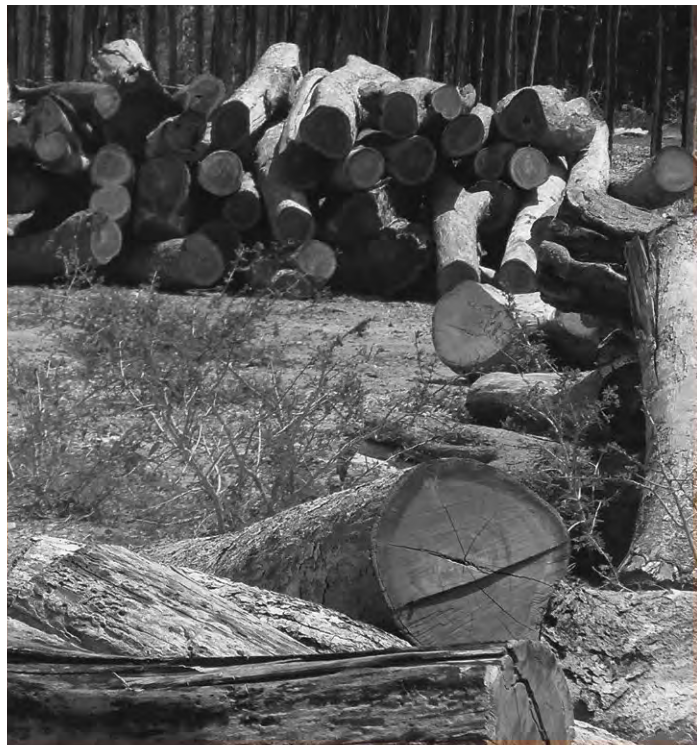
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TABLE OF CONTENTS

LIST OF TABLES	vii
LIST OF FIGURES	viii
ACKNOWLEDGEMENTS	ix
ACRONYMS	x
EXECUTIVE SUMMARY	1
1. BACKGROUND AND INTRODUCTION	3
2. METHODOLOGY	4
3. RESULTS AND MAIN FINDINGS	6
3.1 The United Republic of Tanzania	8
3.1.1 National context	8
3.1.1.1 Forest cover	8
3.1.1.2 Deforestation	8
3.1.2 Legal instruments and agencies	8
3.1.2.1 Harvesting/Handling	9
3.1.2.2 Export/Import	10
3.1.3 Timber flows	10
3.1.3.1 Exports	11
3.1.3.2 Domestic consumption	13
3.1.3.3 Imports	13
3.1.4 Products	15
3.1.5 Species	15
3.1.6 Main companies	16
3.2 The Republic of Kenya	17
3.2.1 National context	17
3.2.1.1 Forest cover	17
3.2.1.2 Deforestation	17
3.2.2 Legal instruments and agencies	17
3.2.2.1 Harvesting/Handling	18
3.2.2.2 Export/Import	18
3.2.3 Timber flows	19
3.2.3.1 Exports	19
3.2.3.2 Domestic consumption	19
3.2.3.3 Imports	20
3.2.4 Products	21
3.2.5 Species	21
3.2.6 Main companies	22
3.3 The Republic of Uganda	23
3.3.1 National context	23
3.3.1.1 Forest cover	23

3.3.1.2 Deforestation	23
3.3.2 Legal instruments and agencies	23
3.3.2.1 Harvesting/Handling	23
3.3.2.2 Export/Import	24
3.3.3 Timber flows	24
3.3.3.1 Exports	24
3.3.3.2 Domestic consumption	25
3.3.3.3 Imports	25
3.3.4 Products	25
3.3.5 Species	25
3.3.6 Main companies	25
3.4 The Democratic Republic of Congo	26
3.4.1 National context	26
3.4.1.1 Forest cover	26
3.4.1.2 Deforestation	26
3.4.2 Legal instruments and agencies	27
3.4.2.1 Harvesting/Handling	27
3.4.2.2 Export/Import	28
3.4.3 Timber flows	28
3.4.3.1 Exports	28
3.4.3.2 Domestic consumption	30
3.4.3.3 Imports	30
3.4.4 Products	31
3.4.5 Species	31
3.4.6 Main companies	31
3.5 The Republic of Zambia	32
3.5.1 National context	32
3.5.1.1 Forest cover	32
3.5.1.2 Deforestation	32
3.5.2 Legal instruments and agencies	33
3.5.2.1 Harvesting/Handling	33
3.5.2.2 Export/Import	34
3.5.3 Timber flows	34
3.5.3.1 Exports	35
3.5.3.2 Domestic consumption	36
3.5.3.3 Imports	36
3.5.4 Products	37
3.5.5 Species	37
3.5.6 Main companies	37

3.6 The Republic of Mozambique	38
3.6.1 National context	38
3.6.1.1 Forest cover	38
3.6.1.2 Deforestation	38
3.6.2 Legal instruments and agencies	38
3.6.2.1 Harvesting/Handling	39
3.6.2.2 Export/Import	39
3.6.3 Timber flows	39
3.6.3.1 Exports	39
3.6.3.2 Domestic consumption	41
3.6.3.3 Imports	41
3.6.4 Products	42
3.6.5 Species	42
3.6.6 Main companies	43
4. DISCUSSION AND CONCLUSIONS	44
4.1 Regional context	44
4.2 Trade flows	44
4.2.1 Exports	44
4.2.3 Domestic consumption	45
4.2.4 Imports	45
4.3 Species	46
4.4 Main companies	46
5. RECOMMENDATIONS	47
5.1 Advocacy entry points for EAC and SADC – multilateral processes	47
5.1.1 Strengthen provisions of the EAC and SADC Protocols	47
5.1.2 Improve monitoring and reporting through CITES	47
5.1.3 Participation in the China – Africa Forest Learning Programme.....	47
5.2 Recommendations to forest agencies	48
5.2.1 Improving transparency	48
5.2.2 Assessment of forest governance indicators	48
5.2.3 Review national forestry legislation against WWF/GFTN and TRAFFIC.....	48
legality framework	48
5.2.4 Improving national wood traceability, verification and control systems.....	49
5.2.5 Supporting independent observation.....	49
5.2.6 Supporting private sector initiatives	50
5.3 Recommendations to research institutes and Civil Society Organizations	50
5.3.1 Forest trade monitoring	50
5.3.2 An in-depth assessment of regional forest trade	50
REFERENCES	51
ANNEX 1: Summary of the Legislations (Principal and Subsidiary)	55
ANNEX 2: List of People Interviewed	61
ANNEX 3: Profile list of the top 12 Chinese companies in Mozambique	64
ANNEX 4: Conservation status of selected natural forest tree species	65

LIST OF TABLES

Table 1: Main features of forest trade for six countries in East and Southern Africa	7
Table 2: Trade value (USD) of Tanzania forest product (such as veneer, plywood, etc) imports for the period 2007-2014	14
Table 3: Status of forests in Kenya (1000 ha) for the period 2006-2010	17
Table 4: Manufactured wood products and values in Kenya for the period 2007-2011	19
Table 5: Domestic consumption of wood products in Kenya for the period 2007-2011	20
Table 6: Imports of wood products in Kenya by category in 2009/2010	21
Table 7: Estimated size, volumes and revenue from timber plantations in Kenya as per the Felling Plan 2010/2011	22
Table 8: Forest cover and forest loss in the provinces of eastern DRC for the period 2005-2010	27
Table 9: Comparison of reported imports of DRC timber (m ³) by China and all Asian countries versus exports (m ³) reported by DRC, for the period 2005-2011	29
Table 10: Volume of timber exports from eastern DRC to markets in Eastern Africa, in 2011	30
Table 11: Estimates of total forest cover (million ha) in Zambia, 1980s-2006	32
Table 12: Exports of hardwoods (m ³) from Zambia by species and country of destination, for the period 2010 - 2011	35
Table 13: Annual timber harvesting licences by species in Western Province, Zambia, 2008	37
Table 14: Timber export from Zambezia province, 2009-2011: Discrepancies in the data of three key institutional stakeholders, SPFFB, Customs and Port Authority	40
Table 15: Consumption of wood by species (m ³) in carpentries, in Mozambique, 2012	41
Table 16: Exported forestry production (1,000 m ³) in Mozambique during the 2002-2013 period	42
Table 17: Species and timber class composition of forest licensing at national level in Mozambique, 2008	43
Table 18: Exports of sawn wood to China for Tanzania and Mozambique	45

LIST OF FIGURES

Figure 1: Trade value of Tanzania's forest product exports and imports for the period 2007 - 2014	10
Figure 2: Amounts of total wood (including plantation timber) and natural forest wood exports from Tanzania for the period 2003 - 2014	11
Figure 3: Destination and trade value of Tanzanian forestry product exports for the period 2007 - 2014	12
Figure 4: Amount of sawn timber shipped through the port of Dar es Salaam, Tanzania, to different ports between 2010/2011 and 2014/2015	12
Figure 5: Trade value and net weight of forest products exported by Tanzania to China, as reported by the two countries for the period 2010 - 2014	13
Figure 6: Trade value of Tanzania's forest product imports from East and Southern African countries for the period 2007 - 2014	14
Figure 7: Relative share of different forest products exported by Tanzania during the period 2007 - 2014	15
Figure 8: Volumes of timber of different tree species for which export permits were issued from Tanzania during the period 2007 - 2014	16
Figure 9: Trade value and net weight of Zambian sawn wood timber exports as reported by Zambia and China for the period 2010 - 2014	36

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ACRONYMS

AAC	Annual Allowable Cut
BRELA	Tanzania's Business Registrations and Licensing Agency
C4ADS	Centre for Advanced Defence Studies (non-profit using analysis of data to prevent conflict)
CBD	United Nations Convention on Biological Diversity
CEA	Coastal East Africa
CEAI	Coastal East Africa Initiative
CFR	Uganda's Central Forest Reserves
CITES	Convention on the International Trade in Endangered Species
CoD	Country of Destination
COMESA	Common Market for East and Southern Africa
CSO	Civil Society Organization
DFM	District Forest Manager
DFO	District Forest Officer
DFS	Uganda's District Forest Services
DINAF	Mozambique's National Directorate of Forests
DNAC	Mozambique's National Directorate for Conservation Areas
DNFFB	Mozambique's National Directorate for Forests and Conservation of Biodiversity
DNTF	Mozambique's National Directorate of Land and Forestry
DRC	Democratic Republic of Congo
EAC	East African Community
EC	European Commission
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiatives
ENRA	Enzyme Refiners Association, privately owned company based in Beni, DRC
EU	European Union
EIA	Environmental Investigation Agency
EUTR	European Union Timber Regulation
FAO	United Nations Food and Agriculture Organization
FD	Forestry Department of Zambia

FLEGT	Forest Law Enforcement, Governance and Trade
FPDF	Forest Produce Declaration Form used in Uganda
FPMP	Forest Produce Movement Permit, used in Kenya and Uganda
FRA	Zambia's Forest Resource Assessment
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
HS	Harmonised System of classification of goods by World Customs Organisation.
IFM	Independent Forest Monitoring
IIED	International Institute for Environment and Development
ILUA	Zambia's Integrated Land Use Assessment
INE	Mozambique National Institute of Statistics
IUCN	International Union for Conservation of Nature
IVLT	Independent Verification of Legal Timber
KEFRI	Kenya Forestry Research Institute
KFS	Kenya Forest Service
KES	Kenyan Shilling
KRA	Kenya Revenue Authority
MNRT	Tanzania's Ministry of Natural Resources and Tourism
MCDI	Mpingo Conservation Development Initiative
NAFORMA	Tanzania's National Forest Resources Monitoring and Assessment
NFA	Uganda's National Forest Authority
NFTPA	Uganda's National Forestry and Tree Planting Act of 2003
NGO	Non-Governmental Organization
NWERS	Zambia's National Wood Energy Consumption and Resources Survey
ONATRA	Office National des Transports, publicly owned company based in Kinshasa, DRC
RWE	Round Wood Equivalent
SADC	Southern African Development Community
SGS	formerly Société Générale de Surveillance, a Geneva, Switzerland based multinational inspection, verification and certification company
SIFORCO	Société Industrielle et Forestière du Congo of Kinshasa, DRC, owned by the US based Blattner Elwyn Group

SODEFOR	la Société pour le Développement des Forêts, of Kinshasa, DRC, owned by the Lichtenstein based company Nordsudtimber
SPFFB	Mozambique's Department of Industry and Commerce, Provincial Forestry and Wildlife Service
SUMATRA	Surface and Marine Transportation Regulatory Authority
TFS	Tanzania Forests Services Agency
TIN	Taxpayer Identification Number
TNRF	Tanzania Natural Resources Forum
TPA	Tanzania Ports Authority
TRA	Tanzania Revenue Authority
TZS	Tanzanian Shilling
UAE	United Arab Emirates
UEM	University of Eduardo Mondlane
UGX	Uganda Shilling
UNCCD	United Nations Convention to Combat Desertification
UN COMTRADE	United Nations Commodity Trade Statistics Database
UNFCCC	United Nations Framework Convention on Climate Change
UNODC	United Nations Office on Drugs and Crime
URA	Uganda Revenue Authority
URT	United Republic of Tanzania
VAT	Value Added Tax
VPA	Voluntary Partnership Agreement, as part of the EU's FLEGT process
WCMC	World Conservation Monitoring Centre of the United Nations Environment
WWF	World Wide Fund for Nature
ZDA	Zambia Development Agency
ZFAP	Zambia Forest Action Programme

EXECUTIVE SUMMARY

Forests in Eastern and Southern Africa are declining year by year. However, reliable figures are difficult to obtain because forest inventories are either outdated, unavailable or of low resolution, which makes them useless to develop sound forest management plans. Despite institutional reforms in the forestry sector of the different countries in the region to tackle high deforestation rates and weak revenue capture, the domestic laws and regional protocols are not fully adhered to, and enforcement efforts have proved to be inadequate.

Sound analysis of trends in forest trade depend on the availability of relevant data, which, in the region, are often not in the public record and difficult to obtain and some types of data may not even be recorded. Moreover, the usefulness and reliability of these data are limited by the unreliability of export data from the Customs departments in the region. In such cases, discrepancy analyses using various data sources, e.g. the United Nations Commodity Trade Statistics Database (UN COMTRADE), though not perfect, are required, especially for import data from countries in the region.

The regional trade in natural forest timber is increasing overall in the region, reaching hundreds of millions of US dollars' worth over the last 10 years. A northern timber trade route begins in the forests of the eastern Democratic Republic of Congo (DRC) and supplies timber to Uganda by road mainly through the Mpondwe Border Post, Kenya by road through the Busia Border Post, international markets through Mombasa Port, and Tanzania by road through the border crossing at Mutukula on the Ugandan border, and at Kigoma Port. A southern trade route centres on the Port of Dar es Salaam, with timber from Northern Province in Zambia entering by road through Tunduma and timber from Niassa and Cabo Delgado Mozambican Provinces entering across the Ruvuma River through Mtambaswala. Zambian natural forest timber also crosses the border into Mozambique for onward export to China, through the Port of Beira. There is also anecdotal evidence and information recorded in reports on timber trade flows in east and southern Africa that natural forest timber from the DRC, Zambia and Mozambique is exported in significant volumes to South Africa.

China is the main importer overseas, targeting heavy timber with a reddish hue, such as Pau Rosa or Pau Ferro, *Swartzia madagascariensis*, Mkuruti or Camwood, *Baphia kirkii*, Mpangapanga, Pangapanga or Partridge Wood, *Millettia stuhlmannii*, Mkulungu, Mukwa or Padauk, *Pterocarpus tinctorius*. Mozambique is Africa's fourth-largest timber exporting country to China, and is the largest exporter in the east and southern Africa region. China's imports from Mozambique, consisting mostly of logs and sawn wood, have increased by seven times over the last ten years. Sawn timber has risen from almost nothing to about half the Round Wood Equivalent (RWE) volume of total imports. China – DRC timber trade has experienced a fast growth, with DRC being today among the top ten African countries exporting timber to the Chinese market. About 30-50% imports from DRC to China in the last three years have consisted of a single species, *Millettia laurentii*, listed as Endangered in the International Union for Conservation of Nature (IUCN) Red List.

Within the region, Zambia exports mainly to DRC and South Africa, in cases routing via Namibia. DRC exports most of its production to countries within Eastern Africa, particularly to Kenya, South Sudan, and Uganda, Rwanda, and Burundi to a lesser extent. Kenya exports significant volumes of its manufactured wood products based on plantation softwoods to Tanzania and Uganda, and is a significant importer of Tanzania natural forest timber. Some of these imports are part of a transit trade that centres on the Port of Dar es Salaam, with some being shipped in dhows from informal ports on Tanzania's Indian Ocean coast to Zanzibar, where international trade is largely illegal and is difficult to investigate.

Most of these countries' imports of forest products originate from within the region, with coniferous sawn timber and eucalyptus electricity poles making up the majority of these imports

in terms of volume. Major sources of these products include South Africa, Malawi, Uganda and Tanzania. Almost all of the countries in the region have invested in establishing softwood and eucalyptus plantations. In the case of Kenya and Uganda, these plantations are expected to provide the majority of raw products for their domestic industries within the next 10 years. Most of the countries in the region also import processed forest products, mostly paper, plywood and fibreboards, furniture, doors, fittings and joinery, with South Africa, Kenya, China, and India dominating the market for these products.

The domestic consumption in natural forest timber in the region, while not properly monitored, is estimated to be more than 10 times the amount that is exported internationally. Species of relatively light timber such as *Pterocarpus angolensis*, *Khaya anthotheca*, *Entandrophragma cylindricum*, and *Afzelia quanzensis* dominate the domestic markets in the region.

Harvesting and processing in the region is largely unregulated and fragmented, which greatly challenges sustainability. Despite existing policies, laws, and international protocols, most forestry departments in the region do not routinely monitor the industry. Records of the number and types of enterprises, the levels of employment, species used, the volume of raw materials consumed and converted, exported or imported, and the revenue turnover and taxes paid by forestry companies are largely unavailable.

Governments in the region are encouraged to comply more with forest-related multilateral agreements and processes such as the East African Community (EAC), Southern African Development Community (SADC), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Forest Law Enforcement, Governance and Trade (FLEGT), Extractive Industries Transparency Initiatives (EITI), which can facilitate broader inter, intra and non-governmental participation in forest governance, management, and monitoring. Because China is a major partner in timber trade for the region, the governments and forestry stakeholders in the region should also closely monitor the initiatives and results of the new China – Africa Forest Governance Learning Programme, with a view to participating in its activities.

Improving transparency in forestry activities is also crucial. Forestry and Customs authorities should be obliged to post all documents and data related to harvesting and forest trade dynamics on publicly accessible websites, preferably on regional databases as operated by EAC and SADC Secretariats. They should also regularly hold public hearings on forest-related matters. Likewise, wood traceability, verification and control systems should be improved.

To improve the credibility of law enforcement and regulatory practices, Independent Forest Monitoring (IFM) should be carried out in the different countries of the region. Moreover, a network of Civil Society Organizations (CSO) and research institutes should establish teams within each country of the region, and mandate them with the responsibility of developing contacts with the governments' agencies responsible for regulating harvesting and forest trade, Customs, and shipping through ports and borders. Finally, forest agencies should be open to being assisted by research institutes and NGOs to update national forest inventories that would allow Annual Allowable Cut (AAC), including for valuable and widely used timber species, to be determined properly. Some of the revenues collected in the forestry sector should be set aside to regularly update inventories, as in accordance with EAC and SADC Protocols.



1. BACKGROUND AND INTRODUCTION

The Coastal East Africa region (CEA) is rich in forests, ranging from open woodlands, coastal forests to mountain forest in the Eastern Arc Mountains. The region is also part of the vast Miombo woodlands in Southern Africa covering 380 million hectares (ha), stretching from Tanzania and southern Democratic Republic of Congo (DRC) in the north to Zimbabwe in the south, and from Angola to Mozambique. Anthropogenic pressures on natural resources are increasing in the region, as a result of rising human populations, increased demand for forest products, and a lack of responsible trade market drivers, resulting in forest loss (Anon., 2015a).

To improve the understanding of regional timber trade dynamics in Eastern and Southern Africa and enhance implementation of the sustainable forest management component of the CEA Strategic Plan (Anon., 2015b), a regional timber trade assessment was commissioned by TRAFFIC, with funding from WWF's CEA Initiative (CEAI). This assessment aimed to i) identify existing and ongoing regional linkages in the trade of natural forest timber within CEA; ii) investigate new dynamics of the inter-regional timber trade among the EAC and SADC States; and iii) understand the scope and size of the overseas timber trade to China and India, and any other destinations of significance.

Throughout the region, the scale of the timber trade challenges the effectiveness of national and regional mechanisms to control illegality, hindered by the lack of effective border controls and weak collaboration among CEA forest agencies. A further pressure on forest resources is the increasing global demand for timber, partly coming from western countries and the rising economies, particularly of China. As an example in 2013, China was reported to have imported the vast majority of Mozambique's timber, 93% of which was allegedly generated from illegal logging (Anon., 2014a).

The management of forests in the region is largely controlled by governmental authorities, overseeing ownership and benefits from these resources or their privatization to external entities. Communities lack full incentives to support management of forests. Key limitations to full incentivization include limited ownership, inadequate investments, weak governance at national and local level, and lack of business capacity to access reliable markets. The weak incentives trigger rural populations to opt for small-scale agriculture, charcoal production and use of fire to clear lands for agriculture.

Reforms in the forestry sector face drawbacks. Policies in the forest sector are not comprehensive and co-ordinated between the different sectoral uses for the forest landscapes, and the services and benefits from forestry. The regulatory framework is generally weak, which, when combined with low accountability and capacity, leads to poor law enforcement. Reports on corruption are repeatedly narrated in media and in research. CSO's capacity to advocate for improved governance is uneven, with most lacking long-term strategies and funding, and lacking the ability to organize at national and regional levels.



2. METHODOLOGY

Information and data were collected by two consultants during the period 6th July – 31st December 2015. Three main approaches were used:

- A review of references, articles, and reports on timber trade in the region about policies, laws and regulations that govern the harvesting and trade of timber in the individual countries, annual harvesting and revenue, exports and imports, conventions and protocols that govern the trade in timber across borders in the EAC and SADC. A summary of legislation for each country in the region relating to forest management is provided in Annex 1 as a supplement to the main legislation sections contained in the Results;
- Consultation of primary data on forestry trade (see below Description and assessment of data sources used): i) for Tanzania, access was granted to consult data from the forestry services, Customs, and Revenue Authorities; and ii) for other countries, such access was not granted, so the consultants used the UN COMTRADE, except for DRC where FAOSTAT data compiled by IIED report were used as DRC does not appear to report on UN COMTRADE;
- Interviews with people from government agencies, and Non-Governmental Organizations (NGOs), private sector, mainly in Tanzania, and in Mozambique and Zambia to a lesser extent. The complete list of the persons interviewed is in Annex 2.

Export data for forestry products were received from the Tanzania Forestry Services Agency (TFS), which is the government agency responsible for issuing export permits and levying export fees for those forest products listed in regulations under the *Forest Act, 2002*. The TFS export dataset is comprehensive, representing exports for the 12 year-period 2003-2014. The TFS data, collected more or less consistently over the entire period, include the name of companies, types of forest products, tree species, export destination, amount and value of the product, as well as the export fee paid. This information was collected for each individual export permit that was issued. The TFS dataset corresponds to almost 4000 lines of export permit data that had been issued over the 12-year period. These data represent about 150 export permits per year during the period 2003-2005, which increased to about 400 export permits per year from 2006 onward.

Despite the comprehensive nature of the TFS dataset, limitations do exist. The dataset is not entirely consistent across all 12 years. For example, for the years 2003, 2004 and 2005, the tree species and the amount of export fees due were not consistently recorded. In 2006 and 2007, the export fees were recorded but the tree species and value of the product in US Dollars (USD) were not consistently recorded. In 2008, 2009 and 2014, the data were collected for only half of the year, from June to December. The data for the period 2010-2013 are the most complete set of export data provided by TFS. It should also be recognized that the TFS export permit data are not stored centrally. Export permit data at TFS headquarters reflect only those exports that were officially and legally exported through Dar es Salaam. Furthermore, no system of centrally recording import data exists in TFS, instead this information is available only at those border posts where TFS has posted staff. Despite these gaps in the data, it has still been possible to identify trends in exports of forest products over the 12-year period covered.

Another dataset analysed for this study includes export and import data compiled by the Tanzania Revenue Authority (TRA). This dataset includes the declared value of different forms of forest products exported from, and imported into, Tanzania for various countries for the fiscal years 2007-2014. The TRA data do not consistently identify the tree species, nor the volume of forest products exported and imported into the country. For example, some data lines report timber volume but others number of planks. Furthermore, some data lines identify the specific tree species but others refer only to timber generically. It does however record the value in USD or Tanzanian Shillings (TZS) for the varying forms of timber and forest products that are traded from Tanzania within a 12-month period. A total of 18 different types of timber are recorded for exports to China during the eight years that are captured in this dataset. Entries in the data include “tropical hardwood sawn lengthwise”, “tropical wood in the rough”, and “coniferous wood sawn or chipped lengthwise”. The eight years of information represented by the TRA Customs data correspond to more than 5000 lines of data, for export data alone, where each year during the period 2007–2011 there were more than 300 lines of data, rising to more than 1000 lines of data for each year for 2012 onward. This situation is mirrored in the import data. Ultimately, Customs data reflect only information on what has been traded legally through official channels. Illegal and informal trade is usually not captured in these datasets.

Forest regulations in Tanzania require all forest product exporters to register with TFS. Registration forms oblige exporters to provide their physical addresses and their Taxpayer Identification Number (TIN). The TFS exporter registration list from 2012 was compared against TIN information held by TRA. This allowed a history of tax payments and tax returns to be constructed for some timber exporting companies registered by TFS. This tax returns dataset was analysed in order to triangulate with export permit data from TFS and also to understand the overall trend of companies involved in exporting forestry products.

A third TRA dataset that was analysed was that of shipping manifest data as compiled by the TRA Customs Department at the country’s principal port in Dar es Salaam. Shipping manifest data include the number and weight of each container, the country of origin of the container, their port of destination, the name of the company shipping the container, and the shipping date for cargo shipped to different ports around the world from Tanzania. The shipping manifest data do not identify the final country of destination (CoD). As a result the CoD is inferred from the port of destination, the name of the exporting company and the nature of the cargo. Shipping manifest data for timber exports were received for 2010-2012. Additional to shipping manifest data, less detailed shipping data for the fiscal years 2010/2011 to 2014/2015, were sourced from the Tanzania Ports Authority (TPA). The less detailed shipping dataset is different from shipping manifest data, in that it is not disaggregated but rather reports only on the main four digit Customs HS classification of timber, the number of tonnes of timber shipped from Tanzania, and the port of destination. Neither type of shipping data records the timber species and the final country of destination of the shipped cargo. In truth, neither shipping data reports on the volume of timber being exported, however, this information can be deduced from the weight or from the size of container.

Finally, Customs data from around the world are submitted and stored at the UN COMTRADE database. These data were sorted and analysed as part of this study to indicate the flows in the trade of forest products throughout Eastern and Southern African. The UN COMTRADE has some information regarding volumes of forest products, although it is displayed inconsistently. The interesting issue about the validity of the UN COMTRADE is that, because it is sourced from the Customs Departments of member countries, the efficiency of TRA to consistently report timber volumes could be investigated. UN COMTRADE is therefore only as good as the original Customs data that it comprises. It is noteworthy that in many cases it may not fully represent the amount of trade in forest products that is crossing borders.

Despite the weaknesses in the UN COMTRADE, in many cases this was the only source of primary data on forestry trade, other than secondary data sourced from literature. Primary forest trade data were not obtained from any country in the region, with the exception of the data described

above from various Tanzanian authorities such as TFS and TPA. It is possible that this was partly due to the fact that this type of information is considered to be sensitive by many governments. If the information is not requested officially, through the sponsorship of a recognized government or multinational agency, it is difficult to obtain. In Mozambique and Zambia, where data requests were made directly to the forest authorities, and in Kenya, Uganda, and the DRC, where data were requested indirectly through NGO partners, access was not granted. This jeopardized relevant comparison with the more comprehensive dataset that was acquired in Tanzania.

The comparison of forestry data across different reference sources in the region is made more difficult by the fact that there are different approaches to estimating volumes or weights of different wood products. There also exists the challenge of converting the varied data into harmonized international units, which can then be compared directly. Reference documents are not always clear about which types of wood volumes are being quoted. References in the literature to wood volumes should preferably specify whether it refers to standing trees, logs or round wood, or solid sawn wood¹. However, in many cases wood volume data are presented without specifying exactly what type of volume is being referred to. The lack of specificity in many references means that there is the danger that different types of volumes are being compared across datasets. It is also the case that different countries use different conversion formulae when determining standing volume or round wood volume from processed wood². This means that actual round wood volume quoted for one country in the region can differ from the same figure quoted for another country, simply because the volume has been calculated by using different formulae.



3. RESULTS AND MAIN FINDINGS

This section describes as per data obtained from data collection through the methodology explained in the above section, for each study country, the characteristics of their trade in natural forest timber. This section looks at domestic natural forest timber consumption, exports, imports and the main tree species involved in the trade. The section also briefly describes the legal and institutional environment that govern the timber trade, as well as describing the nature of the private sector involvement in each country.

The table here below summarizes the main features of natural forest timber trade for the six countries in this study. It is important to note that the data presented in this table are not

¹ Wood volume figures in the literature often quote standing tree volumes, or more commonly, RWE. These volumes are often calculated by converting the actual measured volume of wood products, such as planks or railway sleepers, by using standardized formulae. Conversion formulae are also used to calculate wood volume under bark (without bark) or over bark (including bark). Unfortunately, many reference sources do not indicate which type of wood volume a figure is referring to. This makes comparisons across different sources of data difficult.

² For example, Tanzanian regulations (Anon., 2011a) stipulates that the wood recovery or conversion rates from standing trees that are to be used when determining royalty payments should correspond to 70% for round logs, 60% for railway sleepers, 30% for sawn wood, and 10% for African Blackwood products. It is understood that other countries in the region use different recovery rate ratios when converting wood volumes.

immediately comparable across countries. This is because the figures represent data from different sources and may not be compatible in terms of the year for which the data were collected. The information sources have not always indicated which type of wood volume they have provided, which also means that the wood volume figures cannot be compared across different sources. Despite the shortcomings in the data, the information presented in the table, and elaborated in the following text, does highlight some interesting trends. Among the main findings is the fact that the timber trade accounts for hundreds of thousands of cubic meters of natural forest hardwood timber annually; Mozambique, DRC and to a lesser extent Tanzania, are major source countries of natural forest timber, whereas, Kenya and Uganda are the main importers; and, in the case of each country for which data are available, wood volumes of domestic consumption and imports are significantly greater than the amount of natural forest wood exported.

Country	Exports (m ³)	Domestic consumption (m ³)	Imports (m ³)
United Republic of Tanzania	12 779 ³	150 000 ⁴	5074 ⁵
Republic of Kenya	0 ⁶	9,500 – 19 300 ⁷	18 645 – 32 100 ⁸
Republic of Uganda	42 000 ⁹	n.a.	8500 – 23 500 ¹⁰
Democratic Republic of Congo	330 400 – 479 645 ¹¹	700 000 ¹²	n.a.
Republic of Zambia	3253 – 5443 ¹³	n.a.	n.a.
Republic of Mozambique	140 000 – 243 500 ¹⁴	123 000 ¹⁵	n.a.

Table 1: Main features of forest trade for six countries in East and Southern Africa

³ Natural forest hardwood timber exports in m³. Sourced from TFS export permit data for 2013, last year for which complete whole year data is available. As with most TFS export permit data this figure refers to solid sawn wood volume under bark.

⁴ Estimated natural forest timber hardwood demand in m³. Sourced from Anon., (2011b). The source reference does not indicate whether this figure is standing volume, RWE, or solid volume for sawn wood under bark.

⁵ Amount of imported hardwood timber in m³ recorded at border posts with Mozambique, Zambia and DRC for the period January 2014 – September 2015. This figure refers to solid sawn wood volume under bark.

⁶ Source European Commission study on Timber Trade flows within, to and from East African Countries for Kenya (Anon., 2014b).

⁷ Estimated annual domestic consumption of natural forest hardwood timber in Kenya for the period 2009 – 2011. Sourced from Anon., (2011c). The source reference does not indicate whether these figures are standing volume, RWE, or solid volume for sawn wood under bark.

⁸ Imports of hardwood timber for the fiscal year 2009/2010, sourced from Kenya Forest Service (KFS) annual report and the estimated volume of timber exported from DRC to Kenya in 2011, sourced from Anon., 2012a. Although the source reference is not specific these figures probably refer to solid volume for sawn wood under bark.

⁹ This figure represents the amount of DRC timber that was estimated re-exported from Uganda to other countries in the region in 2011. Sourced from Anon., (2012a). The source reference is not specific as to what type of volume this figure refers.

¹⁰ Estimated imports of DRC hardwoods into Uganda, sourced from Anon., (2007) and Anon., (2012a). The source reference is not specific these figures probably refer to solid volume for sawn wood under bark.

¹¹ Natural forest hardwood timber exported by DRC during the period 2006 – 2011 as reported by government of DRC. Sourced from Chang Y. and Peng R., (2015). The source reference is not specific as to what type of volume this figure refers.

¹² This corresponds to at least 70% (Debroux *et al.*, 2007) of one million m³ of chainsaw timber that is produced in DRC annually (Lescuyer *et al.*, 2014). The source reference is not specific as to what type of volume the figure refers.

¹³ Exports of natural forest hardwood timber from Zambia during the period 2010 – 2011, Sourced from Zambia Forestry Department and reported in Anon., (2014c). The source reference is not specific as to what type of volume these figures refer.

¹⁴ Estimated annualized exports of forest products for the period 2006 - 2011, mainly natural forest hardwood timber, as reported by Mozambique and importing countries. Source: Anon, 2014d The source reference is not specific as to what type of volume these figures refer.

¹⁵ Estimated natural forest hardwood timber domestic consumption in Mozambique in 2013. Sourced from Anon., (2013a). The source reference is not specific as to what type of volume this figure refers.

3.1 THE UNITED REPUBLIC OF TANZANIA

3.1.1 National context

3.1.1.1 Forest cover

With the first forest inventory carried out from 2009 to 2014 across the entire country, the National Forest Resources Monitoring and Assessment (Anon., 2015d) estimated that forests in Tanzania mainland covered more than 48 million ha, with a total wood volume of 3.3 billion m³, 97% from trees of natural origin and 3% from planted trees. The average volume of wood would be 37.9 m³/ha across all of Tanzania's land cover types, varying from 1m³/ha in open grasslands to 171 m³/ha in humid montane forests. Half of Tanzania's total wood volume is found in protected areas. The standing volume of wood per capita was estimated at 74.4 m³, and the average demand for wood at 1.39 m³/year/capita, while the Annual Allowable Cut (AAC) was estimated at 0.95 m³/year/capita.

3.1.1.2 Deforestation

NAFORMA estimated the deforestation rate at 370 000 ha/year for the last 10 years (Anon., 2015d), which is similar to previous estimates reported by Forest Resources Assessment of the United Nations Food and Agriculture Organization (FAO) in 2010. Forest area per capita has decreased from three ha/capita in the early 1980s to 1.1ha/capita currently (using the 2012 population census data), with a lower average growing stock in natural forests of 125 m³/ha and in mangroves 48.8 m³/ha compared to earlier estimates by FAO of 185 m³/ha and 120 m³/ha respectively. This result possibly reflects a combined effect of forest loss, human population increase, and of previous overestimations of forest cover.

3.1.2 Legal instruments and agencies

The *Forest Act, 2002*, *Local Government (District Authorities) Act, 1982* and *The Environmental Management Act, 2004* are the principal statutes in place for management of all forests in Tanzania while *Forest Regulations, 2004* being the subsidiary legislation, help in operationalizing the *Forest Act, 2002*. The *Forest Act, 2002*, under section 4, establishes four categories of forest: i) village; ii) private; iii) national; and iv) local authority forest reserves, declared either by the minister of natural resources or by a Local Government Authority. National forests are managed by the Ministry of Natural Resources and Tourism (MNRT), or by designated executive agencies such as the TFS. Local Area Forest Reserves are managed by Local Government Authorities, called District or Municipal Councils. Village Land Forest Reserves are managed by Village Councils.

The Village Land Act, 1999 establishes that villagers must have legal tenure over their land. Section 7 of the Act provides a range of ways in which villages may define the limits and status of their village land. Once a community takes full ownership and management responsibility for an area of forest, it makes by-laws governing boundaries, access, tenure, and the enforcement of management plans that are developed in a participatory manner with guidance from experts at the local government level.

Section 11 of the *Forest Act, 2002* requires that management plans be made for Forest Reserves, Village Land Forest Reserves and Private Forests that provide for the commercial exploitation of any forest in question.

The *Local Government (District Authorities) Act, 1982* under section 118(2)(n) empowers the local government subject to the provisions of this Act or any other written law, to establish, preserve, maintain, improve and regulate the use of forests and forest produce. Section 142 of the same Act, empowers the Village Council to plan and co-ordinate the activities of and render assistance and advice to the residents of the village engaged in agricultural, horticultural, forestry or other activity or industry of any kind.

The *Environmental Management Act, 2004* requires that timber logging and processing should be conducted subject to conducting an Environmental Impact Assessment.

Tanzania has signed a number of relevant legally and non-legally binding forest-related international agreements and processes, including, among others: the Convention on Biological Diversity (CBD), the Ramsar Convention, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change (UNFCCC).

3.1.2.1 Harvesting/Handling

Any commercial timber harvester must register with a District Forest Officer (DFO), while in possession of a local government business licence, a TIN from the Revenue Authority, and where relevant, a company registration from the Business Registration and Licensing Authority (BRELA) of the Ministry of Industries and Trade.

Upon receiving a Harvesting Permit for an agreed amount of timber, from an agreed location, an initial cash payment must be made to the DFO as partial payment of the forest royalty. The type of timber species and volume approved in a Harvesting Permit is issued by the DFO after screening in a District Harvesting Committee meeting. Royalty payments are governed by fee rates that are determined nationally by TFS. Harvesting of the timber must be done with supervision from a DFO, the timber buyer must arrange for the legality of each log to be verified and hammer stamped by a District Forest Manager (DFM), who is a representative of TFS, and thereby provides a check to the DFO who represents the local government.

After making a final royalty payment, the timber buyer must obtain a Transit Pass from the DFM in order that the hammer marked logs can be legally transported outside the District boundary. Section 18 of the *Forest Act, 2002* requires an Environmental Impact Assessment (EIA) in relation to any forest operations to be undertaken on forested land greater than 50 ha in area. In practice, domestic harvesting and use of wood for subsistence utilization are exempt from the terms and fees associated with the forest regulations.

Forest processing industries, e.g., sawmills, pole treatment plants, and sandalwood oil presses, require a TIN from the Revenue Authority, a Business licence from BRELA, and a Placement and Operations Licence from TFS. Placing sawmills within a forest is prohibited.

Government Notices issued under the *Forest Act, 2002* require all traders of forest produce to possess registration certificates, transit permits, and harvesting licences from TFS or DFOs. Traders are also required to possess business licences and TINs from local governments and the Revenue Authority respectively. The *Forest Regulations, 2004* requires that forest produce traders must be able to show receipts for having paid central forest royalties and they must maintain a registry of purchases and sales of forest products. In addition to the above conditions, merchants who buy logs and/or sawn timber for the purpose of selling to saw millers, must be registered and must pay a levy for each log and/or plank. Trader registries of purchases and sales, and timber yard stocks, are supposed to be monitored by forest officers from district councils and from TFS, but in reality this is rarely done. As a result, cross referencing of timber trader data with transport and harvest permits data is infrequent.

Government Notices under the *Forest Act, 2002* require that permits to transport forest produce within a District are issued by a DFO, and permits to transport forest produce outside the District by a DFM. Likewise, according to section 26 of the Transport Licensing, Goods Carrying Vehicles, regulations of 2012, a Carrier Licence must be issued to the vessel by the Surface and Marine Transportation Regulatory Authority (SUMATRA) of the Ministry of Works, Transportation and Communications.

Forest certification in Tanzania is not widespread and is confined mainly to Mpingo Conservation and Development Initiative (MCDI) community managed natural forests containing Mpingo *Dalbergia melanoxylon*, in south-eastern Tanzania (Anon., 2013b).

3.1.2.2 Export/Import

Regulations under the *Forest Act, 2002* require that sawn wood be issued a Grading Certificate and Export Licence, both from TFS. Since 2004, logs exportation from Tanzania was prohibited.

Within the EAC, there are no import duties on timber from other Partner States, i.e. Tanzania, Kenya, Uganda, Rwanda and Burundi. However, the EAC Partner States have to charge a common tariff of 10% duty and 18% VAT on timber from non-EAC countries such as the DRC, Zambia and Mozambique.

Timber from any wood grown in any of the EAC Partner States is traded as a Restricted Good, i.e. goods that need to be controlled by different government agencies. The importation of such identified goods are only granted against import permits, certificates or any other granting authority before importation into the region.

Tanzania, as a member of the SADC, must comply with the SADC Protocol on Forestry, which requires State Parties to undertake and regularly update a national assessment of forests, to establish and maintain a regional database on the status and trends, management and use of forest resources, to develop a market information system for the collection, organization and exchange of forest market and industrial information in conformity with the SADC Protocol on Trade. There is no evidence that Tanzania, or any other SADC country has yet done so. Tanzania is not a member of Common Market for East and Southern Africa (COMESA) and is not a signatory to any process that would lead to a Voluntary Partnership Agreement (VPA).

Tanzania ratified CITES¹⁶ in 1979 and has been reporting regularly since 1982 (Anon., 2014e). Up until 2016, there were two CITES-listed tree species from Tanzania, African cherry, *Prunus africana*, and East African Sandalwood, *Osyris lanceolata*. This situation changed at the seventeenth meeting of the Conference of the Parties to CITES in Johannesburg, South Africa, when the genus *Dalbergia* was listed on Appendix II.

3.1.3 Timber flows

Tanzania's trade in forest products (which includes timber, charcoal, wood fuel, and processed wood products, such as panelling and veneer) has been increasing over the last eight years, from USD40 million in 2007 to USD162 million in 2014 (Figure 1). This significant increase occurred mainly in 2014 and therefore further trends will need more recent trade data for analysis.

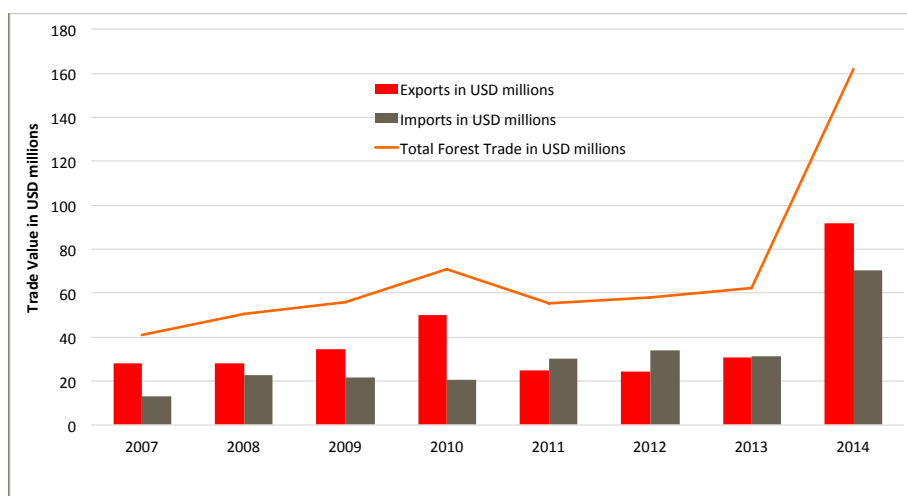


Figure 1: Trade value of Tanzania's forest product exports and imports for the period 2007-2014

Source: TRA, Customs Department (2015)

¹⁶ CITES regulates the international trade through a system of permits that must be presented when a CITES listed specimen of a species enters or exits a country. The conditions for issuing permits depend on various provisions, including in which of three Appendices the species is listed.

3.1.3.1 Exports

Export permits from TFS, although the dataset is incomplete, shows that exports of natural forest timber and total timber exports have increased from 2003 to 2014, although the trend is not consistent, possibly due to the global recession of 2007 – 2009. The spike after the recession in 2011 could be due to increased imports resulting from low inventory, as volumes for 2012 – 2014 have been more consistent with the peak just before the global recession in 2006, with natural forest timber accounting for less than 50% of total timber (plantations and natural forest timber) exports since 2009, less than 20% in 2011 (Figure 2).

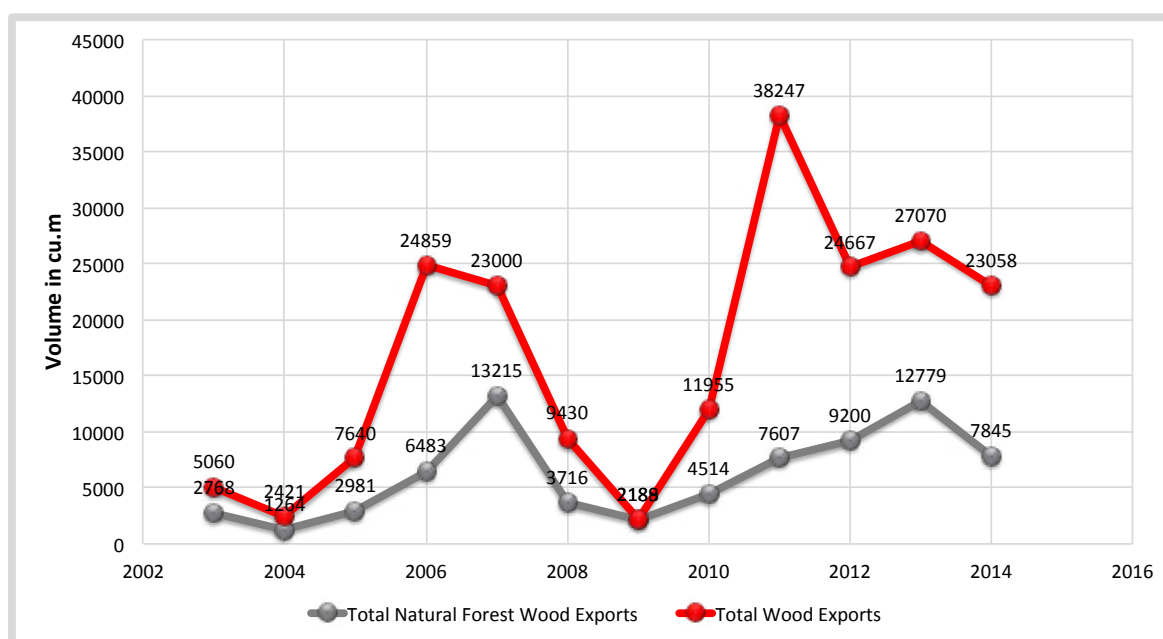


Figure 2: Amounts of total wood (including plantation timber) and natural forest wood exports* from Tanzania for the period 2003-2014

Source: Tanzania Forest Service data.

* Sawn timber declared exports, i.e. only a fraction of the timber harvested from Tanzania's natural forest, 30% of the volume of the original standing trees¹⁷.

Shipping data (which is separate from TFS data) indicate that sawn timber exports shipped through Dar es Salaam have constantly increased from 488 tonnes in fiscal year 2010/2011 to 35 416 tonnes in 2014.

Data obtained from TFS, TRA and TPA, although all reflecting an increase in forest exports from Tanzania, are inconstant with the shipping data from TPA in the rate at which forest exports have increased. There may be undocumented sawn timber from Tanzania or there may be transit sawn wood timber from neighbouring countries being mixed with the Tanzanian timber in the same containers. There could also be the addition of non-forest products in these containers. This difference may be partly due to the value of forest products that Tanzania exports, which is lower in recent years compared to forest products of the same weight that were exported in the past years.

Customs data show that, among the more than 50 different destinations for the period 2007-2014, Kenya, India and China are Tanzania's most important export destinations for timber (Figure 3), accounting for more than 70% of the value of Tanzania's exports for most of the last decade. Exports to Kenya, however, have been steadily declining since 2009, possibly due to the lifting of the logging ban in Kenya's plantations. While India appears to be the main destination of Tanzanian

¹⁷ Sawn wood volume in Tanzania is calculated as 30% of standing tree volume, the timber volumes referred in Figure 2 above reflect volumes of sawn wood timber.

forestry product exports in trade value (Figure 3), export permits show that approximately 12 000 m³ of natural forest timber exported from Tanzania is destined for China. Forest product exports to the EU have remained at a low level of 5% for almost 10 years, despite a spike in exports to Italy in 2010. This discrepancy needs additional study to determine if there is any illegality or misclassification, and any other factors resulting in this trend.

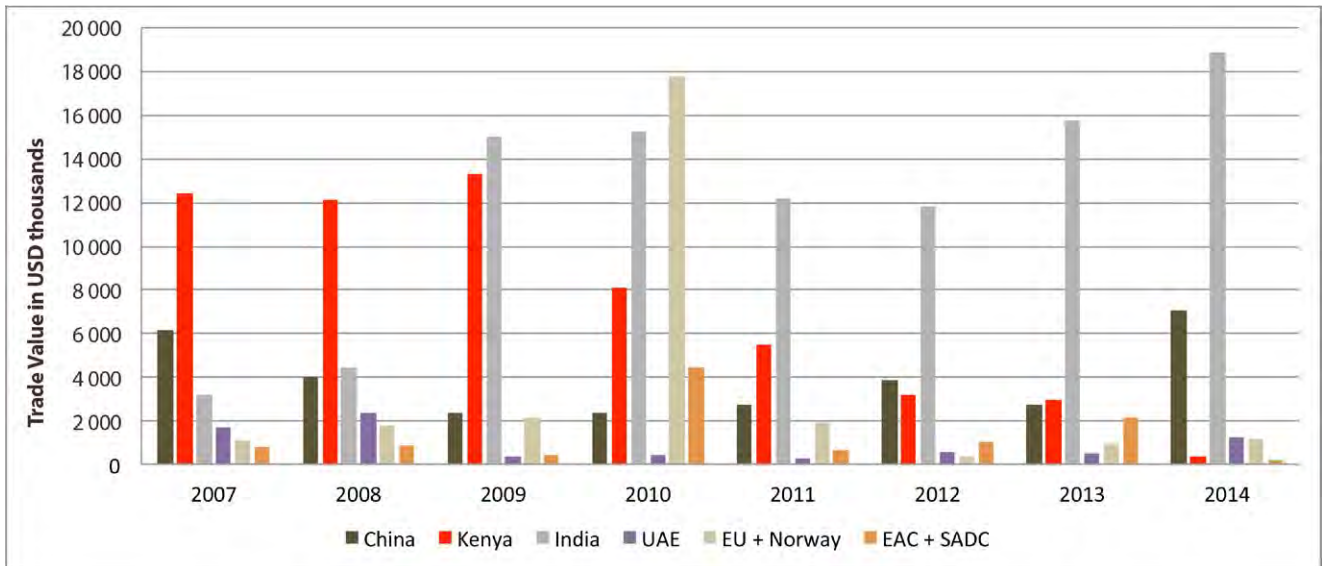


Figure 3: Destination and trade value of Tanzanian forestry product exports for the period 2007-2014
 Source: Customs Department data

TPA data indicate that cargoes of sawn timber shipped through the Port of Dar es Salaam between 2010/2011 and 2014/2015 to ports in Malaysia, the United Arab Emirates (UAE), Sri Lanka, Kenya, India and Saudi Arabia (Figure 4). Port Kelang in Malaysia received the majority of shipments of Tanzanian timber, accounting for 29 048 tonnes, i.e. 31% of the total amount of sawn timber that was shipped through the Port of Dar es Salaam for the five-year period. According to TPA documents that were reviewed by the consultants, the ports in Malaysia and Singapore are associated with cargo destined for China and other destinations in the Far East.

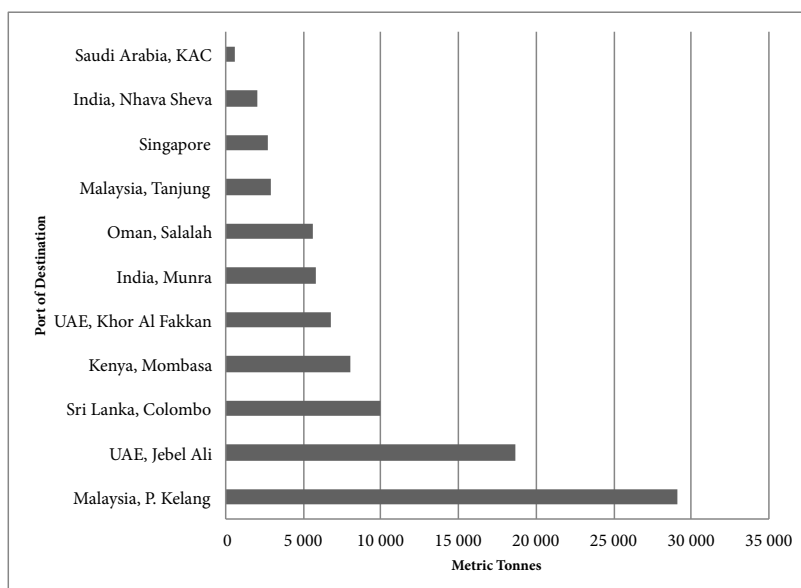


Figure 4: Amount of sawn timber shipped through the port of Dar es Salaam, Tanzania, to different ports between 2010/2011 and 2014/2015
 Source: Tanzania Ports Authority Data

Shipping manifest data compiled by TPA for 2012 show that more than 400 shipping containers of sawn timber (possibly from various sources, such as neighbouring countries) were shipped from Tanzania, equivalent to at least 14 500 m³. This highlights inconsistencies in data sources, as these volumes are four to five times higher than the volumes listed by TRA for Tanzania's annual sawn timber exports to China, and are two to three times higher than the volumes listed by TFS as annual timber exports to China. Likewise, there are significant differences in the amounts of sawn timber exports from Tanzania to China, reported by the two countries (Figure 5). Additional studies and analysis are required to understand the reasons for the discrepancies in volume and values, which can include but not limited to illegality especially between Tanzania and China, and in order to provide recommendations for relevant government agencies to reduce such discrepancies and any illegalities in the future.

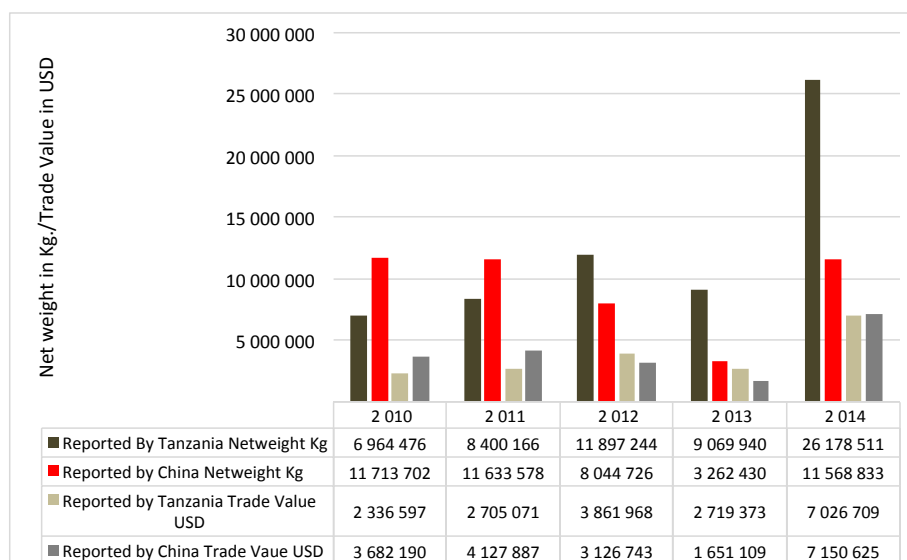


Figure 5: Trade value and net weight of forest products exported by Tanzania to China, as reported by the two countries for the period 2010 - 2014

Source: adapted from UN COMTRADE and Customs Department.

3.1.3.2 Domestic consumption

The wood-based forest industry in Tanzania is dominated by sawmilling, furniture and other processed wood products. The number of registered mills has increased from about 140 in 1998 to 367 in 2005 (Anon., 2011b), most of which being small-scale with annual log input not exceeding 5000 m³. The most recent study for which data are available found that the total installed capacity of the mills is 2.7 million m³ per year as stated in the mill registration licences, of which, 2.2 million m³ is softwoods and 458 482 m³ is hardwood (Anon., 2005a). The total actual utilization capacity of these mills is in reality however less than 50% of the installed capacity, mainly because of shortage of saw-logs. Current saw log supply is estimated at 1.5 million m³, with government plantations supplying 79% of the industrial round wood. In addition, there are over 400 small-scale operators with wood processing machinery, locally fabricated circular saws or roller benches with rails.

High quality timber has been gradually substituted with lower quality hardwood and softwood species in timber markets since 2001 (Burgess *et al.*, 2015; Chenga and Mgaza, 2016; Sianga, pers. obs.). Likewise, plank size of all natural forest and woodland species, as well as softwood, has decreased over time. This reflects an unsustainable harvest rate (Schaafsma *et al.*, 2014). Moreover, it suggests that the availability of softwood from plantations is insufficient to meet demand.

3.1.3.3 Imports

Tanzania's domestic demand for hardwood timber is about 150 000 m³ per year (Anon., 2011b), and this accentuates the need to import hardwood timber. The value of imports has been increasing over the last eight years (Table 2). Imports from China and from regional countries in Eastern and Southern Africa have significantly boosted the increase and total value of imports.

Country	2007	2008	2009	2010	2011	2012	2013	2014
China	3 058 908	7 332 715	6 969 054	6 613 495	10 985 226	11 054 604	12 709 588	19 258 692
India	536 133	555 450	801 027	428 254	1 358 377	1 066 183	674 382	6 554 513
EU + Norway	76 200	1 013 975	964 026	447 971	464 678	724 265	537 795	2 889 006
UAE	963 795	1 182 879	984 945	550 225	945 173	684 944	543 591	1 123 726
EAC + SADC	5 583 645	8 931 751	7 207 611	10 391 448	13 200 011	16 154 598	14 249 464	37 129 899
Total Imports	13 122 542	22 894 211	21 422 353	20 682 179	30 092 517	33 987 243	31 367 088	70 298 397

Table 2: Trade value (USD) of Tanzania forest product (such as veneer, plywood, etc) imports for the period 2007-2014

Source: Customs Department data

Among regional countries from where Tanzania has imported forest products according to the data provided by Tanzania Revenue Authority Customs Department, South Africa has been contributing an ever-larger share of forest products (although it is not known at this stage if the timber is from South Africa forest resources or transit) reaching a value of USD22 million in 2014 (Figure 6). Other major contributors of forest products from the region include Malawi and Kenya, and Uganda, which substantially increased its exports to Tanzania in 2014. Despite the large value of forest products imported from the region, according to Customs data only two regional countries, namely Mozambique and Zambia, provide significant amounts of natural forest timber.

Visits to the Mtambaswala and Tunduma border posts indicate that there is a recent increasing trend in imports of natural forest timber from Mozambique and Zambia. During the period January 2014-September 2015, at least 5074 m³ of sawn timber have been imported into Tanzania from Mozambique, Zambia and DRC. The majority of this timber was imported into Tanzania across the Mtambaswala land border with Mozambique, however a significant amount of timber has entered Tanzania through border posts with Uganda at Mutukula, with DRC at Kigoma Port, and with Zambia at Tunduma. It is noteworthy that the formula used by TRA to calculate import duty on timber from Mozambique and Zambia was not availed to the consultants. Moreover, with regard to determining the market value of timber this is inaccurate due to discrepancies in the data from Customs.

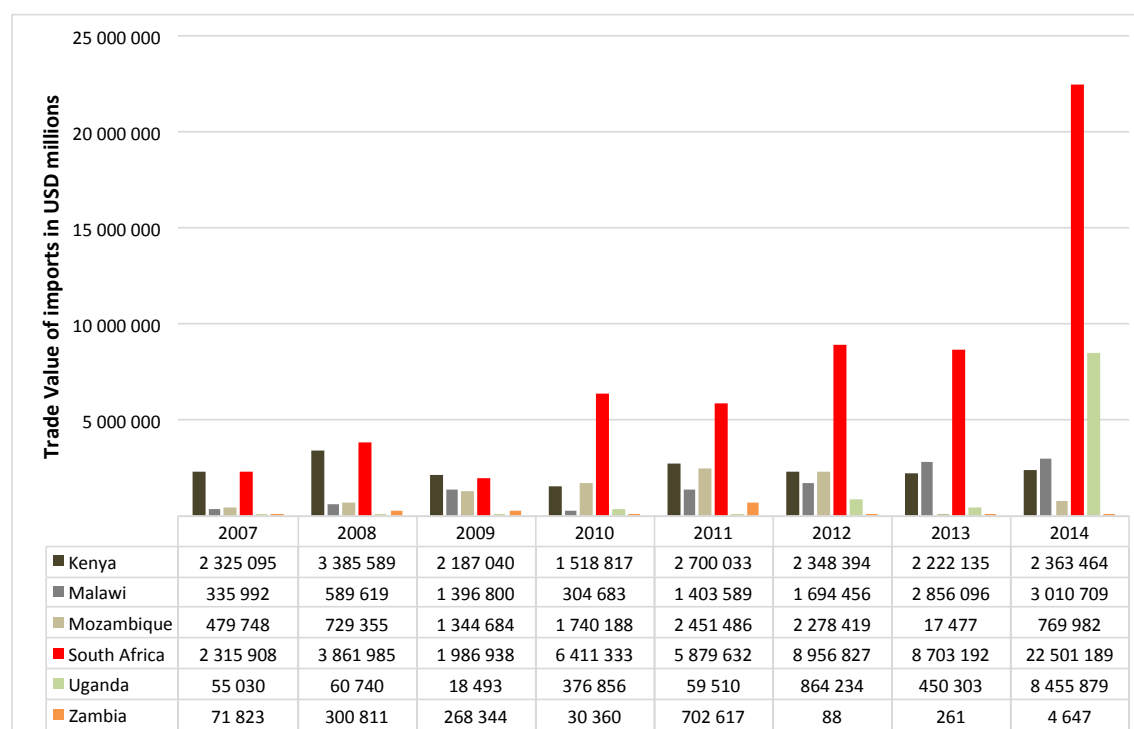


Figure 6: Trade value of Tanzania's forest product imports from Eastern and Southern African countries for the period 2007-2014

Source: Tanzania Revenue Authority/Customs Department data

3.1.4 Products

In 2004, the Tanzanian Government imposed a ban on the export of logs, to promote value addition to be carried out in the country. According to the export permits, this significantly reduced the relative share of logs in Tanzania timber exports, to the benefit of sawn wood, i.e. planks (Figure 7). Sawn timber accounts for almost 80% of the value of forest exports, i.e. ca. USD33 million is sawn wood out of USD 42 million of total timber exports during the period 2002-2014. Tanzania also exports other forest products including carvings, clarinet sets, sandalwood oil and wattle extract.

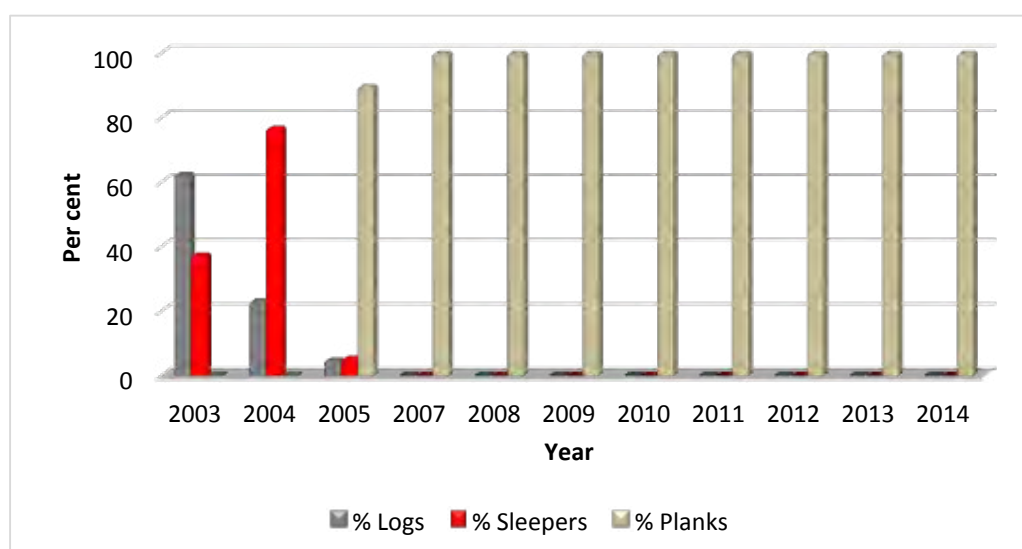


Figure 7: Relative share of different forest products by value exported by Tanzania during the period 2007-2014 Source: Tanzania Forest Service data

3.1.5 Species

Of the 13 different species exported from Tanzania, four have been consistently exported over the last 10 years, specifically, *Baphia kirkii*, *Millettia stuhlmannii*, *Pterocarpus tinctorius*, and *Swartzia madagascariensis*¹⁸ (Figure 8). Conversely, these four species have almost no demand in local markets. They are exclusively harvested for the export market to China.

Natural forest timber imported into Tanzania from neighbouring countries, particularly from Uganda, DRC, Zambia and Mozambique essentially comprise *Pterocarpus angolensis* and *Afzelia quanzensis*, but also to a lesser extent *Entandophragma* spp., *Khaya anthotheca*, *Milicia excelsa*, *Brachystegia* spp., and *Guibourtia coleosperma*. These tree species are considered to be easily worked and processed by local carpenters who often have only hand held tools to work with. Timber imports are not disaggregated by tree species, therefore it is not possible to determine exactly how much of any species has been imported.

According to several TFS forest officers based in Mbeya and Tunduma near the Tanzania/ Zambia border, *P. tinctorius* logs are being transited through Tanzania from Zambia, with the port in Dar es Salaam being used as a gateway for these Zambian exports to China. In most cases, these logs were containerized, imported into Tanzania at a rate of up to 60 containers per month on several occasions in 2014 and 2015, often with insufficient documentation, resulting in confiscations by Tanzanian authorities.

¹⁸ Also known as *Bobgunnia madagascariensis*

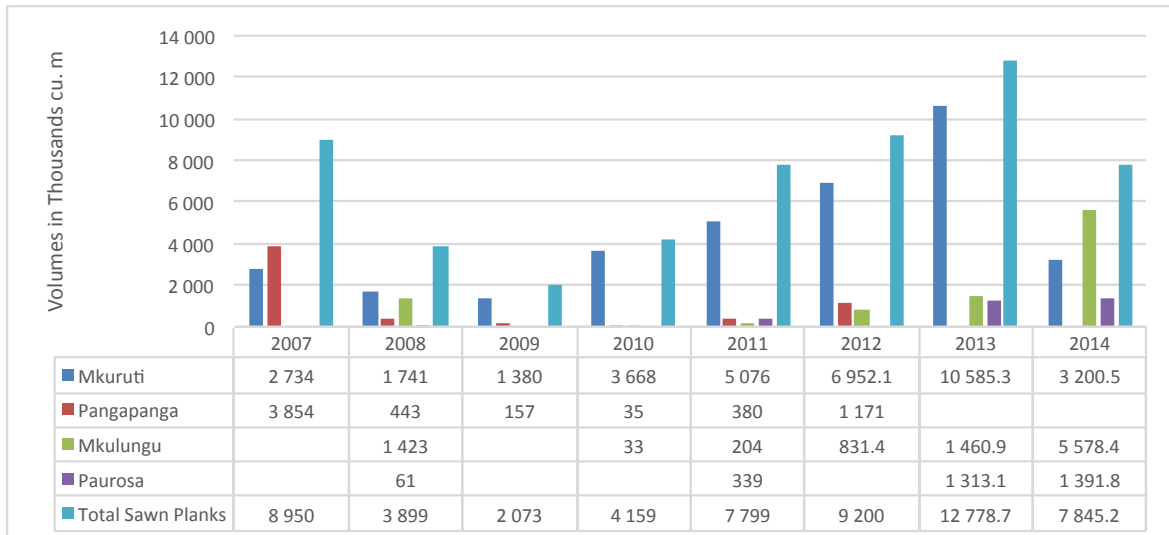


Figure 8: Volumes of timber of different tree species* for which export permits were issued from Tanzania during the period 2007-2014 Source: Tanzania Forest Service data.

* Mkuruti *Baphia kirkii*, Pangapanga *Millettia Stuhlmannii*, Mkurungu *Pterocarpus tinctorius*, Paurosa *Swartia madagascariensis*

3.1.6 Main companies

Few companies have integrated operations in the forestry sector. The companies that export timber being the most integrated actors in the forestry sector, particularly when compared to companies that import natural forest hardwood. The consultants found that, there were five notable exporters of hardwood natural forest timber that are not visible in the tax records. However, according to TFS export permit records, these five companies accounted for 38% of the 22 645 m³ of natural forest timber for which export permits were issued during the period 2012-2014.

A review of TRA tax records for forest exporting companies indicates that these companies have filed returns of generally increasing amounts over the period 2006-2013 (period of available data). From 2006 to 2009, the combined annual tax returns for these dozen or so companies, ranged from TZS250 million (approx. USD202 000) to TZS390 million (approx. USD315 000), and then rose to between TZS500 million (approx. USD405 000) and TZS840 million (approx. USD680 000)¹⁹ during the period 2010-2013. However, these figures may be incomplete because tax returns filed by the forest exporting companies are not always consistent with the amount of timber represented by export permits, which means that some timber export companies do not file tax returns every year. In addition, TRA tax returns information shows that some forestry companies have significant domestic operators that are not captured by TFS export permit data, i.e. some forestry companies may have domestic operations that result in large turnovers although their export activities are limited. The tax authorities should carry out an analysis of the situation to ensure the proper filing is conducted and there is no evasion of tax revenues by timber companies.

In addition to these main companies, it is noteworthy that harvesting of natural forest timber is highly fragmented and dominated by small, independent actors. For instance, in Kilwa District, which is one of the biggest natural forest harvesting areas in the country, records show that in Fiscal Year 2014/2015, the DFO received a total of 179 different applications from 125 different traders to harvest a total of 44 000 m³ in natural forest timber. Many of the applicants were individuals who applied under their own names and not through registered company names.

¹⁹ Exchange rate based on annualized mean rate of TSH 1232.27 = USD 1 for 2006, according to Bank of Tanzania

3.2 THE REPUBLIC OF KENYA

3.2.1 National context

3.2.1.1 Forest cover

Compared to other countries in the region, Kenya has a low percentage of its land area under forest partly because most of the land area is semi-arid and only about 12% is climatically suited to closed canopy forest (Anon., 2012a). Currently Kenya's forests cover 3.5 million ha (Table 3) equivalent to 6.9% of the land area of the country (Bambo, 2015).

Forest cover type	2006	2007	2008	2009	2010
Indigenous closed canopy forest	1165	1155	1165	1155	1140
Mangroves	80	80	80	80	80
Public Plantation Forests	110.5	112.3	114	107	111.8
Private Plantation Forests	84	86	88	89	90
Sub-total closed canopy forests	1435	1433	1447	1431	1422
Open woodlands	2070	2065	2060	2058	2055
Sub-total forest areas	3505	3498	3492	3489	3477
Trees on farmlands	10 333	10 346	10 359	10 372	10 385

Table 3: Extent of forests in Kenya (1,000 ha) for the period 2006-2010

Source: Kenya forest Service data (2010).

3.2.1.2 Deforestation

In Kenya, there is a total ban on harvesting in natural forests. Natural forest ecosystems, comprising indigenous tree species, are managed for the provision of environmental services with no commercial extraction of wood products (Bambo, 2015). The cover of gazetted State forests, which comprises many of the forest types in Table 3, but not all the forest types, has declined from 1.7 million ha to 1.57 million ha through encroachment during the period 1980-2000. Since 2000, the decline of forest cover has continued albeit at a slower pace (Table 3). On the other hand, commercial plantations have increased (Anon., 2014b). Kenya is the largest industrial timber plantation resource in the six East Africa countries in this study, with an estimated 107 000 ha of publicly owned industrial plantation forests, and 90 000 ha of private saw log and fuel wood plantations in 2012, owned mainly by the tea industry (Anon., 2012a). Nonetheless, because harvesting in natural forests is not permitted, Kenya depends largely on imports from the DRC for supplies of hardwood timber, although it is recognized that smaller volumes of hardwood logs are imported from Tanzania for use in the Kenyan woodcarvings industry (Vandenabeele, 2010; Anon., 2012a; Bambo, 2015).

3.2.2 Legal instruments and agencies

The Forest Act, 2005, and associated Rules, provides for the establishment, development and sustainable management of forest resources for the socio-economic development of the country. The Act applies to all forests and woodlands on State, local authority and private land. Section 8 of the Act requires all indigenous forests and woodlands to be managed on a sustainable basis for the purposes of conservation of water, soil and biodiversity, river line and shoreline protection, sustainable production of wood and non-wood products. Section 61 of the Act recognizes Kenya's international obligations with respect to forests. Kenya is a signatory to numerous multilateral environmental agreements, including CBD, CITES, Ramsar Convention, UNCCD, and UNFCCC.

The Forest Act, 2005 establishes Kenya Forest Service (KFS) for management and conservation of all types of forests. KFS is responsible for formulating policies regarding the management, conservation and use of all types of forest areas in the country. The Act also has clear provisions for recognition and role of community forest associations in forest management. It enables members of forest communities to enter into partnership with KFS through registered Community Forest Associations. *The Rules for Participation in Sustainable Forest Management, 2009* are read in conjunction with the *Forest Act, 2005*. The objective of these Rules is to provide for the circumstances under which authorizations may be applied for, granted, varied, cancelled or declined and the manner in which a person or community is granted such authorization to manage a forest.

3.2.2.1 Harvesting/Handling

Forests Harvesting Rules, 2009 provides for harvesting activities such as felling, trimming, docking, splitting, debarking, extracting, sorting or loading of any forest produce and includes the supervision of any of those activities. The allocation of material to licenced operators requires that the Director of KFS identifies plantations for harvesting during the year, Environmental Impact Assessments are conducted, the Director receives requests from licenced operators, allocation is done in writing with copies to relevant offices, an inventory is undertaken by KFS to determine stumpage volumes, payment is made and receipted, harvesting is carried out by the trader, logs are hammer marked, and Transit Permits are issued by KFS to allow the transport of the logs out of the forest.

The Rules for Participation in Sustainable Forest Management establishes that KFS is responsible for collecting all revenues and charges due to the Government of Kenya in regard to forest resources, produce and services. They also allow any member of a forest community to collect, subject to such conditions as may be prescribed, forest products as has been the custom of that community to take, other than for commercial purposes. A member of a forest community may register a community forest association under the *Societies Act, CAP 108[R.E.2012]*. Management agreements between KFS and an association may confer on the association forest user rights, including harvesting timber or fuel wood, collection of forest products for community based industries and plantation establishment through non-resident cultivation.

The Forest Act, 2005 provides that, logs must be marked with the official hammer mark at both ends. Forest products, including logs, posts, poles and firewood in transit from farms must be accompanied by a Forest Produce Movement Permit (FPMP) and receipts showing which dues have been paid. A Certificate of Origin, issued by the local forest office identifies the source of the material and confirms that the material is not contraband. The Act gives powers to KFS to search any premises in order to establish correct facts and places. To move forest products, typically from forest to sawmill, requires a Transport Permit, which is issued by the forest administration, and control takes place at checkpoints.

3.2.2.2 Export/Import

Under EAC Customs management rules, Kenya should not impose any duty on goods imported from member States of the EAC, while imposing a duty of 10% and VAT of 18% on goods imported from non-EAC countries. Kenya is also a member of COMESA hence doesn't apply duty on imported DRC timber, but imposes only VAT. Kenya is not a member of SADC, and neither has it signed up for any process that would lead to a VPA.

CITES entered into force in Kenya in 1979. The Kenya Wildlife Service plays a major role in the implementation of CITES in Kenya, functioning as the Management Authority, Enforcement Authority, and the Scientific Authority together with the National Museum of Kenya. Under the CITES National Laws for Implementation of the Convention, as of September 2016, Kenya's status of legislative progress for implementing CITES is a Category Two, meaning that Kenya's national legislation does not meet all of the requirements to sufficiently implement CITES (Anon., 2016a).

3.2.3 Timber flows

3.2.3.1 Exports

Kenya has not recorded any official export of natural forest hardwoods for more than 10 years, although it is an exporter of manufactured wood products based on plantation softwoods (Anon., 2014b). Wood products exported are largely manufactured products, such as plywood, block-boards, hard-boards, chip-boards, carvings, paper tissues and furniture components (Table 4).

The weight of paper exported from Kenya is destined primarily for Tanzania and Uganda. Kenya's pulp and paper mill near Webuye has been operating intermittently due to claims by creditors (Anon., 2014b). The trade in woodcarvings, for the tourist market, is also very lucrative for Kenya's economy. Wooden carvings are made from tropical hardwoods imported as logs from Tanzania. Among many handicraft activities, woodcarving forms the most important component. Research shows that the industry has approximately 80 000 wood carvers and the industry generates an estimated KES5 billion (USD18.8 million) annually (Anon., 2012b).

Product	2007	2008	2009	2010	2011
Wood manufactures in tonnes	1447	971	866	812	712
Wood manufactures in millions KES	310 (USD3.69 million at 2012 rates*)	212 (USD2.5 million at 2012 rates)	160 (USD1.9 million at 2012 rates)	167 (USD1.987 million at 2012 rates)	193 (USD2.3 million at 2012 rates)
Paper and paper board in tonnes	20 611	21 990	7929	7666	9572
Paper and paper board in millions KES	1039 (USD12.4 million at 2012 rates)	1354 (USD16.1 million at 2012 rates)	642 (USD7.6 million at 2012 rates)	544 (USD6.5 million at 2012 rates)	651 (USD7.7 million at 2012 rates)

Table 4: Manufactured wood products and values in Kenya for the period 2007-2011

Source: *Statistical Abstract – Central Bureau of Statistics, Ministry of Planning and National Development (2012).*

*2012 USD/KES average rates based on July 2012 average of USD1 to KES84.

<https://www.poundsterlinglive.com/best-exchange-rates/us-dollar-to-kenyan-shilling-exchange-rate-on-2012-07-12>

3.2.3.2 Domestic consumption

Kenya has a large manufacturing base and is a strong economy in the region. The country has been experiencing a building boom for several years, which has led to a high domestic demand for wood products, especially timber. Table 5 shows the volume of wood products consumed in the country over the last five years (Anon., 2014b).

The reported annual demand for sawn wood is about 420 000 m³, one of the highest timber demands recorded in the six East African countries in the study. However, official figures for hardwood consumption are scanty. Figures for consumption of hardwoods and fuel wood are the most uncertain because the bulk of these products are consumed directly without being processed with a large proportion being traded informally with no records. Several studies have shown that imports of hardwoods from DRC for the domestic market in Kenya were significantly greater than what is reflected in Table 5 (Anon., 2007; Anon., 2012a; Anon., 2014b). In Kenya, furniture and

joinery products use approximately 77 672 m³ of wood of combined hard and softwood species per year (Oduor *et al.*, 2010). This sector consists of hundreds of small-scale entrepreneurs, both in the rural and urban areas, and mainly in the informal sector. These small scale entrepreneurs control much of the furniture market that entails the manufacture of doors, door frames, beds, window frames, shelves, fitted cupboards, kitchen units, and various sorts of panels (Bambo, 2015).

In addition to sawn timber, there has been an increasing demand for transmission poles as rural electrification continues to expand in the country (Anon., 2014b). Due to a shortage of poles from government forests, demand has been met through purchases from private eucalyptus plantations. Poles are also being sourced from farmers' woodlots. As demand for poles far outstrips supply, the country has been importing from Tanzania, South Africa, Chile and Argentina. To meet rising demand, small scale farmers are encouraged to establish woodlots of different species. The woodlots have been an important source of industrial wood during the harvesting ban from State forests (Anon., 2014b).

Forest Products	2007	2008	2009	2010	2011
Timber (1,000 m ³) ²⁰					
Softwood	423.4	503.7	347	401.2	419.2
Hardwood	-	-	12.7	19.3	9.5
Total	423.4	503.7	359.7	420.5	428.7
Stacked (1,000 m ³) ²¹					
Fuel wood/charcoal	25	89.7	0.9	60.3	6.6
Power and telegraph poles	2	52	12.2	6.4	0.8

Table 5: Domestic consumption of wood products in Kenya for the period 2007-2011

Source: *Statistical Abstract – Central Bureau of Statistics, Ministry of Planning and National Development (2011)*.

3.2.3.3 Imports

Kenya has an influential role in East Africa's timber trade. Most of the hardwood timber from other countries in East Africa is imported to Kenya, with very little Kenyan wood exported. The main products imported into Kenya are timber, poles, charcoal and furniture (Bambo, 2015).

Kenya's hardwood imports have been increasing since the beginning of the 2000s. However, obtaining accurate information about imports is a challenge. KFS revealed that, in 2009/2010 wood products worth KES3.36 billion (USD42 million) were imported into the country from the EAC and the COMESA region (Table 6). In order to capture accurate data on volumes of wood products imported into Kenya, KFS in 2011 started a system of collecting data on a monthly basis at all border-crossing points (Anon., 2014b). In 2014, an EU's FLEGT team attempted to verify the volume of hardwoods imported into the country with the Kenya Revenue Authority (KRA, Customs Department), however not successfully. The team made visits to over six companies known for dealing in hardwoods. None of the companies admitted importing timber, but rather explained that they bought small quantities of hardwood delivered to their mills by vendors and that they did not enquire as to the origin of the timber (Anon., 2014b).

²⁰ Planks.

²¹ A stacked volume refers to the volume of forest products that have not been processed into planks. The terms is used extensively when referring to the estimated volume of firewood or poles. A conversion rate is used to determine the solid volume from the measurement of a stacked volume

Category	Quantity	Trade Value (million USD)	Origin
Softwoods (m ³)	75 354	24	Malawi and Tanzania
Hardwood timber (m ³)	18 645	14	Tanzania and DRC
Poles (No.)	35	1.3	Uganda and Tanzania
Wattle bark (tonnes) – for leather tanning	24	2.4	Uganda
Total		41.7	

Table 6: Imports of wood products in Kenya by category in 2009/2010

Source: KFS Annual report, (fiscal year 2009/2010).

Kenya imports a substantial volume of hardwoods from the DRC, Tanzania and other neighbouring countries. Anon., (2007) indicated that trade in hardwood obtained from DRC increased from USD54 639 to USD543 391 between 2001 and 2006. Because Kenya and the DRC are both COMESA members, there is a financial incentive for traders to sell DRC timber into the Kenya market at favourable tariffs. In addition to the trade value data obtained from the 2007 Forests Monitor study, Kenya Forestry Research Institute (KEFRI), found that between 2009 and 2013 Kenya imported 83 729 m³ of hardwood timber from DRC and 192 279 m³ of softwood timber, 348 139 treated transmission poles, 8360 tonnes of wattle bark, 5800 m³ of logs and 5.8 tonnes of charcoal from Tanzania (Cheboiwo, 2015). Key border entry points include Namanga, Malaba, and particularly Busia, with more than 30 000 m³ of DRC hardwood timber entering Kenya per year (Anon., 2014b), with more than 90% of which is destined for Nairobi, and Mombasa to a lesser extent, for the woodworking and construction sectors (Anon., 2012a; Cheboiwo, 2015).

It is noteworthy that there are unreported volumes of sawn timber and other forest products that enter Kenya through unofficial border crossing points, not recorded in official statistics. (Anon., 2014b) estimated that about 20% of all imported hardwood timber and 5% of softwood are illegal and according to the study team, there was little effort made by the Government of Kenya to carry out due diligence on the authenticity of imported timber.

3.2.4 Products

Kenya's imports of natural forest hardwood have been mainly in the form of sawn planks, the preferred product of Congolese chainsaw millers (Lescuyer *et al.*, 2014).

Kenya did report imports of logs from Tanzania, with a spike in 2006 and 2007, however these were not reflected in the Tanzanian records (Anon., 2014b). Logs from Tanzania are mostly transported into Kenya by bicycles or motorcycles through unofficial routes to Tiwi Village in Kenya on the Lunga Lunga border point close to the Tanzanian seaport of Tanga on the Indian Ocean. They are used for the production of woodcarvings. These transactions contribute to significant revenue losses for both countries (Anon., 2012b). Generally, most forest products transported across the border points of Tanzania and Kenya come from Tanzania. Products traded include furniture, walking sticks, gum, roots, seeds and seedlings, wooden crates and sandalwood (Anon., 2012b).

Moreover, it is almost certain that a substantial volume of logs that Kenya imports from Uganda is in transit from South Sudan to India. The biggest Teak (*Tectona grandis*) plantations in Africa are in South Sudan and this teak is mostly exported to India. Records indicate that the bulk of the teak that imported into Kenya then transits through Mombasa (Anon., 2014b).

3.2.5 Species

Indigenous wood has been traditionally the raw material for furniture and joinery products. However, the ban of 1999 on harvesting natural forests forced a shift towards sourcing wood from

the DRC. The preferred softwood species from Kenyan plantations for furniture are *Pinus patula* and *Cupressus lusitanica*. Preferred species of hardwood for use in construction, joinery and furniture making include Mahogany species *Entandophragma cylindricum*, *Khaya senegalensis*, and *K. anthotheca*, from the DRC and *Olea capensis* from Uganda (Anon., 2012a; Anon., 2014b; Bambo, 2015). Practically all of the teak that is imported is then re-exported, with very little used domestically (Anon., 2014b). Unfortunately, information on the relative share of species being imported into Kenya is incomplete.

The woodcarving sector is estimated to require 600 tonnes of wood per year (Vandenabeele, 2010). Initially, the carvers showed a preference for *Cordia sinensis* and acacias, but later switched to *D. melanoxylon*, *Brachylaena hutchinsii*, *Olea africana* and *Combretum schumannii*. These species became depleted and Kenya shifted to imports of high value timber with imports from Tanzania to fill the gap (Vandenabeele, 2010; Bambo, 2015). In the early 1990s, the sector was experimenting with species such as neem *Azadirachta indica* (Marshall and Jenkins, 1994). The sector is so desperate for hardwood that lesser known hardwoods from Tanzania find a ready market in the wood carving industries in Kenya (Vandenabeele, 2010; Bambo, 2015). These species are such as *Azadirachta indica* and *Mangifera Indica*.

3.2.6 Main companies

The number of forestry companies in Kenya declined drastically after the logging ban of the 1990s, but some major enterprises have continued to operate. A prominent feature of the Kenyan sawmilling sector is a vertical connection in the timber value chain with small and medium enterprises. The same entrepreneurs with sawmills commonly carry out the logging (Bambo, 2015). Since then, only Rai Ply Ltd., Timsales and Comply, all locally owned large companies, have continued to operate, producing timber, veneer and fibre-board from softwood plantation sources (Table 7). No similar records were obtained from government sources on indigenous timber species.

Most sawmills are located in rural towns and logs are sourced from farms. Also common are chainsaw operators who do the planking at felling sites. Precise data on amount of timber produced, number of sawmills and distribution are not readily available (Anon., 2014b). During visits made by a FLEGT study team to companies known for dealing in hardwoods such as Wood Products (K) Ltd, Timsales Ltd, Shah Timber, Wood Makers Ltd, Timber Corner Ltd, and Nairobi Timber, these companies admitted to importing timber and that they did not know the origins of the hardwood timber they processed (Anon., 2014b).

The woodcarving sector is relatively small, requiring highly skilled artisans, and is concentrated in specific locations in both rural and urban areas. Typical examples are Wamunyu Handicrafts Cooperative Society at Wamunyu trading centre in Machakos and Akamba Handicraft Cooperative Society in Bombolulu in Mombasa (Bambo, 2015).

Company	Area (ha)	Volume (m ³)	Revenue (KES)	Revenue (USD)
RAI Ply Ltd	187	74 386	194 050 581	2 282 948
Timsales	87	47 052	120 016 114	1 411 954
Comply	241	53 165	116 776 961	1 373 847
Pan Paper Mills Ltd	179	42 777	29 195 964	343 482
Homaline	42	5,580	11 673 124	137 331
Timber from other Mills	26 401	175 373	386 696 664	4 549 373
Total	3368	398 331	858 409 407	10 051 875

Table 7: Estimated Size, volumes and revenue from timber plantations in Kenya as per the Felling Plan 2010/2011

Source: Bambo (2015).

3.3 THE REPUBLIC OF UGANDA

3.3.1 National Context

3.3.1.1 Forest cover

Forests and woodlands cover about three million ha, ca. 14% of the land area of Uganda. About 15% of that area is protected in Central Forest Reserves (CFR) managed as productive forest by the National Forest Authority (NFA). A similar area is conserved for its biodiversity value in National Parks and other protected areas by Uganda Wildlife Authority and is not available for timber harvesting. The remaining 70% of forests and woodlands is owned by communities or by the private sector (Anon., 2012c; Anon., 2016b).

3.3.1.2 Deforestation

The rate of deforestation in Uganda is estimated at 88 150 ha per year, i.e. 3% per year (Anon., 2016b). This rate is very high considering the small forest cover in the country. In the past, the main sources of timber supply were the government-owned forest plantations and natural forests in the CFR. However, because of over-harvesting in the natural forests and the lack of replanting after clearing the plantations, the supply of timber from these sources is declining rapidly. Therefore, the timber trade is increasingly relying on production from trees and forests on private lands (Anon., 2012c). The forestry authorities have established about 40 000 ha of plantations since 2004. However, these plantations will only begin to supply the saw log market from 2025 onward. Until then, Uganda will keep on facing shortages in timber supply (Anon., 2012c).

3.3.2 Legal instruments and agencies

The National Forestry and Tree Planting Act, 2003 is an enabling law that provides for better management of the forestry sector, balancing the traditional regulatory and normative functions of government. The Minister remains with the overall responsibility to ensure that forests in the country are managed responsibly. The Act grants powers for the management of CFR to the NFA, while the rest of the forests are under the management of District Forest Services (DFS). The Act assigns the role of policy, guidelines and regulations formulation for the sector to the line Ministry of Water, and Environment. Uganda is also signatory to numerous multilateral environmental agreements, including CBD, Ramsar Convention, UNCCD, UNFCCC and CITES.

CITES entered into force in Uganda in 1991. CITES is implemented by a variety of agencies with the Ministry of Tourism, Wildlife and Antiquities as the Management Authority and Enforcement Authority, with the following four agencies supporting the Scientific Authority: Uganda Wildlife Authority; Ministry of Water and Environment; Ministry of Agriculture, Animal Industry and Fisheries; and, the Uganda Wildlife Conservation and education Centre. As of September 2016, Uganda was a Category three country under CITES national laws for implementation of the Convention (Anon., 2016a). Category 3 means that the countries legislation is believed generally not to meet the requirements for the implementation of CITES. While Uganda has adopted a wildlife policy, for example, it has not yet enacted CITES implementing legislation.

3.3.2.1 Harvesting/Handling

Three regulatory legal instruments describe the official procedures for timber harvest and trade in Uganda. These are: i) *the National Forestry and Tree Planting Act, 2003*; ii) *the Ministerial Notice of 2004*; and iii) *the Statutory Instrument No 16 of 2000*. Timber harvest and trade can be regarded as legal if they comply with the provisions of these three instruments.

The National Forestry and Tree Planting Act, 2003 contains general provisions requiring timber harvesting to be sustainable, but leaves the detailed descriptions of procedures, chain of custody systems and guidelines to subsidiary rules and regulations that are developed by the authorities and periodically updated. The Act makes a number of references to harvesting in line with management

plans, which is the key strategy in ensuring sustainability and adherence to best practices. *The Ministerial Notice of 2004* introduced new procedures for harvest and trade in saw logs and timber, and chain of custody procedures, in particular the delegation of responsibility for monitoring the timber trade and law enforcement to NFA, well-funded and staffed at that time. The new procedures were expected to be simple to administer and to create a chain of custody based on documentation and associated hammer marks. *The Statutory Instrument No. 16 of 2000* specifies felling fees, sawmilling licence fees, pit-sawyer's registration fees and includes a list of species and valuation rates on which taxes on sawn timber are based.

All traders in Uganda, whether engaged in domestic or international trade, must be registered with the Ministry of Justice and licensed by the competent local authorities. Applicants for registration and licensing must produce a TIN from the Uganda Revenue Authority (URA).

All timber has to be stamped with the relevant code area of origin before being transported. Any piece of unmarked timber is confiscated. Upon marking, a Forest Produce Declaration Form (FPDF) has to be issued. Before leaving a district, all timber must be stamped using the district seal. A FPMP is to be issued after stamping with the seal. Any individual or organization engaged in forest harvesting must have a licence issued by the responsible body, payment receipts of all statutory and other dues, and have to acquire a FPDF before transporting the produce from area of conversion. All unmarked and undocumented forest produce must be confiscated and forfeited by the owner. It is a primary responsibility of the owner to ensure that the produce is marked appropriately before it is moved. Copies of the relevant documents should always accompany any timber transiting through any part of Uganda.

3.3.2.2 Export/Import

The National Forestry and Tree Planting Act, 2003 states that no person shall export timber without an export licence issued by an authorized person. An export permit issued under the Act shall be issued only for export-graded timber. Uganda is a member of the EAC and COMESA but not SADC. As with Kenya and Tanzania, in the EAC, Uganda is obliged to exempt timber from these countries to any duty or tariff, while imposing the common tariff of 10% duty and 18% VAT on timber imports from non-EAC countries. Uganda as a COMESA member is also obliged to exempt DRC timber from duties and tariffs.

3.3.3 Timber flows

3.3.3.1 Exports

Analysis of UN COMTRADE data shows that Uganda has been exporting forest products of increasing value to neighbouring countries in the region. Similarly, Tanzania Customs data also reflects an increasing trade from a low value of USD55 000 in 2007 to a high value of nearly USD8.5 million in 2014. Uganda exports of forest products to Kenya have ranged in value from USD500 000 and USD1 million per year for the four-year period 2010 – 2013. Forest product exports to Tanzania have consisted almost entirely of treated electricity poles made from eucalyptus, whereas exports to Kenya have been recorded as articles of wood in the UN COMTRADE data.

Official exports of Ugandan sourced hardwoods are practically zero, since harvesting from natural forests is negligible. However, Uganda is a significant re-exporter of hardwood timber, mostly from the DRC. A WWF study from 2011, found that out of 50 300 m³ of timber imported into Uganda from DRC, 42 000 m³ was re-exported, to South Sudan (8400 m³), Kenya (32 600 m³) and thereafter internationally (1000 m³) through Mombasa Port in Kenya (Anon., 2012a). The 8300 m³ remained in Uganda. Values similar to these were recorded by the Uganda Revenue Authority in the same year. Data collected from Mutukula on the Uganda/Tanzania border indicate that 400 m³ of DRC mahogany (*Khaya Spp.* particularly *Khaya Senegalensis*) transited through Uganda between 2014 and 2015 and this volume has been increasing over the last few years.

3.3.3.2 Domestic consumption

The size of the timber market in Uganda is difficult to assess because the trade is poorly regulated and documented (Anon., 2012c). In 2011, WWF Uganda estimated the timber consumption at 369 000 m³, with a value of UGX101 billion (USD42 million). The quantity of timber produced domestically, i.e. excluding imports, was estimated at 360 000 m³, corresponding to 1 440 000 m³ of round saw logs at current sawing efficiency of 25%. This is equivalent to saw log production from clear felling of 7000 ha of plantation or selective felling of 72 000 ha of natural forest (Anon., 2012c). Timber is consumed on the domestic market by the construction industry, in furniture manufacturing, and other wood products; an estimated 80% is used for roofing, with around 10% for furniture and 10% for other uses (Anon., 2012c). The city of Kampala is Uganda's largest timber market, with supply coming from districts in the west and southwest.

3.3.3.3 Imports

The majority of imported hardwoods come from the DRC, mostly the high value mahogany species, such as *Entandophragma cylindricum*. In 2011, annual imports were estimated to be about 8500 m³ from eastern DRC, and much less from Kenya, Tanzania and South Africa (Anon., 2012c).

Mpondwe is the busiest border crossing between the DRC and Uganda, and the main exit point from DRC for both imports to Uganda and transit timber. In 2012, 36 000 m³ of sawn hardwood timber was brought into Uganda across the Mpondwe border, of this 5100 m³ remained in Uganda, while 30 900 m³ transited to Kenya and other markets (Anon., 2012a).

Field observations highlighted discrepancies between recorded timber exports from the DRC and recorded imports into Uganda. On the DRC side, the officials in DRC struggled to properly monitor and tax timber exports because of the general lack of security and low capacity. On the Uganda side, the forestry authorities did not consistently collect import data from the DRC (Anon., 2012a).

3.3.4 Products

Sawn timber dominates the imported timber from the DRC, and timber sold locally in Uganda. In the markets of Kampala, most timber is destined for the roofing market (80%), followed by scaffolding (10%), furniture and others (10%) (Anon., 2012c).

3.3.5 Species

The decline in domestic timber production has resulted in the Uganda market turning to softwood substitutes and hardwood imports from DRC (Anon., 2012c). As domestic production from the forest reserves is reducing, the market is increasingly relying on production from forests outside the reserves, supplemented with imports of mahogany and other species from eastern DRC.

Prices have been rising in response to growing scarcity of recently adopted timbers such as pines, cypress, mahogany and *Milicia excelsa*, as these species are being replaced by substitutes. The most common species now found on the market in Uganda are; Eucalyptus (43%); *Antiaris* spp. (33%); *Cupressus lusitanica* (5%); *Khaya* spp. (3%) mainly from DRC but also from South Sudan and small amounts from local sources in Uganda; and 16% consisting of other species including *Aningeria* and *Chrysophyllum* spp., *M. excelsa*, *Tectona grandis*, *Funtumia* spp., *Blighia unijugata*, *Albizzia coriaria*, *Markhamia lutea*, *Piptadeniastrum africanum*, *Celtis* spp., and *Maesopsis eminii* (Anon., 2012c).

3.3.6 Main companies

Most of the timber trade in Uganda does not comply with the legal and regulatory requirements in one way or another either because it is chainsaw milled, it is harvested in private lands and without the correct taxes being paid, the participants in the supply chain do not follow the official

chain of custody procedures, or because it is illegally logged in the CFR or harvested without approved management plans (Anon., 2012c). In the present circumstances, it is difficult for the authorities, traders and wood users to comply with all the regulations because of weaknesses or gaps in the regulatory systems that are beyond their control. Many participants in the trade who were interviewed during the study estimated that at least 80% of the timber in the market at present was illegal (Anon., 2012c).

Generally, Congolese traders bring timber to markets on the DRC side, in particular at Lubiriha, which is a short distance from the border. The timber is bought by Ugandan or Kenyan traders, but can also be bought in Uganda, in Mpondwe, where the URA has an enclosed timber yard adjacent to the Customs post. Timber is bought at the roadside as sawn planks in the forest in DRC at USD180/m³, or at the DRC border post for USD350/m³. In Uganda, at the Mpondwe border, timber costs USD400/m³ for first grade mahogany. Traders prefer buying timber in Mpondwe border rather than in DRC in order to avoid the bureaucracy and the multiple taxation in the DRC (Anon., 2012a).

3.4 THE DEMOCRATIC REPUBLIC OF CONGO

3.4.1 National context

3.4.1.1 Forest cover

The DRC is located at the heart of Africa's forest massif, and harbours approximately half of the continent's rainforests. Forests in the DRC cover more than 150 million ha, i.e. more than 60% of the national territory. This is the second largest block of tropical forest in the world, with half of this forest cover of the DRC found in the eastern provinces (Anon., 2012a). Rainforests cover approximately 37% of the territory, dry forests 19%, swamp forests 4%, and mountain forests 2%.

The main forest provinces in eastern DRC are Equateur, Orientale and Bandundu, with forest cover estimated at 40, 37 and 12 million ha, respectively (Debroux *et al.*, 2007). The most important forest resources, accounting for 80% of timber exports from eastern DRC, are now in Ituri close to Mambasa, and further north. Mambasa in Orientale Province is heavily exploited already where most of the production comes from Biakato, Lwemba, and Teturi. The centres of production are based along the Beni-Mambasa road allowing timber to be transported to Beni (Anon., 2007). In North Kivu, the Walikale and Itombwe Forest areas account for 30% of the timber extracted from eastern DRC.

3.4.1.2 Deforestation

The deforestation rate reached two million ha per year during the period 2005-2010 (Anon., 2010). This was slightly higher than during the period 2000-2005 (Anon., 2012a), which was already twice as high as the previous decade. The DRC has a relatively low recent historical deforestation rate compared with countries in Southeast Asia and Latin America, but the rate is increasing rapidly and is the highest among the countries of the Congo Basin, i.e. twice that of Cameroon and four times that of Gabon (Lawson, 2014). Forest loss in DRC shows large regional differences (Table 8), being concentrated in the densely populated regions of Bas-Congo and eastern DRC. It has been heavier close to roads, rivers, railways and markets (Mamingi *et al.*, 1996; Laporte and Justice, 2001; Wilkie and Laporte, 2001). Slash-and burn agriculture is the main direct cause of deforestation, although fuel wood collection plays a major role in peri-urban areas and densely populated rural areas. Deforestation will likely increase in most regions as the population grows, or moves. The weak infrastructure and political instability have led to a lower than expected rate of forest loss in the DRC (Debroux *et al.*, 2007).

Province	Total forest cover in DRC 2010 (in 1,000 ha)				Loss of forest cover 2005-2010 (in 1,000 ha)			
	Primary forest	Secondary forest	Wooded savannah	Total forest	Primary forest	Secondary forest	Wooded savannah	Total forest
Orientale	32 961	4349	4930	42 241	180	242	28	450
N. Kivu	3559	741	205	4505	26	20	2	48
S. Kivu	3218	585	465	4265	28	49	3	81
Maniema	7637	1412	650	9699	54	82	5	141
Katanga	614	261	2448	25 352	5	6	220	232
All other provinces	55 397	8836	5522	69 755	408	548	70	1024
Total DRC	103 387	16 178	36 252	155 817	701	947	328	1976

Table 8: Forest cover and forest loss in the provinces of Eastern DRC for the period 2005-2010

Source: Anon. (2010a).

3.4.2 Legal instruments and agencies

Under the *Forest Code, 2002* forest ownership and user rights are subject to the law. Article 12 of the *Forest Code, 2002*, states that classified forests are part of the public domain where the State continues to assert ownership over all areas of forest. The *Forest Code, 2002* recognizes three categories of forest: i) Classified forests, which are generally those forests designated for environmental protection and have restrictions on use and exploitation, such as nature reserves and national parks; ii) Protected forests, which are subject to less stringent restrictions than classified forests, such as community forests and limited concessions; and iii) Permanent production forests, which include forests that are already used for timber production and under long term concessions. Local people may use protected forests for subsistence needs and may clear the forest for crops; a permit is required to clear a forest area larger than two ha. The exercise of the rights of use is always subordinate to the State. DRC is also a signatory to numerous multilateral environmental agreements, including CBD, CITES, Ramsar Convention, UNCCD, and UNFCCC.

CITES entered into force in the DRC in October 1976. The Ministry of Environment and Sustainable Development is the responsible institution for CITES implementation.

The DRC has enacted national legislation for the implementation of the CITES. Its legislation has been rated as Category I meaning that it meets all the four basic requirements to be compliant with CITES provisions.

3.4.2.1 Harvesting/Handling

Harvesting of timber is governed by the *Forest Code, 2002*. The Code allows two types of forest harvesting permits; simple felling permits for small-scale logging with cross-cut saws and the large scale industrial logging permits. Permits are granted subject to limitations which are imposed by species and by area. The maximum size of the harvesting area is 400 000 ha. A logging company must provide a harvesting inventory before applying for felling permits. Felling permits are issued for areas up to 1000 ha, and logging companies can obtain as many permits as the State deems consistent with forest capacity. Permit holders must submit quarterly reports of volumes felled and must comply with the DRC's Guide to Forest Exploitation in the development of forest management plans. *The Forest Code, 2002* also provides for the possibility of communities to establish Forest Concessions of local communities.

The Forest Code, 2002 specifically empowers the governor to issue permits to chainsaw millers (Article 112), and Article 98 of the code refers the question of permits to the regulatory services in the ministry. Article 98 of the *Forest Code, 2002* states that logging permits are regulated by an Order of the Minister who determines the types of permits, the conditions for awarding them, the related rights and the period of validity and also decides which authorities are entitled to deliver them.

The *Forest Code, 2002* provides for three business titles for the benefit of national stakeholders. These include the Special Permit for domestic consumption, Timber Permits for commercial harvesting and the Temporary Operating Licence that was a permit for a maximum period of seven years. *Article 42* of the *Forest Code, 2002* states that the rights of use are reserved to the satisfaction of needs and that their products cannot be the subject of sale. The exercise of the right of use thus allows local people to fell trees to support themselves. This however becomes illegal act if the products are marketed. *Article 63* of the *Forest Code, 2002* stipulates that exploitation for commercial purposes of all forest products in the domain of the State, including those that are the subject of a long established activity, are governed by holders of operating licences issued by the administration of water and forests.

3.4.2.2 Export/Import

The DRC is a member of COMESA and SADC. As a member of COMESA, the DRC is obliged to exempt goods from other COMESA members such as Uganda, Kenya and Zambia from any duties or tariffs. As signatory to CITES, DRC is thereby obliged to report on trade in CITES-listed tree species. A list of tree species and their conservation status is on Appendix 3. Likewise, as a signatory of the SADC forestry protocol, the DRC should be encouraging the sustainable management of forests and the regular monitoring and reporting of forest trade. DRC is the only country in the region that is in the EU's VPA process.

3.4.3 Timber flows

International and domestic markets are promoting increased logging in the DRC, but infrastructure barriers are currently a limiting factor. However, these obstacles will reduce gradually as more investments will lead to improved infrastructure systems. Local processing makes it possible for companies to increase their production without increasing transport costs. If security keeps on improving, logging will increase. Nevertheless, given the gradual nature of these changes, it seems unlikely that the formal timber production will exceed 1 - 2 million m³ in the next five to 10 years. The sector's regulating mechanisms, such as land-use planning, management plans, controls and penalties, are not yet operational. Today, no matter how many concessions are legally open, the forest department is unable to control the actual level of harvesting and to prevent any rise of illegal logging and transport along the long and porous border (Debroux *et al.*, 2007).

Reliable and consistent estimates of timber production and exports from DRC are difficult to get, more particularly because DRC does not appear to be providing its data to UN COMTRADE. Moreover, recent studies revealed discrepancies in figures by comparing DRC's domestic consumption and total global exports with their trading partners' imports. For instance, during the period 2005-2011, the total domestic and international consumption turned out to be eight times greater than the country's total legal production of timber. Although most of the timber was consumed in the domestic market, exports also globally exceeded the total legal supply throughout this period (Lawson, 2014; Chang, Y. and Peng R., 2015).

3.4.3.1 Exports

Estimates vary according to the methodology used to collect such data. For instance, the Forests Monitor statistics are aggregate figures collated from different government departments and statistics, whereas the SGS (formerly *Société Générale de Surveillance*) ones are estimates from the number of trucks crossing the border at seven different points, five of which are official border points. The FAO generally obtains its figures from governments (Chevallier and du Preez, 2012). The SGS suggests export figures of 200 000 m³ of rough sawn wood and more than 600 000 m³ of RWE from the Orientale and North Kivu Provinces. If the SGS figures are correct, the informal trade from the eastern DRC is at least double the size of the formal trade from the whole of the DRC (Chevallier and du Preez, 2012).

DRC does not report to UN COMTRADE and therefore timber trade data compiled by the DRC is not available and instead trade data compiled by IIED have been used. IIED used FAOSTAT to analyse DRC exports. Asian countries do report to UN COMTRADE and this data were also used. By comparing Asia compiled imports from UN COMTRADE with DRC's total exports to Asia (Table 9), it seems that timber imports from DRC to the Asian countries increased more than 10 times from 2009 to 2010, whereas DRC reported no growth in exports to Asia for the same period (Chang, Y. and Peng R., 2015). This comparison cannot be performed for China alone because there is no official UN COMTRADE data from DRC accounting for the country's timber exports to China.

Year	China imports from DRC	Asia imports from DRC	DRC exports to Asia	DRC Total export
2005	1081.8	3676	9780	
2006	4736	10 919	16 750	471 604
2007	7084	14 836	35 021	479 645
2008	28 820	45 156	50 128	449 983
2009	21 829	35 821	46 207	330 401
2010	54 351	420 031	46 207	367 679
2011	80 046	425 707	111 938	403 400

Table 9: Comparison of reported imports of DRC timber (m³) by China and all Asian countries versus exports (m³) reported by DRC, for the period 2005-2011

Source: Chang, Y. and Peng R., (2015)

The global market is pushing the rate of DRC's timber harvesting upward and China's growing demand is a key element (Chevallier and du Preez, 2012). China's deficit in commercial timber is estimated at 40 million m³ per year (Chevallier and du Preez, 2012). The country relies on sawn timber from Africa and elsewhere especially species such as *Entandophragma cylindricum*, which is abundant in the DRC. This trend is likely to continue and to extend to lesser-known species. In addition, India has shown signs of becoming a major timber buyer over the past four years. Lastly, some Asian countries that used to export timber are now becoming net importers, e.g. the Philippines, Thailand. Malaysia and Indonesia might eventually follow in their footsteps. Furthermore, for several years now countries in the Maghreb and the Middle East have been emergent buyers of African timber.

Anon., (2007) found that less than 10% of timber harvested in eastern DRC reached international markets, most being consumed within Eastern Africa. This is in contrast to timber harvested in other parts of the DRC, particularly western DRC, where a larger share of the timber is exported to international markets. Around 59 000 m³ of timber was exported from the eastern DRC in 2006. Around 47 000 m³ of it left DRC via the DRC-Uganda border. Of this, around half stayed in Uganda and half transited to South Sudan (5000 m³) and Kenya (19 000 m³). Likewise, a study by WWF found that timber harvested in eastern DRC, in contrast to exports from other parts of the DRC, was mainly destined for local markets and markets within Eastern Africa, while less than 2% was being exported to external, international and overseas markets (Anon., 2012a). According to this study the biggest market in the region by far is Kenya, with estimated imports from DRC of 32 100 m³. Kenya is followed by South Sudan with estimated imports of 10 750 m³, Uganda, Rwanda and Burundi to a lesser extent (Table 10). The level of timber exports from eastern DRC to East Africa that were recorded in the Anon. (2012a) study are very similar to the levels recorded in the Anon. (2007) study from 4 years before (i.e. 60 270 m³ versus 59 000 m³). These figures however do not account for the quantity of timber being "dumped"²² to the neighbouring countries, particularly

²²Dumped timber refers to consignments claimed to be in transit but which are actually traded and consumed within the transit country.

in Uganda and Kenya, and identified as illegal timber trade practices presumably because they provide a cheaper source of timber that may undermine local natural forest management (Chevallier and du Preez, 2012).

Destination for eastern DRC timber in 2011	
Country	Volume (m ³)
Uganda	8320
Rwanda	7001
Burundi	1100
South Sudan	10 750
Kenya	32 600
Other	1000
Total	60 270

Table 10: Volume of timber exports from eastern DRC to markets in Eastern Africa, in 2011
Source: Anon. (2012a).

3.4.3.2 Domestic consumption

Unlike other countries in Central Africa, the DRC has a significant local market that currently absorbs more than 70% of its own sawn products (Debroux *et al.*, 2007). Harvesting in DRC is dominated by small-scale loggers who may produce more timber than the formal sector. They supply the domestic market (Lumbwe, 2001). They produce beams and planks for construction or furniture. They also export wood and wood-based products to neighbouring countries (Lumbwe, 2001; Baker *et al.*, 2003; Djiré, 2003). The exact number of these small-scale loggers and how much wood they harvest are however unknown. Many of these loggers belong to associations (Lumbwe, 2001; Djiré, 2003). The Congolese Association of Small-Scale Loggers estimates that there are around 8000 small-scale loggers, but the exact number is uncertain. According to Djiré (2003), informal timber production would be around 1.5 to 2.4 million m³/year. If that is so, the informal sector produces more timber than the formal sector (Debroux *et al.*, 2007).

There has been a substantial increase in small-scale timber production in DRC during the last 15 years. The national annual production exceeds a million m³ of chainsaw timber, of which 85% is for the domestic market (Lescuyer *et al.*, 2014). Although the different reports indicate different figures for the level of harvesting and the amount of domestic consumption, there is general agreement that small-scale timber production in DRC is more than one million m³ per year and more than 70% (approx. 700,000 m³) of this amount is consumed within the country. The domestic markets in Kinshasa and in eastern DRC generate sales of over USD100 million per year, and an annual profit estimated at USD25 million. Local populations benefit most from small-scale milling through tree sales, wages, profits in the rural areas and payments connected to contracts between the company and the local communities. Small-scale chainsaw milling is creating numerous jobs, i.e. about 3000 in the Orientale province and in Nord-Kivu, and at least 25 000 direct jobs in the whole DRC (Lescuyer *et al.*, 2014).

The DRC's domestic market is likely to keep on growing, especially for lower-value timber (Chevallier and du Preez, 2012).

3.4.3.3 Imports

DRC imports from China have risen significantly over the last ten years, approaching 30 000 m³ in 2013 (Chang and Peng, 2015), with paper and plywood making up the majority of products. Although its export products to DRC are far less diverse than those to Mozambique and Uganda, China exports more timber products by volume to DRC than it does to Uganda, and almost as much as it does to Mozambique.

3.4.4 Products

More than three-quarters of the DRC's formal timber production from large-scale concessions is exported as logs, and most of the remainder is exported as sawn timber (Lawson, 2014). Anon. (2016c) making use of data from the Central Bank of Congo of 2006 reported log exports of approximately 92 829 m³ and 34 616 m³ of sawn wood for this period. Lawson (2014), revealed that only 10% of the forest area is designated for logging and this is where big companies harvest. Most small-scale logging is informal and supplies domestic and regional markets. Eastern DRC is dominated by small-scale logging operators and artisans who use chainsaws to fell the trees and mill the round wood into planks (Anon., 2012a).

3.4.5 Species

Industrial scale loggers typically harvest a wide range of species, but two-thirds of the logs harvested industrially are from four species: *Entandophragma cylindricum*, *Millettia laurentii*, *Milicia excelsa* and *Pericopsis elata*, the latter listed in Appendix II of CITES (Lawson, 2014). Most of this export trade of large-scale industrial logging companies is directed through western DRC onwards to international markets.

Artisanal loggers harvest and trade *Khaya* and/or *Entandophragma* spp., *Albizia* spp., *Aningeria altissima*, *Chrysophyllum albidum*, and small quantities of *M. excelsa*. Mahogany *Khaya* and *Entandophragma* species accounted for about 70% (Approximately 42 189 m³ for the exports to Eastern Africa countries except Tanzania) of the trade and *Albizia* spp. for about 15% (Approximately 9040 m³) (Anon., 2012a). Most of the products of artisanal loggers are consumed domestically. The remainder of the products of artisanal loggers that are not sold domestically within the DRC are being exported to markets in neighbouring countries in Eastern Africa.

Half of all log exports to China from the DRC are made up of *M. laurentii*, the only *Hongmu*²³ classified species from DRC. The concentration on this single species in China's imports suggests selective logging and high pressure on this one species, which only grows in a limited area between eastern Cameroon, Equatorial Guinea and Gabon and western Central African Republic and DRC. The species is listed as Endangered in the IUCN Red List (Chang Y. and Peng R., 2015).

African mahogany species, *Entandophragma* spp. and *K. anthotheca*, are among the key timber resources that is exported from eastern DRC to markets in the East African region. They are not listed in the CITES Appendices, but are listed in the IUCN Red List as Vulnerable because of a population reduction.

3.4.6 Main companies

In all, 10 large logging companies are responsible for around 90% of all licensed harvesting in the country. Just two large logging companies, *Société Industrielle et Forestière du Congo* (SIFORCO) and *Société pour le Développement des Forêts* SODEFOR, are responsible for more than half of all officially recorded harvesting and exports. Very little secondary processing takes place in the country.

As in other Congo Basin countries, the DRC's domestic market is mostly supplied by artisanal timber. Large volumes of this timber are also exported from the eastern DRC to neighbouring countries, but are not recorded in official statistics. In an attempt to bring the artisanal logging sector under formal control, the government has issued an increasing number of artisanal logging permits, but there is evidence that suggests that some of these permits have been issued illegally to companies and used for industrial-scale logging, although the permits are intended for the exclusive use by artisanal loggers (Lawson, 2014).

While there are no official Chinese-owned forestry concessions in DRC, an apparently increasing share of the timber currently produced each year under artisanal permits is being bought by

²³ Hongmu is a term used in China to refer to the timber of slow growing tropical hardwood tree species. It is a collective term that encompasses species of rosewood, *Pterocarpus* spp., *Dalbergia* spp. and even other tree species. Hongmu timber is used specifically in the production of Chinese classic furniture.

Chinese timber traders working with local loggers and millers operating under artisanal permits. There are about 20 Chinese companies or traders in DRC, five to eight of these are larger operations. One is a joint venture with *Office National des Transports* (ONATRA), a local State owned company, while the others are involved in pre-financing local concession owners or buying logs from big European and Lebanese concession owners. Moreover, there are several joint-ventures of informal partnership agreements between Congolese industrial forestry concessionaires and Chinese investors, for which it is impossible to obtain data relating to the capital invested, revenue generated or tax paid (Anon., 2015c).

In the eastern DRC, only one concessionaire operates, held by a Belgian company, Enzyme Refiners Association (ENRA), located near Beni and consisting of two adjacent blocks, one of 52 192 ha that was allocated in 1992 and the other of 28 800 ha which was allocated in 2005, with an annual capacity of 5000 m³ (Anon., 2012a). Apart from the ENRA concession, which does adhere to regulations, there is little or no regulation of timber harvesting by other forest ownership types and logging operations, such as communities, small-scale chainsaw millers, etc. The reforms in the forestry sector that began in 2002 have not had an impact in the east where small-scale operators carry out almost all logging. The rules and procedures for small scale and artisanal logging operations of the type that predominate in eastern DRC are not clear in the 2002 Code, and are subject to local variations. Institutional capacity is constrained by inadequate staff, equipment, systems and financial resources and the forest authorities are not effective on the ground (Anon., 2012a). Armies in the region are alleged to be implicated in timber harvesting and trade from the eastern DRC, buyers based in Uganda and Kenya, apparently finance artisanal loggers (Chevallier and du Preez, 2012).

3.5 THE REPUBLIC OF ZAMBIA

3.5.1 National context

3.5.1.1 Forest cover

Zambia has possibly the most extensive forest cover in Southern Africa (Gumbo *et al.*, 2013; Anon., 2014c). However, the various different forest inventories carried out in the country have produced quite different estimates of this forest cover (Table 11). These different estimates may reflect gradual deforestation, but also an artefact of the different definitions of forest, inventory methodologies and degrees of precision. These differences make it difficult to analyse forest cover trends (Anon., 2014c).

Year	Mid-1980s	1998	2004	2005	2006
Source/Project	NWECRS	ZFAP	FSP (EU)	FRA (FAO)	ILUA
Estimated forest cover	61.2	59.5	33.5	31.2	49.9
Percent of land cover	80.6	78.4	44.1	41.4	66

Table 11: Estimates of total forest cover (million ha) in Zambia, 1980s-2006

Source: Mukosha and Siampale (2008); NWERS - National Wood Energy Consumption and Resources Survey; ZFAP - Zambia Forest Action Programme; FRA - Forest Resource Assessment; ILUA - Integrated Land Use Assessment.

3.5.1.2 Deforestation

It is difficult to estimate accurately deforestation rates because of the differing inventory methodologies. The deforestation rate would range from 250 000 to 300 000 ha/year (Mukosha and Siampale, 2009), but these figures are based on estimates of the mid-1980s, and need to be revisited (Anon., 2014 c).

3.5.2 Legal instruments and agencies

In Zambia, forestry issues are governed by the *Forest Act, 2015*. “*The Act provides for the establishment and declaration of National Forests, Local Forests, joint forest management areas, botanical reserves, private forests and community forests; it provides for the participation of local communities, local authorities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management; it also provides for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity; it establishes the Forest Development Fund; and finally, it provides for the implementation of the United Nations Framework Convention on Climate Change, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance, especially as Water Fowl Habitat, the Convention on Biological Diversity, the Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa and any other relevant international agreement to which Zambia is a party; it also repeals and replaces the Forests Act, 1999 and provides for matters connected thereto*”. The evaluation of the Zambian national legislation towards the implementation of CITES has been rated in Category Two, meaning that Zambian national legislation does not meet all of the requirements to sufficiently implement CITES (Anon., 2016a). Regional agreements include the SADC Protocol on forests, and others that fall under trade through the COMESA .

Section 3 of the *Forest Act, 2015* provides that, “*ownership of all trees standing on, and all forest produce derived from customary areas, National Forests, Local Forests, State Land, botanical reserves and open areas are vested in the President, on behalf of the Republic, until lawfully transferred or assigned under this Act or any other written law*”. Forests are administered by local chiefs or Director of Forestry under the Department of Forestry on behalf of the President. In Zambia, Forests are categorized into Local Forests and National Forests. Local Forests are managed by the local authority and the chief while the Director of Forestry manages the National Forests.

3.5.2.1 Harvesting/Handling

Section 32(2)(a) of the *Forest Act, 2015* provides that a “*community forestry agreement may confer on a community forest management group that is party to such an agreement rights to harvest timber or fuel wood. Major forest resources on State Land and customary areas shall be conserved for the use and benefit of the local community in those areas, except that any major forest resource which, in the opinion of the Director, is not required to be conserved or would be wasted or destroyed if not harvested may be felled and sold under a licence*”.

The *Forest Act, 2015* requires a harvesting licence, which specifies the physical location of the trees to be harvested, the tree species, the estimated volume, and also the revenue to be paid. These licences are required for timber harvesting anywhere in the country, both in forest reserves and in forested areas outside of forest reserves. An authorized officer may require a timber operator to produce his/her licence at any time. If that “*person fails to produce the licence or permit, the officer shall restrain that person and the employees and agents of that person from doing their business until the licence or permit is produced*”. Forest offences, penalties and forfeitures are also set out in the Act. Forest Officers are empowered to investigate, search and arrest without warrants when offences are suspected. Section 32 (1) (d) of the *Forest Act, 2015* “*empowers the community forest management group that is party to a community forestry agreement for a community forest to assist the Director of Forestry in enforcing the provisions of law in relation to illegal harvesting of forest produce*”. District Councils play an important role in recommending forest licence applications. They also raise local taxes from timber leaving the district. According to the 1994 policy, there should be a maximum of two commercial licences and sawmills and five pit-sawing operations, per district, in line with the Forestry Department of Zambia (FD) capacity to supervise effectively. Provincial staff have complained that too many licences are currently being issued, but they are powerless to do anything about it. If the licence conditions have been fulfilled, they are not allowed to refuse an application (Anon., 2014c). Licencees must report monthly to their District Forest Office, on their logging operations. The Districts report monthly, quarterly and annually to the province, and likewise the

province reports to the Forest Department Headquarters. FD then prepares annual reports, which should summarize all this data (Anon., 2014c).

The Forest Act, 2015 specifies that control of forest product transportation take place at checkpoints. According to the forest law and regulations, a forest officer is supposed to be present in the logging area, and to mark the trees for harvesting. Both the stump and the log should then be hammer marked, with the unique two or three digit-coded hammer of a District. A Conveyance Licence must be obtained, allowing the licensee to transport forest produce from the forest to any other point, and is typically valid for two weeks.

3.5.2.2 Export/Import

The Forest Act, 2015 provides for general requirements of exporting timber. All timber being exported shall be hammer marked in such manner as the Director may determine. A marking made on any timber or tree stump by a timber marking hammer or other instrument shall not be altered, defaced, obliterated or removed without the consent of the owner of the tree stump or timber and the consent of a forest officer.

To operationalize the *Forest Act, 2015* in terms of exportation of timber, *The Forests (Export of Timber) Regulations, 2015* which is a subsidiary legislation comes into play. It states that “the only forest products that may be exported are sawn timber, railway sleepers which shall be drilled on both sides²⁴, poles from planted species, finished timber products and plantation trees”²⁵. Exportation of forestry products is done subject to having an export permit from relevant authorities”. Sawn timber must meet the standards set by Zambia Bureau of Standards. These call for fully squared timber, of standard commercial dimensions. The regulations further explicitly ban the export of charcoal, unfinished timber products from natural forests and sawn logs of any species. The Minister may grant a permit for the export of any other timber the Director may, in consultation with the Minister, consider necessary in the interest of the Republic. Procedures for exporting forest products include registering by the trader. To ensure legality, an exporter must have a valid Concession Licence, a Clearance Certificate for Timber Export, or, in the case of timber merchants, have a Certificate of Agreement from a concession licence holder. Not more than 75% of a concession’s production may be exported, and production documents must be presented to prove this. All timber must be hammer-marked by a forest officer prior to export.

The Forest Act, 2015 provides also for matters relating to importation of forest products to Zambia. Importation of forest products is subject to the issuance of an import permit. Under section 90 of the *Forest Act, 2015*, it is an offence for a person who imports or attempts to import any forest produce without an import permit issued under the Act.

As a COMESA member, Zambia is obliged to exempt goods from other COMESA countries, such as the DRC, Uganda and Kenya, from duties or import tariffs. Zambian timber is to be charged a common import duty of 10% when entering the EAC, such as into Tanzania. Zambia is not currently negotiating a VPA, but participates in the SADC FLEGT initiative and also those of FAO-Africa, Caribbean and Pacific (Anon., 2014c). As of November 2012, the Forest Stewardship Council (FSC) had recorded no certification in Zambia. Since the rise of the Chinese markets, where there is not yet any interest in certified timber, enthusiasm for certification has collapsed. Furthermore, FD licensing of timber harvesting is now based on very small areas and very short time frames, which are incompatible with certification (Anon., 2014c).

3.5.3 Timber flows

Trade records show that Zambia’s forestry trading partners are mostly limited to the SADC region, which supplies 56% of Zambia’s imports and absorbs about 50% of its exports (Anon., 2014c). The forestry sector was estimated to contribute 3.7% to national Gross Domestic Product (GDP) in

²⁴ A sleeper is defined as a square log; it is often the lowest level of processing; commonly used as railway ties

²⁵ According to the *Forest Act, 2015* “plantation” means a forest stand of introduced or indigenous species created by planting or seeding in the process of afforestation or reforestation and “trees” includes bushes, climbers, coppice, palms, re-shoots, saplings, seedlings and shrubs of all ages and of all kinds and any part thereof.

2003, with commercial logging contributing to 0.3% of GDP during the same period (Puustjarvi *et al.*, 2005). Zambia's trade in timber sector products has increased four to five-fold over the last decade, particularly when reflected as volume of RWE equivalent. In terms of value, the export of core VPA products (round wood, sawn wood, plywood and veneer) exceeds import, but the value of imported paper products has increased four-fold in the last decade (Anon., 2014c).

3.5.3.1 Exports

Zambian timber is cleared for export through Lusaka and as a result the routes to Beira, Mozambique and Durban, South Africa are the most used. Although there is a rail link between Kapiri Mposhi, in the Copperbelt, and Dar es Salaam, timber is usually taken by road (Anon., 2014c). Most reports on Zambia timber flows have analysed UN COMTRADE data and concluded that the DRC, South Africa, and increasingly China, are the destinations for most of the sawn wood timber that Zambia exports (Gumbo *et al.*, 2013; Anon., 2014c). Exports to DRC and South Africa, in cases routing via Namibia (D. Newton, TRAFFIC, *in litt.* to J. Thomson, June 2016) .

Table 12 presents FD data on the export of hardwoods from Zambia, according to species and country of destination, illustrating the growing importance of China as an importer since 2007, and their focus on *G. coleosperma* and *Colophospermum mopane*. However, the figures for total volume are an order of magnitude lower than those available through UN COMTRADE, and trade with DRC does not appear at all. UN COMTRADE shows that there was a steady and sustained trade with South Africa followed by the advent of DRC and China as export partners from 2005 and 2007 respectively. These countries continue to account for most of the increased trade since 2006. Exports to the 27 EU countries have remained negligible over the entire period from 2005-2014, limited to a small volume of trade in carvings and curios (Anon., 2014c).

Despite the ban on the export of logs, some 19 000 m³ was exported in the three years to 2010, nearly all to DRC. China's trade data indicate that about 1,000 m³ of logs were imported annually from Zambia since 2005 (Anon., 2014c). This discrepancy between Zambian and Chinese data regarding the trade in logs may represent loopholes, illegality or misclassification of the HS codes used by Customs agencies. More recent analysis of Zambian export data, as reported by Zambia and China, indicate that Zambia has reported greater amounts of sawn timber exports to China than China has reported as imports from Zambia (Figure 9). Interestingly, as with the case of exports from Tanzania to China, the difference in reported trade value does not reflect the magnitude of the difference in amount of timber (net weight in kg). Differences in value tended to be relatively small as compared with the large difference in reported net weight.

Destination	<i>G. coleosperma</i>	<i>P. angolensis</i>	<i>A. quanzensis</i>	<i>B. plurijuga</i>	<i>C. mopane</i>	<i>Sesbania sesban</i>	Assorted timber	Total
2010								
China	1102	20			621		500	2243
South Africa	740							740
Taiwan	270							270
Total 2010	2112	20			621		500	3253
2011								
China	3706				329	27		4062
India	17	9	14					40
Kenya		10	10					20
South Africa	437	23		23				473
Taiwan	843	5						848
Total 2011	5003	47			329			5443
Total 2010 + 2011	7115	67	10	27	950	27	500	8595

Table 12: Exports of hardwoods (m³) from Zambia by species and country of destination, for the period 2010-2011
Source: Zambia Forestry Department (unpublished).

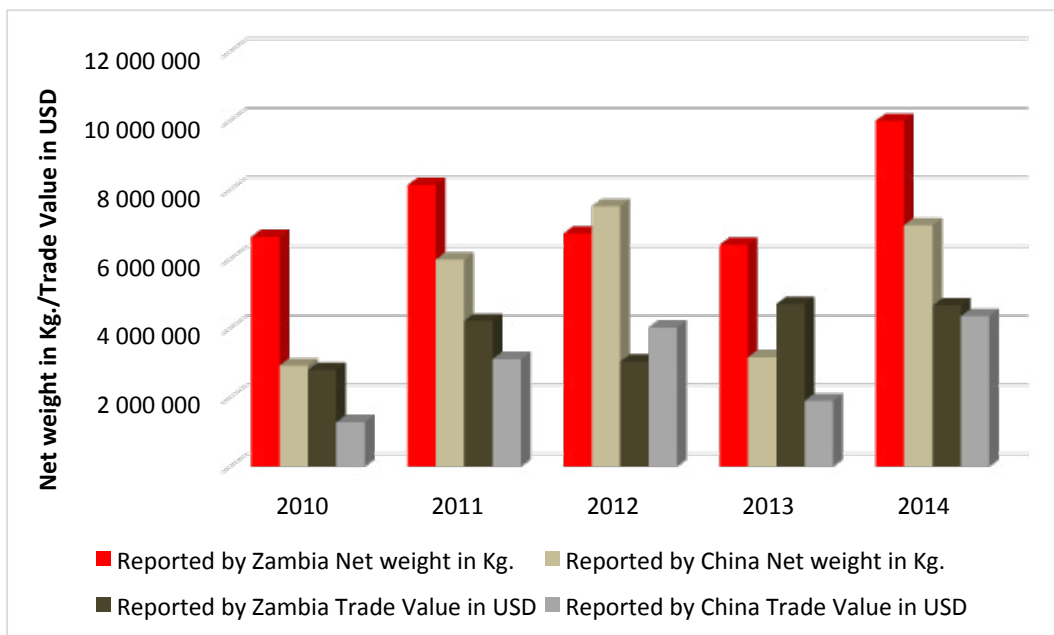


Figure 9: Trade value and net weight of Zambian sawn wood timber exports as reported by Zambia and China for the period 2010-2014

Source: UN COMTRADE.

It is noteworthy that trade with Tanzania and transit exports through Tanzania are poorly reflected in UN COMTRADE for Zambia, whereas several reports have indicated an increasing, and often illegal trade in hardwood timber between Zambia and Tanzania. This trade is composed of exports of hardwood natural forest timber from adjacent forests on the Zambian side of the shared border (Gumbo *et al.*, 2013; Anon., 2014c). Hardwood timber is imported from Zambia into Tanzania by Tanzanian traders across the Nakonde border. This trade involves species such as *P. angolensis*, *A. quanzensis*, and *G. coleosperma*, which are used widely in Tanzania for various purposes include furniture making, and that have established markets in Dar es Salaam. Official Tanzanian Forestry Services Agency records show that more than 1000 m³ of these Zambian timbers were imported into Tanzania between January and September 2015.

Another trade across the Zambia/Tanzania border is in containerized logs of *P. tinctorius*, which are declared to be in transit through the Port of Dar es Salaam on the way to China. This trade was not observed in the official TFS records but was acknowledged to exist by Revenue Authority and Forestry Services officers in Tunduma and Mbeya near the border, reaching an average of 60 containers per month during the dry season, some of which has been confiscated due to a lack of officially required supporting documents (TRA and TFS pers. comm.).

3.5.3.2 Domestic consumption

The Global Forest Resource Assessment for Zambia (Anon., 2010b) estimated that Zambia's total round wood production was estimated at 11.2 million m³, of which 95% is used for fuel wood or other subsistence purposes (Anon., 2014c). As with other countries in the region, information on the domestic timber trade is incomplete. The proportion of timber harvested that is sold on the domestic market is impossible to determine, as production figures are inaccurate. Anon., (2014c) found that there was a construction boom in high-end housing taking place in Lusaka, and a significant amount of hardwood timber was being used for flooring, staircases, kitchens, windows and doors and their frames.

3.5.3.3 Imports

Zambia's imports of wood-based products are dominated by coniferous sawn timber from Malawi, and paper products from South Africa, both of which have increased dramatically in volume and value over the last decade. Wood-based furniture, mainly from China, South Africa and the UAE, and logs almost all in the form of treated coniferous wood poles, from South Africa and Zimbabwe, are also important (Anon., 2014c).

3.5.4 Products

According to UN COMTRADE, 34 000 m³ of sawn timber was exported from Zambia in 2009, along with 11 000 m³ of logs. Most commercial tree species harvested for use within Zambia are used for timber production, as construction material and for making furniture products. Locally harvested trees are also used for fuel wood and charcoal production, for poles, medicines and several other traditional uses.

3.5.5 Species

Among the 19 recognized commercial tree species in Zambia widely harvested, three are highly sought after, i.e. *B. plurijuga*, *P. angolensis*, and *G. coleosperma* (Table 13) (Anon., 2011d; Gumbo *et al.*, 2013). Surprisingly, *S. madagascariensis*, the timber most in demand by the Chinese in Mozambique, although having been observed in Lusaka being prepared for export, does not appear in the FD data (Anon., 2014c). The Zambian FD needs to conduct a detailed survey of timber crossing border posts in order to better understand the timber trees being exported and their actual volumes. This information would allow for better monitoring and management of the resource in order to achieve sustainability.

Species	Total volume (m ³)	Total licenced harvest (%)
<i>P. angolensis</i>	4224	35
<i>B. plurijuga</i>	3208	26.6
<i>G. coleosperma</i>	4336	35.8
<i>A. quanzensis</i>	15	0.1
Other species	302	2.5
Totals	12 085	100

Table 13: Annual timber harvesting licences by species in Western Province, Zambia, 2008
Source: *Annual Report, Western Province, Zambia (2009)*.

3.5.6 Main companies

In 2009, there were six major forestry processing and export companies in Zambia, i.e. Setrec Wood and Steel, Wood Processing Industries Limited, PG Bisonite Zambia Plc, Sikale Wood Limited, Fallsway Timber Ltd, and Copperbelt Forestry Company. The FD and ZDA are unaware of the volumes of timber and revenue turnover of these forestry companies. No information was obtained by the consultants with regards to the presence and operations of concessionaires in Zambia.

In 2014, it was estimated that there were over 100 operators of small-scale sawmills and about 10 medium to large sawmills operating in Zambia. Most of the small-scale sawmills use plantation round wood, except pit sawyers who process mainly hardwood (Anon., 2014c). There are two mills in Zambia producing particleboards and one mill producing veneer, plywood and blackboards. About 95% of these products are sold in the domestic market and about 5% is exported to neighbouring countries (Anon., 2014c).

3.6 THE REPUBLIC OF MOZAMBIQUE

3.6.1 National context

3.6.1.1 Forest cover

A national inventory in 1990 estimated that Mozambique's forests cover an area of about 20 million ha. The latest forest inventory, completed in 2005 and using a loose and contentious definition of forest, estimated forest cover at 40 million ha, i.e. 51% of the country (Marzoli, 2007). This latest inventory provides the basis for the current forest management in Mozambique. Of this, 26.9 million ha were classified as productive forests, 4.2 million ha were considered to be legally inaccessible, falling within conservation areas, and the remaining 9 million ha was considered topographically or ecologically inaccessible, for reasons of slope or inundation (Anon., 2014d).

The primary source regions for the most popular tree species in order of forest coverage are Niassa Province with 6 million ha, Zambezia Province with 4.1 million ha, Tete Province with 3.3 million ha, Cabo Delgado Province with 3.1 million ha, and Nampula Province with 2.3 million ha, which amounts to a total of 18.8 million ha. (Hall, 2014).

3.6.1.2 Deforestation

There are no accurate or exact data on the annual rate of deforestation, except for an estimate made by the 2007 Forestry Inventory by the National Directorate of Land and Forestry, according to which about 219 000 ha of forests are lost every year, i.e. a deforestation rate of 0.58% per year (Anon., 2015a). The FAO estimated that in the decade to 2010, an estimated 217 000 ha of forests were lost annually due to shifting cultivation, bushfires and forest exploitation particularly for energy purposes (Anon., 2010c). Data from the National Directorate of Land and Forestry (Anon., 2010) suggest that the volumes exploited in the country range from 25% to 38% of the AAC volume. Based on these volumes, it can be inferred that timber exploitation in Mozambique generally complies with the AAC, and should thereby ensure the sustainability of the resource.

3.6.2 Legal instruments and agencies

The Forestry and Wildlife Act, 1999 establishes that forests and wildlife are in the public domain and owned by the State, and states the objectives of the Law to protect, conserve, develop and utilize these resources in a rational and sustainable way for the economic, social and ecological benefit of the present and future generations of Mozambicans.

Production forests²⁶ of Mozambique are administered by the National Directorate of Lands and Forests (DNTF) of the Ministry of Lands. Forests in National Parks and Game Reserves are under the authority of the Ministry of Tourism, with protection and law enforcement the responsibility of the recently created National Directorate for Conservation Areas (DNAC). DNTF is mainly responsible for policy, information management and supervision, but also handles licensing of any large investments. At the district level, forestry sits in District Services for Economic Activities, and reports both to the local government and the Mozambique's National Directorate of Forests (DINAF), formerly DNTF (Anon., 2014d).

Mozambique is also a signatory to numerous multilateral environmental agreements, including CBD, CITES, Ramsar Convention, UNCCD, and UNFCCC. With respect to CITES, Mozambique became a Party in 1981. The CITES authorities that have been established nationally are the Management Authority (National Administration of the Conservation Areas) under the Ministry of Land, Environment and Rural Development and the Scientific Authority identified with the

²⁶ There is no "permanent national production forest estate" as such, in which all concessions fall; licences can be issued for forest exploitation anywhere except in conservation areas (Anon., 2014d). This may include both natural and plantation forest areas except the conservation areas.

University Eduardo Mondlane (UEM), Faculty of Sciences, Department of Biological Sciences. Mozambique's national legislation for the implementation of the Convention has been rated a Category Two, meaning that Mozambican national legislation does not meet all of the requirements to sufficiently implement CITES (Anon., 2016a)

3.6.2.1 Harvesting/Handling

The Forest and Wildlife Act, 1999 establishes two regimes for the exploitation of forests: i) simple (annual) licences for a maximum of 500 m³ exclusively for Mozambicans, who can demonstrate they have the necessary equipment, that the area they propose to harvest has timber, and that they have the approval of the local community; and ii) concessions, for up to 50 years, requiring an inventory and approved management plan and processing industry, as well as local community approval. A licence is required for exploitation and processing in Mozambique under the terms of *The Forest and Wildlife Act, 1999* and all other applicable laws. *Forest and Wildlife Regulations, 2002*, requires there be a concessions contract. These are open to international investors. Concessions of up to 20 000 ha in area can be approved at provincial level, but those 20 000-100 000 ha are referred to the Ministry of Agriculture and above 100 000 ha to a Ministerial Council. Article 39(1) defines offences punishable by fines. *The Forest and Wildlife Act, 1999* also establishes the principle of participatory management of forest resources, with provisions for the creation of Local Management Councils and the sharing of forestry revenues from concessions and simple licences with local communities (Anon., 2014d).

Article 34 of the *Forest and Wildlife Act, 1999* states that a transport permit is required for transportation of forest and wildlife products by land, river, sea, or air, under the terms of *Forest and Wildlife Act, 1999* and all other applicable laws. *Decree No. 12/2002* approving the Regulation on Forestry and Wildlife, covers the marketing, transportation, storage and primary processing, craft or industrial of forest resources. During transport, wood should be accompanied by a transport authorization, bought at the Provincial Forests and Wildlife Services. Each authorization is accompanied by a detailed list of trunks, with the serial numbers.

3.6.2.2 Export/Import

Several agencies are involved in the supervision of the export of timber from Mozambique, including the Department of Industry and Commerce, Provincial Forestry and Wildlife Service (SPFFB) of the Department of Agriculture, Customs, the police and the port authorities. The SPFFB is then responsible for inspecting the consignment to verify species, volumes and legality of timber. Various other documents, including proof of purchase, certificates of origin, and phyto-sanitary certificates are also required for verification by Customs, before they are sealed and authorized for embarkation (Anon., 2014d).

3.6.3 Timber flows

3.6.3.1 Exports

Mozambique exported about USD186 million of timber products in 2012, i.e. approximately 5% of Mozambique's total exports. Timber was among the eight major export products. Logs and sawn wood were the main products that were exported to the international market, mainly to Asia (Anon., 2015a).

From Africa, Mozambique is among the five top suppliers of timber to China²⁷ (Anon., 2015a), exporting nearly 90% of its logs to China, of which the majority consist of five species, with very similar properties to *G. coleosperma*, i.e. *A. quanzensis*, *P. angolensis*, *M. stuhlmanii*, *Combretum imberbe*, *S. madagascariensis* (Hall, 2014).

²⁷The top 5 African timber exporting countries to China are the Republic of Congo, Cameroon, Equatorial Guinea, Mozambique, and Gabon. More recently, the DRC has entered into the top ten timber exporting African countries to China.

Mozambique's export data show the RWE of core VPA products (logs, sawn timber, plywood and veneer) between 2006 and 2011 amounted to an annual average of 140 000 m³ with an average export value of approximately USD40 million, and a maximum of USD58 million in 2010 (Anon., 2014d). However, importing country counterpart figures for the same period indicate a substantially higher average of 243 500 m³/ year, with 93% of the total going to China. According to UN COMTRADE, Mozambique exported 1 139 433 m³ and 729 733 m³ sawn wood to China in 2013 and 2014 respectively as reported through HS Code 440729. In 2012, China declared the import of nearly twice the volume of Mozambican timber, as Mozambique declared to have exported globally (Anon., 2014d). One suggested explanation for some discrepancies is the fact that over the past eight years Tanzania banned logs exports and there could be Tanzanian exporters exporting timber from Tanzania in the name of Mozambique (Anon., 2015a).

Further discrepancies in timber export data are revealed by comparing the data of different agencies within Mozambique (Table 14). Quelimane Port is privately operated, and according to a European Commission sponsored study on timber trade flows in eastern and southern Africa, it may have the greatest incentive of all three agencies to account for all the timber it handles (Anon., 2014d). This is presumably because by accounting for all of the cargo it handles, a privately owned enterprise can better monitor its costs and sales, whereas State run agencies are less concerned with profits.

Agency	Unit	2009	2010	2011
Provincial Forest Service	m ³	18 663	32 199	21 083
Provincial Customs	m ³			33 122
Port Authority	tonnes	29 058	59 197	67 644

Table 14: Timber export from Zambezia province, 2009-2011: Discrepancies in the data of three key institutional stakeholders, SPFFB, Customs and Port Authority

Source: SPFFB data; register of despatches; port authority annual reports.

In Cabo Delgado and Niassa Provinces there is evidence of large-scale illegal harvesting and trafficking of Precious and Class 1 species from Mozambique, north across the Ruvuma River into Tanzania (Hall, 2014). The timber is moved overland for illegal export in Dar es Salaam, or from the southern border of Tanzania to the Indian Ocean coast, loaded into dhows, then by dhow taken to cargo ships or other vessels waiting off the coast. These operations are believed to be commissioned by Chinese companies or traders linked to local traders consolidating material for sale to China (Hall, 2014).

Trafficking of illegal hardwood from Mozambique to Tanzania has increased since 2009. There are 40 known informal border crossings from Mozambique to Tanzania where timber and other goods are smuggled. The well-known Unity Bridge at Negomano, on the Mozambique side, remains the main smuggling route of both timber and ivory from Mozambique to Tanzania. The Unity Bridge has provided an easier route for the smuggling of illegal timber from Mozambique into Tanzania, since the road network is better on the Tanzanian side (Anon., 2014d; Hall, 2014).

Tanzania has reported large imports of sawn timber from Mozambique since 2008 and substantial imports of logs from 2010. Mozambique does not report this trade, and because the export of logs is highly restricted it is possible that this trade was illegal. The volume and marketing chains of this trade are not currently understood, but a study is underway, funded by WWF's Coastal East Africa Network Initiative. Tanzania's statistics suggest that, since mid-2008, Tanzania has imported substantial volumes of sawn wood from Mozambique (typically in the order of tens of thousands m³ each year) as well as, during 2011, approximately 2000 m³ of logs. Most of this trade is thought to be illegal based on the fact that the quantity of timber that Mozambique reports as exports to Tanzania is negligible (Anon., 2014d).

3.6.3.2 Domestic consumption

There is little recent information on Mozambique's forest industries or domestic timber markets. National policies and legislation are all designed to promote the development of domestic forest industries, for their employment generation and value addition. However, DNTF last reported on forest industries at national level for the year 2006, and data requested for this and the EU study were not provided (Anon., 2014d). In 2005, there were a total of 179 processing units, but only 123 of these (69%) were operational. No figures were given for the types of sawmill, their capacity, outputs, ownership, employment or the markets for their products (Anon., 2014d).

Some studies have estimated that almost half of harvested hardwood timber was used in the domestic market. The volume of timber consumed on the domestic market is not reported by DNTF, and is extremely difficult to assess from available data. A 2013 study conducted in Pemba, Nampula, Quelimane, Chimoio, Beira, Maputo and Matola suggested a domestic hardwood timber consumption of 123 000 m³ of logs per year (Table 15), over which the informal market contributed more than 64% of the hardwood timber consumption (Anon., 2013a).

According to a commodity chain study (Sun *et al.*, 2008), prior to the log export ban, Mozambique's exports in log form were 48-58% of the total log cut. According to Nhantumbo and Ogle (2006), in 2005, 38% of sawn timber production was exported. Although very incomplete, these figures indicate that domestic timber demand is important and contributes to a significant portion of the forestry activity (Anon., 2014d).

City	<i>A. quanzensis</i>	<i>P. angolensis</i>	<i>M. stuhlmannii</i>	<i>Sterculia quinqueloba</i>	<i>Sterculia appendiculata</i>	Other species
Pemba	274	1445	62	5839	156	1114
Nampula	3770	6035	762	4226	2959	
Quelimane	123	8562	85			
Chimoio	3777	4630	3777			
Beira	4139	1910	2004			4732
Maputo/ Matola	32 937	24 533	5087			
Total	45 022	47 115	11 777	10 065	3116	5846

Table 15: Consumption of wood by species (m³) in carpentries, in Mozambique, 2012

Source: Anon. (2013a).

3.6.3.3 Imports

Between 2006 and 2011, Mozambique imports of wood based products amounted to an annual average RWE of 150 000 m³, with an average import value of USD72 million/year. Paper accounted for 55% of imports by value, and 56% by RWE volume. Over 70% of these imports came from South Africa. Furniture was the second most important import by value, worth an average of USD13 million/year, accounting for 18% of imports by value. About half of it came from South Africa, and the rest from China and Europe (Anon., 2014d).

Mozambique imports an increasing volume of logs and processed softwood timber, mainly from neighbouring South Africa and Malawi. Pine is favoured in Mozambique for roofing rafters, joists and battens, particularly as lengths of up to six meters are available. Treated eucalyptus is widely used for transmission poles. The current building boom in Mozambique is also stimulating the import of high quality joinery products, such as doors and windows and their frames. Most of these come from South Africa by road (Anon., 2014d).

3.6.4 Products

There has been a significant change in the nature of Mozambique's timber exports, from primarily logs in the period 2000-2007, to the dominance of sawn timber from 2008 onwards (Table 16). In 2007, the regulation requiring the processing of all Class 1 (Table 17) timber before export, to promote the domestic forest industry, was finally implemented. However, at the same time, *Ministerial Decree No. 142/2007* was issued, which changed the specifications for processed timber to include roughly sawn timber. It is likely that this arrangement enables the timber to pass Chinese Customs as unprocessed and thereby avoid import tariffs. It is this feature that probably accounts for the discrepancies over logs in the mirror statistics of Mozambique and China (Anon., 2014d). In addition, it should be noted that processed hardwood from Africa draws lower prices in China because artisans working in carvings and antique-style furniture prefer to process the wood themselves. Faced with this situation, many Chinese companies in Mozambique are alleged to have attempted to smuggle hardwoods in log form. (Hall, 2014).

Product	2005	2006	2007	2008	2009	2010	2011	2012	2013
Logs	58 659	107 135	55 982	19 002	21 264	22 846	36 013	41 543	54 296
Sawn wood	11 417	30 459	30 930	84 085	92 914	176 572	175 982	218 842	226 500
Parquet	0.0	0.0	0.234	0.688*	0.511*	0.137*	0.109*	0.049	0.015
Veneer	0.0	0.0	27.064	0.395*	0.129*	0.119*	0.102*	0.079	0.081
Wooden battens	0.836	0.996	1.118	1.350	0.682	1.041	1.657	1.998	1.062

Table 16: Exported forestry production (1,000 m³) in Mozambique during the 2002-2013 period

Source: DNFFB (1991-2003); INE (2008); DNTF (2007-2011).

* Quantities in m²

3.6.5 Species

In 2008, only nine species accounted for over 90% of licensing (Table 17). Although quotas were established for each species in each province, these are no longer reported on at national level, nor in most provinces. It is clear that for certain species, notably *S. madagascariensis*, *C. imberbe* and *Bridelia micrantha*, the established quotas are being exceeded substantially. For reasons that remain unclear, DNTF stopped reporting on the licensing and exploitation of forests by species in 2009 (Anon., 2014d).

The vast majority of hardwood species from Mozambique are bound for China for use in reproducing Ming and Qing Dynasty furniture, construction material, flooring, and carvings. The darker brownish-red hardwoods such as *S. madagascariensis* and *C. imberbe* are more prized for these purposes and are therefore more valuable. Paler and lighter hardwood species like *A. quanzensis*, *M. stuhlmanii*, and *P. angolensis*, flow to Europe and South Africa for parquet flooring, windows, and furniture (Hall, 2014; Anon., 2014d). Mozambique produces only one species of *Hongmu*, namely African Blackwood or *D. melanoxylon*, which means that all rosewood imports from Mozambique into China is African Blackwood. The species is listed in the IUCN Red List as Near Threatened, and as a result of CoP17, listed on Appendix II of CITES. Data from Chinese Customs and UN COMTRADE show that *D. melanoxylon* has made up about 10% of all Chinese log imports from Mozambique in recent years (Chang Y. and Peng R., 2015).

Latin name	Timber class	Percentage of total licensing	CITES Listed
<i>M. stuhlmanii</i>	1	17	Not listed
<i>A. quanzensis</i>	1	16	Not listed
<i>P. angolensis</i>	1	15	Not listed
<i>C. imberbe</i>	1	13	Not listed
<i>Brachystegia spiciformis</i>	2	9	Not listed
<i>S. madagascariensis</i>	1	7	Not listed
<i>Guibourtia conjugate</i>	1	5	Not listed
<i>Pericopsis angolensis</i>	1	3	Not listed
<i>B. micrantha</i>	3	3	Not listed
<i>D. melanoxydon</i>	1	2	Appendix II
<i>C. mopane</i>	1	1	Not listed
<i>S. quinqueloba</i>	2	1	Not listed
<i>Julbernardia globiflora</i>	2	1	Not listed
<i>Androstachys johnsonii</i>	1	1	Not listed
<i>Acacia nigrescens</i>	3	1	Not listed
<i>Amblygonocarpus andongensis</i>	2	1	Not listed

Table 17: Species and timber class composition of forest licensing at national level in Mozambique, 2008

Source: DNTF (2008).

3.6.6 Main companies

Despite attempts by forestry authorities in Mozambique to discourage the Simple Licence regime and to promote the concession regime, Single Licence operators continue to dominate forestry exploitation in terms of number of operators and volumes exploited (Anon., 2015a). In the provinces with the highest forestry economic potential, the number of operators under the Simple Licence regime is growing considerably. For example, Sofala Province had 39 operators in 2003 and 121 in 2008, and Cabo Delgado Province had 27 operators in 2002 and 65 in 2008. To safeguard the sustainability of forest resources, there is still an urgent need to continue to promote forestry exploitation under the concession regime rather than the Simple licence regime (Anon., 2015a). It is recognized that this strategy may be perceived as being biased towards larger players and to the detriment of smaller, independent operators. The authorities should consider encouraging smaller actors to aggregate into cooperatives that will allow for better regulation and monitoring of their activities.

Even though some provinces have many concessionary areas, many of these concessions do not have approved management plans. For instance, in Zambezia, Sofala, Manica and Inhambane, i.e. the provinces with the largest number of forestry concessions in the country, the number of concessions with approved management plans is quite low, below 50% of the concessions in most cases (Anon., 2015a).

Chinese operators make up 20% of Mozambique's concessionaires. They are not allowed to get Simple Licences for small-scale timber harvesting, and the trade to China is dominated by small Chinese trading enterprises. More than 130 Chinese forest enterprises are registered in Mozambique, mostly in the forest-rich north part of the country (Annex 3). Chinese firms are increasingly seeking concessions in order to assure stable supply.



4. DISCUSSION AND CONCLUSIONS

4.1 Regional context

Despite institutional reforms in the forestry sector of the countries in the region to tackle high deforestation rates and weak revenue capture, the domestic laws and regional protocols are not fully adhered to, and enforcement efforts have proved to be inadequate.

4.2 Trade flows

The regional trade in natural forest timber is increasing, reaching USD100s of millions of dollars' worth over the last 10 years. The timber trade often results in the harvest of as many as a dozen different tree species, although focusing on only a limited number, often less than 5, of timber species from one year to the next. As an example, in 2012 exports of sawn wood from Tanzania to China comprised 11 different tree species, however, in the same year only three species (*B.kirkii*, *M.stuhlmanii*, *P.tinctorius*) accounted for more than 97% of these exports by volume. According to Lawson (2014), only four tree species (*Entandrophragma cylindricum*, *Millettia laurentii*, *Milicia excelsa* and *Pericopsis elata*) account for two thirds of all logs harvested industrially in the DRC. In Zambia the Forestry Department recognizes 19 natural forest tree species, however, only three tree species (*Pterocarpus angolensis*, *Baikiaea plurijuga*, and *Gubourtia coleosperma*) dominate the trade in natural forest timber.

A northern timber trade route begins in the forests of the eastern DRC and supplies timber to Uganda by road mainly through the Mpondwe Border Post, Kenya by road through the Busia Border Post, international markets through Mombasa Port, and Tanzania by road through the border crossing at Mutukula on the Ugandan border, and at Kigoma Port.

A southern trade route centres on the Port of Dar es Salaam, with timber from Northern Province in Zambia entering by road through Tunduma and timber from Niassa and Cabo Delgado Mozambican Provinces entering across the Ruvuma River through Mtambaswala. Zambian natural forest timber also crosses the border into Mozambique for onward export to China, through the Port of Beira. There is evidence that natural forest timber of DRC, Zambia and Mozambique are exported in significant volumes to South Africa.

4.2.1 Exports

Proper analysis of forest trade trends depends on the availability of relevant data, which, in the region, are often not in the public record and difficult to obtain, even when letters from the appropriate authorities support the requests. UN COMTRADE data are readily available, however their usefulness is limited by the unreliability of export data from the Customs departments in the region. In such cases, discrepancy analyses using various data sources, though not perfect, have become a popular method to interpret trends in forest trade.

China is the main timber import destination. Mozambique is Africa's fourth-largest timber exporting country to China, and is the largest exporter in the region. China's imports from

Mozambique, consisting mostly of logs and sawn wood, have increased by seven times over the last 10 years. Sawn timber has risen from almost nothing to about half the RWE volume of total imports. China – DRC timber trade has experienced a fast growth, from virtually nothing in the early 2000s until today with DRC being among the top 10 African countries exporting timber to the Chinese market. About 30-50% of imports from DRC to China in the last three years consist of a single species, *M. laurentii*, also listed as Endangered in the IUCN Red List. Tanzania's export permits show that more than 90% of natural forest timber (around 12 000 m³) is destined for China. In comparison, according to UN COMTRADE, Mozambique exported 1 139 433 and 729 733 m³ sawn wood to China in 2013 and 2014 respectively as reported through HS Code 440729) (See Table 18). Zambia's natural forest exports to China have been increasing rapidly over the past years.

Country	Volume in m ³
Tanzania	11 977* ²⁸
Mozambique	1 139 433 and 729 733**

Table 18: Exports of sawn wood to China for Tanzania and Mozambique

*TFS Export Permit data for 2013; ** UNCOMTRADE data for 2013 and 2014 respectively

In the region, Zambia also exports mainly to DRC and South Africa. DRC exports most of its production within Eastern Africa, particularly to Kenya and South Sudan, and to a lesser extent to Uganda, Rwanda and Burundi. Kenya exports significant volumes of its manufactured wood products based on plantation softwoods to Tanzania and Uganda, and is a significant importer of Tanzania natural forest timber.

4.2.3 Domestic consumption

The general findings from countries within the region on timber consumption, shows an increasing demand for timber. This is particularly so for Zambia, Tanzania and Kenya which are experiencing a boom in the construction sector. Again, the inadequate supply of timber from plantations in countries, such as Tanzania, generates more demand for natural forest at a national and regional level. The demand for hardwood for domestic consumption is also increasing. While not properly monitored it is likely that the domestic natural forest timber demand in the region is about 10 times the amount that is exported internationally.

4.2.4 Imports

All of the countries in the region import timber and other forest products. Most of the imports of forest products originate from within the region, with coniferous sawn timber and eucalyptus electricity poles making up the majority of these imports in terms of volume. Major sources of these products include South Africa, Malawi, Uganda and Tanzania. Almost all of the countries in the region have invested in establishing softwood and eucalyptus plantations. In the case of Kenya and Uganda, these plantations are expected to provide the majority of raw products for their domestic industries within the next 10 years.

Most of the countries are also importing processed forest products, mostly paper, plywood and fibreboards, furniture, doors, fittings and joinery. China, India and the UAE have been selling increasing volumes of these products into the region. However, South Africa and Kenya also sell significant amounts of some of these products to countries in the region.

The import of natural forest timber from within the region is increasing and is significant, particularly into Tanzania. Some of these imports are part of a transit trade that centres on the Port of Dar es Salaam, with some being shipped in dhows from informal ports on Tanzania's Indian

²⁸ Although the figure provided is only from the natural forests but even when you add with the production from plantation forest, Tanzania can not reach the exportation made by Mozambique to China. Tanzania produced 948,945.79 m³ in 2012/2013 according to the Three Years Implementation Report for Financial Year 2011/2012 - 2013/ 2014 November, 2014. Yet, that was for domestic consumption mainly and part of it may be exported. http://www.tfs.go.tz/uploads/TFS_THREE_YEARS_IMPLEMENTATION_REPORT_2011-2014.pdf.

Ocean coast to Zanzibar. The international trade through Zanzibar is allegedly mainly illegal and difficult to investigate, although several seizures of dhows carrying illegal timber have been reported in the media.

4.3 Species

Domestic markets within the region target timber from species such as *P. angolensis*, *K. anthotheca*, *E. cylindricum* and *A. quanzensis*, whereas international destinations, such as China, target heavy timbers with a reddish hue, such as *S. madagascariensis*, *B. kirkii*, *P. tinctorius* and *B. plurijuga*, and have very little demand for locally grown plantation timber. That increased market demand for specific tree species has resulted in several of them becoming locally endangered, so that specific species management plans may now be required in order to prevent over harvesting of threatened natural forest timber species.

4.4 Main companies

Harvesting and processing in the region is largely unregulated and fragmented. This challenges authorities on how best to ensure sustainability. Policies and laws among the countries of the region are designed to encourage the development of a responsible, tax compliant private sector. However, most forestry departments in the region do not routinely monitor the development of the private sector. Records of the number of enterprises, the levels of employment, the volume of raw materials consumed, and the revenue turnover and taxes paid by forestry companies are largely unavailable. It seems that, within the private sector, there is widespread frustration with governments' management of the forestry sector, and that there are increasing calls for auctioning of harvesting licences to promote transparency, revenue capture and ultimately sustainability in the sector.



5. RECOMMENDATIONS

5.1 Advocacy entry points for EAC and SADC – multilateral processes

Governance issues especially financial integrity, politics, corruption and ethics require attention in the region. Several multilateral processes can facilitate broader inter, intra and non-governmental participation in forest management such as the EAC, SADC, CITES, FLEGT and more recently Extractive Industries Transparency Initiatives (EITI). Governments in the region are encouraged to participate more fully in these multilateral processes.

5.1.1 Strengthen provisions of the EAC and SADC Protocols

EAC and SADC protocols promote collective action on conservation and sustainable utilization of forest resources, require the partners to adopt laws guaranteeing access to information and an environment for the participation of civil society in natural resources management, to cooperate in sustainable management and State in forest products throughout the community. The SADC Protocol in particular requires the State parties to undertake and regularly update national assessments of forests, which include data on uses of forest products, industrial matters, market, and commercial issues, to collaborate in establishing and maintaining a regional database and a market information system, to exchange information concerning the management of forests.

Forestry stakeholders in the region should urge their national governments to fulfil their commitments under the EAC and SADC protocols. National governments in the region should also ensure that all the trade protocols, including EAC and COMESA, are harmonized and are not working in conflict with each other. Moreover, the EAC and SADC Secretariats should collaborate on developing standard reporting formats that capture information from government forestry, revenue collection, customs, and ports authorities.

5.1.2 Improve monitoring and reporting through CITES

The majority of CITES-listed species are still traded commercially with the added benefit of improved monitoring and regulatory controls (e.g. reinforcing national legislation) that CITES provisions offer. All of the countries in the region that are Parties to CITES should explore listings of the most at risk timber species traded internationally as a means to ensure sustainable trade and chain of custody. Species to be considered for CITES listing by the countries in the region could include, *M. stuhlmanii*, *S. madagascariensis*, *B. plurijuga*, *B. kirkii*, and *P. tinctorius* (Annex 4).

5.1.3 Participation in the China – Africa Forest Learning Programme

International policy developments can influence the African timber trade. For instance, timber arriving in Europe has to be legally sourced under the FLEGT Action Plan, while the European Union Timber Regulation (EUTR) prevents illegally logged timber from being placed on the EU market. In the United States the Lacey Act creates similar conditions. The International Institute for Environment and Development (IIED) began the China - Africa Forest Governance Learning

Program, with the aim of using research and dialogue to contribute to improved forest governance by promoting sustainable Chinese trade and investment in Africa's forests (Anon., 2015c). The programme is for the moment developing in Cameroon, DRC, Uganda and Mozambique (Chang Y. and Peng R., 2015). These initiatives under the China – Africa Forest Governance Learning Programme should be monitored by stakeholders in the region with a view to future participation in programme activities.

5.2 Recommendations to forest agencies

5.2.1 Improving transparency

Improving transparency would reduce corruption and participation of government officials in illegal activities. Through public hearings and the posting by forestry and customs authorities of documents and data related to forest trade dynamics on publicly accessible websites, a greater widespread understanding would be achieved of forest trends and trade dynamics. Furthermore, the forest agencies must commit to update national forest inventories that allow the AAC to be properly determined. A proportion of revenues collected in the sector could be set aside to regularly update forest management inventories.

5.2.2 Assessment of forest governance indicators

Forest governance comprises all the social and economic systems that affect how people interact with forests, including bureaucracies, laws, policies, traditional norms and culture, patterns of land tenure, and markets (Cowling *et al.*, 2014). Assessments of forest governance have been shown to hold officials more accountable and have been the basis for advocacy for reform and better implementation of forest laws. A good assessment requires good planning; is transparent and includes stakeholder involvement and independent review; that stresses participatory approaches; uses technically sound data collection methods; disseminates results in ways that encourage use of the assessment; and is open to learning. The WB PROFOR/FAO forest governance indicators framework (Cowley *et al.*, 2014) is one such approach for engagement with all forestry stakeholders in the countries in the region, to get better buy-in on governance, measurement of indicators, and reforms as needed. Although it is recognized that the countries in the region have undergone reforms in the forestry sector, it is also clear that further reforms are called for. Using an objective, transparent and participatory assessment framework, such as the forest governance indicators framework, allows for stakeholders in each country to become involved in the active monitoring of forest governance.

At the regional level, assessing forest governance can be a shared learning approach, a capacity building process, and a shared best practice methodology. In addition, forestry assessment approaches can be tied to reducing emissions from deforestation and forest degradation, plus fostering conservation, sustainable management of forests, and enhancement of forest carbon stocks (REDD+) in order to fulfil international obligations, diagnose problems, and establish a baseline for future monitoring. Furthermore, forestry assessments under the World Bank Forest Investment Program have helped set the agendas for donor funding (Cowley *et al.*, 2014). Forestry agencies in the region should engage with the WB PROFOR/FAO forest governance indicators framework, the results of which should be shared with other countries in the region.

5.2.3 Review national forestry legislation against WWF/GFTN and TRAFFIC legality framework

The Common Legality Framework, is a simple checklist developed by WWF/Global Forest and Trade Network (GFTN) and TRAFFIC to enable governments and companies to understand relevant aspects of laws, regulations, administrative circulars and contractual obligations that affect forestry operations, timber processing and trade (Anon., 2011e). When the Common Legality Framework is applied to a specific country, it is known as a National Legality Framework. Use of the frameworks directly supports implementation of FLEGT and bilateral Voluntary Partnership

Agreements, the Lacey Act and the Australian Illegal Logging Prohibition Act by promoting equitable and just solutions to the illegal logging problem that do not have an adverse effect on poor people; helping partner countries to build systems to verify timber has been harvested legally; promoting transparency of information and policy reform; helping companies to meet legal requirements; and building the capacity of civil society and partner country governments to participate in these processes.

National Legality Frameworks can complement national level legislative efforts by helping governments, NGOs, industry and other stakeholders to map out and verify national timber harvest and trade controls. They are also a helpful tool for importer companies that need to exercise due diligence and for exporter companies to demonstrate their legal compliance (http://awsassests.panda.org/downloads/legality_guidance_note_final.pdf). In countries already undertaking reviews of forestry and trade related laws or develop legality assurance systems, WWF/GFTN-TRAFFIC can play a supportive role through convening regular dialogue and co-ordination meetings and provision of technical support. Forestry agencies in the region are advised to engage with the GFTN process as a means to identify weaknesses and gaps in legislation and processes, and to help with transparency through capacity building of enforcement agencies, private sector, local communities, and NGOs.

5.2.4 Improving national wood traceability, verification and control systems

Improved mechanisms for managing the wood supply chain are required to prevent the laundering of logs and sawn wood as well as to provide useful information to forest managers:

- **Wood tracking:** to be effective it requires individual identification of each log and even planks of sawn timber in trade, which is not the case with existing hammer branding methods. It is recommended to experiment with bar-coded plastic labels as a cost effective single wood labelling technique. Any wood tracking system must go hand in hand with some form of centralized document and data tracking system;
- **Secure documentation:** to avoid fraud of all existing documentation for harvesting, transport and export of timber products, it is recommended to use a combination of watermarked paper, security stickers and stamps. As well as identified and widely known designated signatory that can approve the documentation;
- **Independent Verification of Legal Timber (IVLT):** is a new tool to support the enforcement of forest legislation consisting of a Verification of Legal Origin, i.e. timber products must derive from a legal source and are legally owned at all points in the supply chain, and a Verification of Legal compliance, i.e. timber is managed in accordance with forest legislation and other relevant specified laws;
- **Auctions:** is a transparent and less bureaucratic mean of allocating harvesting permits or forest products. However, it must be recognized that unless strict enforcement follows on from auctioning of short term harvest permits, which are designed mainly to keep small players in the sector, sustainability and legality of this process cannot be ensured; and,
- **Procurement legislation:** government procurement of forest products and furniture should promote the use of forest products from domestic sources and from verified, legally sourced timber.

5.2.5 Supporting independent observation

IFM is the “use of an independent third party that, by agreement with state authorities, provides an assessment of legal compliance, and observation of and guidance on official forest law enforcement systems” (Anon., 2005b). It is designed to be a relatively short-term (three to five years) intervention. Experience has shown that inspections by independent bodies with no vested interests significantly improve credibility of law enforcement and regulatory practices (Anon., 2005c), e.g. in Cameroon (Del Gatto, 2003; Johnstone *et al.*, 2004).

5.2.6 Supporting private sector initiatives

This could consist of:

- Incentives: to encourage value-added processing before export, e.g. tax incentives, credit facilities, preferential access to raw materials for enterprises that will invest in value addition;
- Long-term strategic plan: to establish mid-term and long-term goals that will increase domestic value-addition to a range of commercially viable products whilst at the same time preserving more traditional timber industries; and,
- Voluntary codes of conduct: timber companies should develop voluntary best practices codes of conduct, which will be monitored independently, in return, the companies abiding by voluntary codes of conduct should be given preference in the allocation of harvesting permits.

5.3 Recommendations to research institutes and Civil Society Organizations

5.3.1 Forest trade monitoring

Research institutes and NGOs should recruit interns and research assistants to monitor and record the flow of forest trade at major bottlenecks and border posts. Such a forest trade monitoring exercise should be piloted for at least one year and should be co-ordinated in all six countries at the same time. The results of this trade monitoring exercise could then be compared to official data to be presented at a public forum to recommend for any relevant changes in the government protocols as necessary.

5.3.2 An in-depth assessment of regional forest trade

A network of CSOs and research institutes should establish teams within each country of the region, and mandate them the responsibility of developing contacts with the governments' agencies responsible for regulating forest trade, customs, and shipping through ports and borders. The in-depth assessment will help to identify weaknesses, gaps and strengths of the current institutional arrangements, and recommend changes to protocols as necessary. The teams should strive to access data and information on forest trade for domestic consumption and for export. These data sets should then be compared with data compiled from IFM in each country. The collection and comparison of the country specific data should be co-ordinated by a single team, which may be assisted by external consultants. A CSO network with regional contacts should co-ordinate such a study. The entire study may be carried out over a minimum period of 24 months.

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ANNEXES

Annex 1: Summary of the Legislations (Principal and Subsidiary)

UNITED REPUBLIC OF TANZANIA

Activity	Principal Legislation	Description	Subsidiary Legislation	Description
Harvesting/ Handling	<i>The Forest Act, 2002</i>	<ul style="list-style-type: none"> • <i>The Forest Act, 2002</i> under section 18 requires environmental Impact Assessment before harvesting. This requirement is also provided for in the Environmental Management Act, 2004. • The Village Land Forest Reserves (VLFs) should have the following; <ul style="list-style-type: none"> ▶ <i>Registration with the District Forest Office with other documents like business licence, TIN number from TRA, and (if relevant) company registration,</i> ▶ <i>Obtain a quote and Harvest Permit for the timber</i> ▶ <i>Initial payment with a receipt</i> ▶ <i>Harvesting the timber with supervision from DC, the timber buyer must arrange for each log to be stamped by a District Forest Officer before they can be transported within the country</i> ▶ <i>Final payment pay the remaining unsettled balance into the village bank account the timber buyer must obtain a Transit Pass from the DFO before the logs can be legally transported outside the forest. Upon receipt of the Transit Pass, the timber buyer is legally permitted to transport logs outside the community forest.</i> 	<ul style="list-style-type: none"> • <i>The Forest Regulations, 2004</i> • <i>The Forest (Amendment) Regulations, 2013</i> 	<ul style="list-style-type: none"> • District officials monitors process of harvesting and transportation of forest produce • Classifies fee rates for permits, licence, certificate for felling trees, collecting of forest produce etc
	<i>Local Government (District Authorities) Act, 1982</i>	<ul style="list-style-type: none"> • <i>The Local Government (District Authorities) Act, 1982</i> enable authorities to make by- laws to promulgate bearing management of forest, provide for the requirement of environmental impact assessment. • It also provide for the powers of the Village Council to co-ordinate forestry activities within their localities. • Under section 118 the law empowers the local government to establish, preserve, maintain, improve and regulate the use of forests and forest produce 		
Export/Import	<i>The Forest Act, 2002</i>	Part VI provide for the following document to allow exportation of forest produce; <ul style="list-style-type: none"> • Export Permit (Certificate) • Timber Grading Certificate • Inspection Certificate • Phytosanitary Certificate • Certificate of Origin • Receipts for payments made for the above documents • Information Invoice • Packing List 	<i>Transport Licensing (Goods Carrying Vehicles) Regulation, 2012</i>	Require Certificate of authorization to transport forest produce as per regulation 26
	<i>East African Community Customs Management Act, 2004</i>	Section 70, 71, 72 provides for prohibited and restricted exports of forest produce. Part A of third schedule provide for <i>prohibited goods</i> . Part B provides for the restricted goods one of them being timber from any wood grown in the partner state.		

KENYA

Activity	Principal Legislation	Description	Subsidiary Legislation	Description
Harvesting/ Handling	<i>The Forest Act, 2005</i>	<ul style="list-style-type: none"> Requires Environmental Impact Assessment before harvesting. 	<ul style="list-style-type: none"> <i>Forests (Harvesting) Rules, 2009</i> <i>Forest (Amendment) Regulations, 2013</i> 	<ul style="list-style-type: none"> Provide for charges in respect of Timber trade as per rule 2 of the Rules and second schedule deals with fees for natural forest timber and uncommon exotic species. Classifies fee rates for permits, licence, certificate for felling trees, collecting of forest produce
	<i>The Environmental Management and Co-ordination Act, 1999,</i>			
	<i>Local Government Act, Cap. 265</i>	<ul style="list-style-type: none"> Empowers County Councils to make by-laws to control harvesting, cutting of timber, destruction of trees and shrubs and afforestation. 		
Export/Import	<i>The Forest Act, 2005</i>	<ul style="list-style-type: none"> The law provide that logs must be marked with the official hammer mark at both ends. Before logs are moved to sawmill, a movement permit is issued by the local forest officer who will also indicate the origin of the log. Section 49 of the Forest Act, 2005 gives powers to KFS to search any premises in order to establish correct facts and places responsibility on the owner of forest products to prove that the material is not from a state forest 		
	<i>East African Community Customs Management Act, 2004</i>	<ul style="list-style-type: none"> The Act provide for prohibited and restricted exports under part A of third schedule and the restricted goods, which includes timber under part B. PART III of the Act governs importation 	<i>Forests (Fees and Charges) Rules, 2012</i>	Governs movement permits. Example, import procedures such as; <ol style="list-style-type: none"> Importer applies to KFS for import permit Importer obtains “no objection letters” from country of origin and KFS Goods are imported At border importer must produce import permit Phytosanitary certificate, grading certificate Certificate of origin and all customs documents Inspection carried out by Kenya Plant Health Inspectorate Inspection by Kenya Bureau of Standards for quality Customs Department verification of quantity and taxes and Issuance of a FPMP by KFS

Activity	Principal Legislation	Description	Subsidiary Legislation	Description
Harvesting/ Handling	<i>National Forestry and Tree Planting Act, 2003</i>	<p>The Act contains several specific provisions relating to timber harvest and trade but also makes provision for development of regulations and guidelines by the forest authorities. These are required to elaborate the provisions of the Act and to facilitate implementation.</p> <ul style="list-style-type: none"> • Section 21(2) specifies that in private natural forests, forest produce “shall be harvested in accordance with the management plan and regulations made under the Act”. • 22(2) requires that forest produce harvested from a private plantations “be harvested in accordance with the management plan and regulations made under the Act” • 28(3) requires that management plans shall be approved by the Minister or a person designated by the Minister for the purpose. • 32(1) (a) requires that in a forest reserve or community forest, harvesting must be “in accordance with a management plan or licence granted under the Act” • 41(1)A responsible body may “subject to a management plan, grant a licence” for removing forest produce • 42 requires “fair, open and competitive process” in applications for licences under the Act 	<i>Uganda's Forestry and Tree Planting Regulations</i>	Section 92 of the National Forestry and Tree Planting Act, 2003 provides for the formulation of Regulations for the purpose of carrying into effect the provisions of this Act. BUT the legislation has not been passed
Export/Import	<i>National Forestry and Tree Planting Act, 2003</i>	<p>Part VI” provides that for “Trade in Forest Products”, which includes timber and export thereof.</p> <p>It states that no person shall export timber without an export licence issued by appointed minister</p>	<i>The Ministerial Notice, 2004</i>	<p>Provide that</p> <ul style="list-style-type: none"> • All timber shall be stamped with the relevant code area of origin before being transported. The stamp marks must face outward when loading for fast/easy checking. • Any piece seen unmarked will be confiscated. Upon marking a forest produce declaration form (FPDF) shall be issued. • All timber leaving a district shall have the district “seal” stamped on before leaving that district. • A “forest produce movement Permit” shall be issued after stamping with the seal.
	<i>Other East African Community Customs Management Act, 2004</i>	<p>The Act provide for prohibited and restricted exports under part A of third schedule and the restricted goods, which includes timber under part B.</p> <p>► PART III of the Act governs importation</p>		

MOZAMBIQUE

Activity	Principal Legislation	Description	Subsidiary Legislation	Description
Harvesting/ Handling	<i>Forest and Wildlife Act, 1999</i>	<ul style="list-style-type: none"> Article 34 of the Act, requires transport permit for transportation of forest and wildlife products by land, river, sea, or air, under the terms of law the Act and all other applicable laws, unless otherwise provided by law. Article 39(1) of the Act provides for offences punishable by fine which includes but not limited to carrying out any acts of logging without authorization or in breach of the conditions of exploitation, importing and exporting forest and wildlife resources without a licence. 	<p><i>Forest and Wildlife Regulations Decree No. 12 of June 6, 2002</i></p> <p><i>Environmental Impact Assessment Regulations, Number 45/2004</i></p> <p><i>Decree Number 12/2002</i></p>	<ul style="list-style-type: none"> Updates the values of the rates of forest and fauna exploitation provided for in paragraph 1 of Article 100 of the Principal Legislation Regulates environmental impact assessment in implementing the National Environmental Management Plan and associated environmental policy and legislations Covers the marketing, transportation, storage and primary processing, craft or industrial resources.
Export/Import	<i>Law no.,7/2010</i>	<ul style="list-style-type: none"> The rate of overvaluation of wood is applicable on the export. The rate is paid by way of customs clearance 	<i>Decree No. 12/2002</i>	<ul style="list-style-type: none"> Export is allowed only to operators with forestry licence and forestry concessions Article 1 applies to the activities of protection, preservation, use, exploitation, and production of forest and wildlife resources, which encompasses the trade, transportation, storage, and processing of these resources
	<i>Penal Code, 2014</i>	Provide that every citizen who, remove, cut, acquire, sell, display and export for commercial purposes wood, coal and other forestry resources without due authorization or in disrespect of the licence, will be imprisoned with a corresponding fine	NIL	NIL

ZAMBIA

Activity	Principal Legislation	Description	Subsidiary Legislation	Description
Harvesting/ Handling	<i>Forest Act, 2015</i>	<ul style="list-style-type: none"> • Section 32(2)(a) of the Forest Act, 2015 gives to the persons who are party to the community forestry agreement the forest user rights in the community forest concerned the right of harvesting of timber or fuel wood. • Major forest produce on State Land and customary areas shall be conserved for the use and benefit of the local community in those areas, • Major forest produce which, in the opinion of the Director, is not required to be conserved or would be wasted or destroyed if not harvested may be felled and sold under a licence • Section 32 (1) (d) of the Forest Act, 2015 empowers the community forest management group that is party to a community forestry agreement for a community forest to assist the Director of Forestry in enforcing the provisions of law in relation to illegal harvesting of forest produce 	NIL	NIL
Export/Import	<i>Forest Act, 2015</i>	<ul style="list-style-type: none"> • All timber being exported shall be hammer marked in such manner as the Director may determine. • A marking made on any timber or tree stump by a timber marking hammer or other instrument shall not be altered, defaced, obliterated or removed without the consent of the owner of the tree stump or timber and the consent of a forest officer. 	<i>Forest (Export of Timber) Regulation, 2015</i>	<ul style="list-style-type: none"> • Exportation of forestry products is done subject to having an export permit from relevant authorities • Only sawn timber, railway sleepers which shall be drilled on both sides , poles from planted species, finished timber products and plantation trees can be exported • The Minister may however, grant a permit for the export of any other timber the Director may, in consultation with the Minister, consider necessary in the interest of the Republic
Import	<i>Forest Act, 2015</i>	<ul style="list-style-type: none"> • Importation of Forest products is subject to import permit. • Under section 90 of the Forest Act, 2015, it is an offence for a person who imports or attempts to import any forest produce without an import permit issued under the <i>Forest Act, 2015</i> 	NIL	NIL

DEMOCRATIC REPUBLIC OF CONGO (DRC)

Activity	Principal Legislation	Description	Subsidiary Legislation	Description
Harvesting/ Handling	<i>Forest Code, 2002</i>	<ul style="list-style-type: none"> • The Code allows two types of forest harvesting; simple felling permits for small-scale logging with cross-cut saws and the large scale industrial logging permits. • Permits are granted subject to limitations which are imposed by species and by area. • The maximum size of the harvesting area is 400 000 ha. • A logging company must provide a harvesting inventory before applying for felling permits. • Felling permits are issued for areas up to 1,000 ha, and logging companies can obtain as many permits as the State deems consistent with forest capacity. • Permit holders must submit quarterly reports of volumes felled and must comply with the DRC's Guide to Forest Exploitation in the development of forest management plans. • The Forest Code, 2002 also provides for the possibility of communities to establish Forest Concessions of local communities 	NIL	NIL

Annex 2: List of People Interviewed

S/N	Name	Position	Place
1	Hubert Haule	TFS Southern Zonal Manager	Masasi, Tanzania
2	Rashid Sembe	TFS Southern Zone	Masasi, Tanzania
3	Gabriel Joshua	District Lands and Natural Resources	Masasi, Tanzania
4	Bashiru Hamisi	TRA officer	Mtambaswala, Tanzania
5	Teonas Mbwambo	Timber grader	Mtambaswala, Tanzania
6	Hashimu Gau	TFS Southern Zone	Masasi, Tanzania
7	Husein Kanyika	TFS Southern Zone	Mtwara, Tanzania
8	Sulpis Likanda	District Lands and Natural Resources	Nanyumbu, Tanzania
9	Focus Mlowe	DFO	Nanyumbu, Tanzania
10	Banadeta Mwashuiya	District Manager - TFS	Nanyumbu, Tanzania
11	Mohamed Kilongo	Director of Resource Management and Utilization	TFS-HQ, Dar es Salaam, Tanzania
12	Hadija Kiimu	Forest rproducts and services	TFS-HQ, Dar es Salaam, Tanzania
13	Mustafa Mfangavo	DFO	Kilwa, Tanzania
14	Jasper Makala	CEO - MDCI	Kilwa, Tanzania
15	Pasiani Tairo	Forester - TFS - Check point	Kibiti, Tanzania
16	Frank Chambo	District Manager - TFS	Mkinga, Tanzania
17	Yusufu Kajia	District Manager - TFS	Tanga, Tanzania
18	Karani Mbwambo	Timber grader	Tanga, Tanzania
19	Lwiyiso Kihaka	Forester	Tanga, Tanzania
20	Emanuel Masaki	Timber grader	Horohoro, Tanzania
21	Mwarabu Jumbe	Ag. DFO	Mkinga, Tanzania
22	Khalid Jackson	Forester	Amboni check point, Tanzania
23	Samson Mwakikuti	Customes - import/export	Tanga Port, Tanzania
24	Hubert Malisa	Customes - import/export	Tanga Port, Tanzania
25	Arika Henry	Port Manager	Tanga, Tanzania
26	Idi Kasongo	i/c Port operations	Tanga, Tanzania
27	Godrich Mgonja	Port operational officer	Tanga, Tanzania
28	Donald Ngoile	Principal oprtational officer	Tanga, Tanzania
29	Tebby Yoramu	Ag. TFS Nothern Zone Manager	Same, Tanzania
30	Uffo Lema	Assistant Manager (Resource management)	Same, Tanzania
31	John Keraryo	Suplies officer	Same, Tanzania
32	Leonard Chegere	Resource management	Same, Tanzania
33	Fabian Mbula	Forester	Holili, Tanzania
34	Musa Mndeme	Timber grader	Arusha, Tanzania

35	Obedi Kapinga	Forester	Namanga, Tanzania
36	Samwel Mkonyi	i/c Phytosanitary	Namanga, Tanzania
37	Mwinyi Muya	Driver Simba tracking	Namanga, Tanzania
38	Julie Thomson	TRAFFIC	Dar es Salaam, Tanzania
39	Geofrey Mwanjela	WWF - CEA	Dar es Salaam, Tanzania
40	Allen Mgaza	TRAFFIC	Dar es Salaam, Tanzania
41	Linah Clifford	TRAFFIC	Dar es Salaam, Tanzania
42	Gwamaka Mwakanjala	MMC	Dar es Salaam, Tanzania
43	Aaron Hall	Researcher	Dar es Salaam, Tanzania
44	Paulo Cunha	Researcher	Dar es Salaam, Tanzania
45	Ntandu Mathayo	Strategic Planning Officer - TPA	Dar es Salaam, Tanzania
46	John Makasi	TPA	Dar es Salaam, Tanzania
47	Bakari Mohamed	TFS Eastern Zonal Manager	Kibaha, Tanzania
48	Ben Sullus	President of Tanzania Timbar Traders Association	Dar es Salaam, Tanzania
49	Praxeda K. Makanshu	Forest Assistant- TFS	Mbezi check point, Tanzania
50	Elizabeth Sembuli	Forest Assistant- TFS	Mbezi check point, Tanzania
51	Alex Mboya	TFS District Manager	Kinondoni, Tanzania
52	ReubenMagandi	TFS District Manager	Temeke, Tanzania
53	Fredrick Umilla	Forester - TFS	Mbagala check point, Tanzania
54	Michael Milanga	Forest Assistant- TFS	Mbagala check point, Tanzania
55	Rashid Juma	Timber trader	Keko, Tanzania
56	Amadi Hemedi	Timber trader	Keko, Tanzania
57	Muba Sifaa	Timber trader	Keko, Tanzania
58	Ms Christine Tam	WWF - Coastal East Africa Initiative	Dar es Salaam, Tanzania
59	William Ndosi	TFS - HQ	Dar es Salaam, Tanzania
60	Bruni Mallya	TFS Southern Highland Zonal Manager	Mbeya, Tanzania
61	Mloge Arjanson	TFS Southern Highland Zone	Mbeya, Tanzania
62	Gabriel Kalukule	TFS Southern Highland Zone	Mbeya, Tanzania
63	Eunice N. Mbilinyi	TFS Southern Highland Zone	Mbeya, Tanzania
64	Edgar Isaya	TFS Southern Highland Zone	Mbeya, Tanzania
65	Fred Wanjala	Forester - TFS	Tunduma border post
66	Rick Malyalu	Forester - TFS	Tunduma border post
67	Lucas J. Mnabi	TRA officer	Mbeya, Tanzania
68	Masange Charles	Zambia President of Timber Producers Association	Lusaka, Zambia
69	Dr. Nyambe Nyambe	Country Director - WWF Zambia	Lusaka, Zambia
70	Ignatius N. Makumba	Director - Forestry Zambia	Lusaka, Zambia

71	Seif Hamisi	Conservator - WWF Zambia	Lusaka, Zambia
72	Mohamed Bakari	Eastern Zone TFS Manager	Kibaha, Tanzania
73	Bermnadeta Kadala	Eastern Zone Office	Kibaha, Tanzania
74	Yusuph H. Yusuph	Forester - Check point	Vigwaza, Tanzania
75	Maria Thomas	Forester - Check point	Vigwaza, Tanzania
76	Livarf Shenzai	Goldeb Choice Supleis - Private sector doors/furniture	Dar es Salaam, Tanzania
77	Musa Quang	Group Six International Ltd - Private sector doors	Dar es Salaam, Tanzania
78	Amen Mwakibinga	Domus Woodworks Ltd - Private sector furniture	Dar es Salaam, Tanzania
79	Doto Ndumbikwa	Forester - TFS - Check point	Ilala, Tanzania
80	Yogesh Kanabar	The Living Room Ltd. Private sector furnture/doors	Dar es Salaam, Tanzania
81	Ally Mlongola	The Living Room Ltd. Private sector furnture/doors	Dar es Salaam, Tanzania
82	Kishor Simzia	Harporan Industries Ltd. Private sector furniture	Dar es Salaam, Tanzania
83	Harpid Singh	Harporan Industries Ltd. Private sector furniture	Dar es Salaam, Tanzania
84	Xavier Sakambuera Sailors	Director, DINAF	Maputo, Mozambique
85	Darlindo Pechisso	Forest Engineer, Head of Forest Department, DINAF	Maputo, Mozambique
86	Claudio Afonso	Enforcement, DINAF	Maputo, Mozambique
87	Cecilia Kagoma	TRA, Research Department	Dar es Salaam, Tanzania

Annex 3: Profile list of the top 12 Chinese companies in Mozambique

Information on the top 10 producing firms is difficult to obtain, given the lack of reliable information on total volume. However, when open source information was gathered from western, African, and Chinese sources, and in conjunction with NGO partners such as WWF, a profile list of the top twelve Chinese companies was compiled.

Company	Record in Mozambique Gazette	Leadership in Mozambique	Implications in illegal timber trade
MOFID	Boletim da Republica nº 50, III Série, 13 th December 2000	Liu Chaoying and Yang Yuanwu Jefe	This company is associated closely with the northern Mozambique Port of Pemba, through which MOFID has been shipping containerized logs for more than 8 years.
Tong Fa	n/a	n/a	Associated with the Port of Nacala since at least 2011, through which containerized logs have been shipped.
Zhen Long	Estrada Principal, Bairro Muxilipo, Nacala, Mozambique	n/a	According to internally circulated report, "2011 July...implicated in 501 containers of illegal timber seized at the Port of Nacala".
Pingos Marinha, LDA	n/a	Zheng Fei and Zheng Xudong	The company exports 1000 containers a year to Chinese affiliate Dongguan Yetong Trading. The company exported logs to China until February 2012, after which, it only exports sawn timber and finished products.
Sen Yu	n/a	n/a	Associated with the Port of Nacala since at least 2011 by shipping containers of timber.
Kingsway	Boletim da Republica nº 7, III Série, 13 th February 2008	Wang Lixin, Xioni Zhang	Associated with the shipping of logs through the Port of Pemba in northern Mozambique since at least 2009. It has a presence in China, South Africa and Tanzania and is linked through affiliation to the following subsidiaries: Goodone, Limitada (Lixin Wang and Lihui Wang, specializes in construction and import/export of construction materials; Bordar Investment Limitada (Lixin Wang, Lihui Wang, Caifane Abdaia, and Valentim Daniel; Good Home, Limitada, registered in Nampula.
Casa Bonita Internacional	Boletim da Republica nº 3, III Série, 17 th January 2007	Zheng Fei, Xu Xi Qi, Xu Xi Zhi	Associated with the Port of Nacala since 2007
Kam Wang Mocambique Limitada	Boletim da Republica, n 36, III Serie	Liu Zhong Yu, Chi Keung Chow Savio	Liu Zhong Yu is connected to Hernderson Intl Development PTY, Limitada, alongside Liu Chaoying of MOFID. Chi Keung Chow Savio is part of senior management of Nature Flooring Holding Group, which is registered in both Hong Kong and mainland China.
Hua Dian Limitada	Boletim da Republica, n 2, III Serie	Feng Ying Cai, Chuanbiao Jin, Fan Liyu	
Fan Shi Timber	N/A	Fan Guoyang, Fan Jinglin Fan Jinghui	Fan Shi Timber runs multiple companies in Mozambique with no forest concessions under them. The group relies on purchasing logs as negotiated with the Ministry of Agriculture who are sourcing under various quotas. The companies combine to export upwards of 4000 containers annually to China through the Port of Beira.
Miti Limitada	Boletim da Republica nº 53, III Série, 3 rd July 2008	Mohamed Faruk Ismail Ibrahimo Jamal and Zoheb Jamale	
Senlian	n/a	"Xu"	

Source: UNODC and CAADS (2015).

Annex 4: Conservation status of selected natural forest tree species

Baphia kirkii

Baphia kirkii is also known by its Kiswahili name of *Mkuruti*. It is restricted to the coastal regions of Tanzania and to southern Mozambique. The wood trades by the names Baphia or Camwood and is used for tables and counter tops, heavy-duty flooring and turnery. *B. kirkii* occurs in coastal forest, thickets and savannah up to 400-900 meters altitude. The distribution area of *B. kirkii* can easily become endangered with ongoing logging activities. It has been classified by IUCN as Vulnerable. Monitoring of the existing populations is recommended¹. Although *Mkuruti* is described as being found generally in Tanzania's coastal forests, in fact registered harvests have occurred only in Rufiji District in southern Tanzania². A harvesting ban of *Mkuruti* was imposed by TFS in 2012 after district forest authorities expressed concern over unsustainable harvesting, which resulted in smaller dimension trees being targeted. The *Mkuruti* harvesting ban was imposed unilaterally without consulting with traders, which led to friction between the private sector and forest authorities. The ban was subsequently lifted and in 2014/2015 *Mkuruti* represented the tree species that was harvested the most from Rufiji District in southern Tanzania.

Pterocarpus tinctorius

Pterocarpus tinctorius is also known by the names *P. chrysothrix* and *P. stolzii* as well as by its Kiswahili names *Mninga Maji* or *Mninga Bonde* and the vernacular names *Mkulungu* in Tanzania and *Mkula* in Zambia. It is widespread in Central, Eastern and Southern Africa, from Congo and DR Congo east to Tanzania and south to Angola, Zambia, Malawi and Mozambique³. *P. tinctorius* is a substitute for the wood of *P. angolensis*, the latter being subject to unsustainable harvesting in many countries. However, *P. tinctorius* has been studied insufficiently, and it is difficult to determine its prospects as a commercial timber tree under sustainable management.

A temporary ban on the harvest of *Mkulungu* was imposed by the forestry authorities in late 2010. The ban resulted from concerns that the harvest of *Mkulungu* was unsustainable and needed to be better monitored. In February 2011 the government allowed the harvest and trade of *Mkulungu* after having carried out a review of management plans for two forest reserves in Tabora Region, determining that Annual Allowable Cut was about 25 048 m³ for *Mkulungu*⁴. According to TFS, only 723.5 m³ of *Mkulungu* were harvested in the fiscal year July 2011 to June 2012 and an additional 112 m³ were harvested in the months from July to September 20125.

Milletia stuhlmannii

Milletia stuhlmannii is also known as partridge wood and by its Kiswahili name *Pangapanga* or *Mpangapanga*. It is restricted to southern Tanzania, eastern Zimbabwe and Mozambique. *M. stuhlmannii* has a limited area of distribution, but is locally common or even dominant. However, several reports conclude that current harvest levels are too high and rapid depletion of many stands has been predicted. The wood of *Pangapanga* is highly valued for light and heavy flooring and for furniture. It is popular in the veneer industry, where it is used for decorative furniture. It is also used for joinery, panelling, cabinet-work, doors, staircases, window frames, carving, turnery and musical instruments. It is suitable for heavy construction, ship and boat building but for many of these purposes it is no longer used because of its high price⁶.

¹ Ibid.

² TFS, 2012. Revenue Collection Performance for Kibiti Checkpoint, Lindi and Kilwa Districts.

³ Lemmens, R.H.M.J., 2008. *Pterocarpus tinctorius* Welw. In: Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). Prota 7(1): Timbers/Bois d'œuvre 1. [CD-Rom]. PROTA, Wageningen, Netherlands.

⁴ Wizara ya Maliasili na Utalii, 2011. Upatikanaji wa Miti aina ya Mkurungu na Paurosa.

⁵ TFS, 2012. Revenue Collection Performance for Kigoma and Tabora Regions.

⁶ Ibid.

Swartzia madagascariensis

Swartzia madagascariensis is also known as *Msekeseke* in Kiswahili, snake bean tree in English and *Kasanda* in the Kinyamwezi language of western Tanzania. It is traded as *Paurosa*⁷. It is widely distributed across wooded habitats in Africa. In Kilwa District most specimens occur in intact Miombo, often on sandy soil⁸. There is much logging interest in the tree at the moment because it produces a dark, fine-grained timber suitable for turnery and carving. As the timber sometimes turns “purply” black, it has been recorded as a substitute for the African Blackwood or *Mpingo* (*Dalbergia melanoxylon*)⁹.

Baikiaea plurijuga

Zambezi teak is the most popular name for *B. plurijuga* and its timber that have been referred to in the past as African teak, Rhodesian teak, Zambian teak or Zambezi redwood. It is one of the finest heavy-duty timbers in the world. Locally known in Zambia as *mukusi*, *B. plurijuga* is a Caesalpinoid legume. Its natural distribution is restricted to the Kalahari Sands of southwestern Zambia and neighbouring parts of Angola, Botswana, Namibia and Zimbabwe. The best remaining stands of the unique forest type in which it occurs are in Zambia’s Sesheke District. The forests are now degraded and considerably diminished because of increased logging over the last 50 years. Older individuals are also scarce. However, the range of the species has declined fractionally as it can regenerate in modified habitat types (www.iucnredlist.org/details/33188/0). These negative trends were observed by the World Conservation Monitoring Centre (WCMC), prompting them to include *B. plurijuga* in their ‘Threatened Plants of the World’ database¹⁰

Dalbergia melanoxylon

D. melanoxylon is also known as *Mpingo* in Kiswahili and African Blackwood in English. Other vernacular names include, *Babanus*, *Grenadilla*, *Mufunjo*, *Mugembe*, and *Mukelete*. *Mpingo* is a small, gnarled, heavily branched tree that grows extremely slowly, not reaching harvestable age for between 70 and 100 years. It grows under a wide range of environmental conditions and is native to 26 African countries. It ranges from Ethiopia in the north to Angola in the south, and spreads from Senegal in the west across to Tanzania in the east. The dark heartwood of *Mpingo*, which gives it its western name of African Blackwood, is one of the most economically valuable timbers in the world. It has exceptional mechanical properties that make it perfect for carving and it has a beautiful finish. It is used for carving intricate ornaments in Tanzania. In Europe and North America, it is used to manufacture woodwind instruments, such as clarinets, oboes and bagpipe. There is growing concern among instrument manufacturers that the supplies of high quality wood are becoming limited. Although *Mpingo* is not likely to become biologically extinct, it is at high risk of becoming locally and commercially extinct as mature trees are being harvested at an apparently unsustainable rate (globaltrees.org/threatened-trees/trees/mpingo). According to the IUCN Red list levels of exploitation of *D. melanoxylon* are very high and larger, exploitable individuals are becoming increasingly scarce. There is cause for concern over genetic erosion in many populations. It is listed as near threatened (www.redlist.org/details/32504/0).

This species is also listed in CITES appendix II as a result of the CoP 17 meeting in 2016.

⁷ <http://www.mpingoconservation.org/community-forestry/ethical-timber/timber-species/bobgunnia-madagascariensis-paurosa/>

⁸ Ibid.

⁹ Ibid.

¹⁰ Gumbo, D., Moombe, K.B., Kabwe, G., Ojanen, M., Ndhlovu, E., Sunderland, T.C.H., Kandulu, M.M. (2013). *Dynamics of the charcoal and indigenous timber trade in Zambia: A scoping study in Eastern, Northern and Northwestern provinces*. Center for International Forestry Research (CIFOR), Bogor, Indonesia

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

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