Forest Governance and Timber Trade Flows Within, to and from Eastern and Southern African Countries

Rwanda Study

February 2014

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Abbreviations in English		Equivalent in French	
ACNR	Association for Conservation in Rwanda	Association pour la Conservation de la Nature au Rwanda	ACNR
AFF	African Forest Forum	Forum Forestier Africain	
ACP	African, Caribbean and Pacific	Pays d'Afrique, des Caraïbes et du Pacifique	ACP
ADARWA		Coopérative d'Actions pour le Développement de l'Artisanat au Rwanda	ADARWA
AfDB	African Development Bank	Banque Africaine de Développement	BAD
AFLEG	African Forest Law Enforcement and Governance	Application des Réglementations Forestières et de la Gouvernance en Afrique	AFLEG
ASYCUDA	Automated System for Customs Data	Système Douanier Automatisé	SYDONIA
BEST	Biomass Energy Strategy	Stratégie pour la biomasse-énergie	BEST
BTC	Belgian Technical Cooperation	Coopération Technique Belge	CTB
CARPE	Central African Regional Program for Environment		
CATALIST	Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability	Catalyser et Accélérer l'Intensification Agricole pour la Stabilité et la Protection de l'Environnement	CATALIST
CBFF	Congo Basin Forest Fund	Fonds Forestier du Bassin du Congo	FFBC
CEFDHAC	Conference on the Rainforest Ecosystems of Central Africa	Conférence sur les Ecosystèmes des Forêts Denses et Humides d'Afrique Centrale	CEFDHAC
CEPGL	Economic Community of the Great Lakes Countries	Communauté Economique des Pays des Grands Lacs	CEPGL
CGF	Forest Tree Seed Center	Centrale des Graines Forestières	CGF
CGIS	GIS Center, National University of Rwanda, Huye	Centre GIS, Université Nationale du Rwanda, Huye (Centre de Recherche et de Formation en Système d'Information Géographique et Télédétection)	CGIS
CIF	Cost, Insurance and Freight	Coût, Assurance, Fret	CAF
CIRAD		Centre de Coopération Internationale en Recherche Agronomique pour le Développement	CIRAD
CITES	Convention on International Trade of Endangered Species of Wild Fauna and Flora	Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction	CITES
COC	Chain of Custody		
COMESA	Common Market for Eastern and Southern Africa		
COMIFAC	Central Africa Forests Commission	Commission des Forêts d'Afrique Centrale	COMIFAC
CPI	Corruption Perception Index	Indice de Perception de la Corruption	
CSO	Civil Society Organization		
DBH	Diameter at Breast Height	Diamètre à hauteur de poitrine	
DDG	Deputy Director General		
DFID	Department for International Development		
DFMP	District Forest Management Plan	Plan d'Aménagement Forestier de District	PAFD
DFNC	Department of Forestry & Nature Conservation		
DG	Director General	Directeur Général	DG
DRC	Democratic Republic of Congo	République Démocratique du Congo	RDC
EAC	East African Community		
ECCAS	Economic Community of Central African States	Communauté Economique des Etats de l'Afrique Centrale	CEEAC
EFI	European Forest Institute		

Abbreviations in English		Equivalent in French	
EII	Employment Intensive Investment	Haute Intensité de Main-d'œuvre	HIMO
ENR SSP	Environment and Natural Resources Sector Strategic Planning		
EU-27	European Union (27 member countries)	Union Européenne	UE
EUEI PDF	European Union Energy Initiative – Partnership Dialogue Facility		
EVFO	Veterinary and Forestry School	Ecole Vétérinaire et Forestière	EVFO
EWSA	Energy, Water and Sanitation Authority		
FAO	Food and Agriculture Organization of the United Nations	Organisation des Nations Unies pour l'Alimentation et l'Agriculture	FAO
FLEGT	Forest Law Enforcement, Governance and Trade	Application des Réglementations Forestières, Gouvernance et Echanges commerciaux	FLEGT
FMG	Forest Management Group	Groupement de Gestion Forestière	GGF
FOB	Free On Board	Franco A Bord	FAB
FONERWA	National Fund for the Environment in Rwanda	Fonds National de l'Environnement au Rwanda	FONERWA
FRA	global Forest Resources Assessment		
FSC	Forest Stewardship Council		
GEF	Global Environment Facility	Fonds pour l'Environnement Mondial	FEM
GIS	Geographical Information System	Système d'Information Géographique	SIG
GDP	Gross Domestic Product	Produit Intérieur Brut	PIB
GNP	Gross National Product	Produit National Brut	PNB
GVTC	Greater Virunga Transboundary Collaboration	Collaboration Transfrontalière pour le Grand massif des Virunga	
HS	Harmonized System		
ICRAF	World Agro-forestry Centre	Centre International pour la Recherche en Agroforesterie	CIRAF
IFDC	International Center for Soil Fertility & agricultural Development		
IRST	Institute of Scientific and Technological Research	Institut de Recherche Scientifique et Technologique	IRST
ISAE	Higher Institute of Agriculture and Animal Husbandry	Institut Supérieur d'Agriculture et de l'Elevage	ISAE
IUCN		Union Internationale pour la Conservation de la Nature	UICN
LVS	Legality Verification System	Système de Vérification de la Légalité	SVL
MAGERWA	General Warehouses of Rwanda	Magasins Généraux du Rwanda	MAGERWA
MAI	Mean Annual Increment (m^3/ha/year)	Accroissement Annuel Moyen	AAM
MARGE	Marketing and Management of the Environment	Marchéage et Gestion de l'Environnement	MARGE
MIFOTRA	Ministry of Public Service and Labor	Ministère de la Fonction Publique et du Travail	MIFOTRA
MIGEPROF	Ministry of Gender and Promotion of Family		
MINAFFET	Ministry of Foreign Affairs and Cooperation	Ministère des Affaires Etrangères et de la Coopération	MINAFFET
MINAGRI	Ministry of Agriculture and Animal Resources	Ministère de l'Agriculture et des Ressources Animales	MINAGRI
MINALOC	Ministry of Local Government, Good Governance, Community Development and Social Affairs	Ministère de l'Administration Locale, de la Bonne Gouvernance, du Développement Communautaire et des Affaires Sociales	MINALOC
MINECOFIN	Ministry of Finance and Economic Planning	Ministère des Finances et de la Planification Economique	MINECOFIN
MINICOM	Ministry of Trade, Industry,	Ministère du Commerce, de l'Industrie, de la	MINICOM

Abbreviations in English		Equivalent in French	
	Investment Promotion, Tourism and Cooperatives	Promotion de l'Investissement, du Tourisme et des Coopératives	
MININFRA	Ministry of Infrastructure, Energy and Telecommunications	Ministère des Infrastructures	MININFRA
MINIRENA	Ministry of Natural Resources	Ministère des Ressources Naturelles	MINIRENA
NBR	National Bank of Rwanda	Banque Nationale du Rwanda	BNR
NFC	The New Forests Company		
NFF	National Forestry Fund	Fonds Forestier National	FFN
NFP	National Forestry Plan	Plan Forestier National	PFN
NGO	Non-Governmental Organization	Organisation Non Gouvernementale	ONG
NISR	National Institute of Statistics of Rwanda	Institut National des Statistiques du Rwanda	
NLC	National Land Center	Office National de Conservation des Titres fonciers	
NUR	National University of Rwanda	Université Nationale du Rwanda	UNR
OECD	Organization for Economic Cooperation and Development	Organisation de Coopération et de Développement Economiques	OCDE
OFAC	Observatory for the Forests of Central Africa	Observatoire des Forêts d'Afrique Centrale	OFAC
OSBP	One Stop Border Post		
pa	per annum		
PAB	Protected Areas Biodiversity project		
PAREF	Support Program to the Reforestation in Rwanda	Programme d'Appui à la Reforestation au Rwanda	PAREF
PAREF.be	Support Program to the Reforestation in the Northern and Eastern Provinces of Rwanda	Programme d'Appui à la Reforestation dans les Provinces du Nord et de l'Est du Rwanda	PAREF.be
PAREF.nl	Support Program to the Reforestation of 9 Districts of the Northern and Western Provinces of Rwanda	Programme d'Appui à la Reforestation de 9 districts des provinces Nord et Ouest du Rwanda	PAREF.nl
PGReF	Project of Sustainable management of forest plantations and restoration of natural forests of Rwanda	Projet de Gestion durable des boisements et Restauration des Forêts naturelles du Rwanda	PGReF
PS	Permanent Secretary	Secrétaire Permanent	SP
RAB	Rwanda Agricultural Board	Office Rwandais de l'Agriculture	
RDB	Rwanda Development Board	Office Rwandais de Développement	
REDD	Reduced Emissions from Deforestation and forest Degradation	Réduction des Emissions de la Déforestation et de la Dégradation des forêts	REDD
REMA	Rwanda Environment Management Authority		
RNRA	Rwanda Natural Resources Authority		
R-PP	Readiness Preparation Proposal		
RRA	Rwanda Revenue Authority		
RWE	Round Wood Equivalent	Equivalent Bois Rond (volume)	EBR
RWF	Rwandan Franc	Franc Rwandais	FRW
SADC	South Africa Development Cooperation		
SAIIA	South African Institute of International Affairs		
SCC	Swedish Cooperative Centre		
SEW	Sustainable Energy production through Woodlots and agroforestry (IFDC project)	Production d'Energie Durable par les parcelles de Boisement et l'agroforesterie	SEW
SIDA	Swedish International Development Agency		
SIEP	System of Information and Permanent Evaluation	Système d'Information et d'Evaluation Permanente	SIEP

Abbreviations in English		Equivalent in French	
SMP	Supply Master Plan	Schéma Directeur d'Approvisionnement	SDA
SORWAL	Rwandan Match Company	Société Rwandaise des Allumettes	SORWAL
sp	Species	Espèce	*sp*
SWG	Sector Working Group		
UN	United Nations	Nations Unies	
UNCTAD	United Nations Conference on Trade and Development	Conférence des Nations Unies sur le Commerce et le Développement	CNUCED
UNDP	United Nations Development Program	Programme des Nations Unies pour le Développement	PNUD
UNESCO	United Nations Educational, Scientific and Cultural Organisation	Organisation des Nations Unies pour l'Education, la Science et la Culture	UNESCO
UNODC	United Nations Office on Drugs and Crime	Office des Nations Unies contre la Drogue et le Crime	UNODC
USAID	United States Agency of International Development		
VAT	Value Added Tax	Taxe sur la Valeur Ajoutée	TVA
VPA	Voluntary Partnership Agreement	Accord de Partenariat Volontaire	APV
WCS	Wildlife Conservation Society		
WISDOM	Woodfuel Integrated Supply/Demand Overview Mapping	Analyse spatiale intégrée de la demande et de l'offre en combustibles ligneux	
WTO	World Trade Organization	Organisation Mondiale du Commerce	OMC
WWF	World Wide Fund for Nature		
Various acronyms in French:			
		Fonds de Partenariat pour le Carbone Forestier	FCPF
		Officier de Police Judiciaire	OPJ
		Règlement Bois de l'Union Européenne	RBUE
		Système d'Assurance de la Légalité	SAL
		Système de Garantie de la Légalité	SGL
Old acronyms (occasionally encountered):			
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit	Coopération Technique Allemande	
NFF	National Forestry Fund	Fonds Forestier National	FFN
ISAR	National Agricultural Research Institute	Institut des Sciences Agronomiques du Rwanda	ISAR
MINIFOM	Ministry of Forests and Mines (former ministry)	Ministère des Forêts et des Mines (anciennement)	MINIFOM
MINITERE	Ministry of Lands, Environment, Forestry, Water and Mines (former ministry)	Ministère des Terres, de l'Environnement, des Forêts, de l'Eau et des Mines	MINITERE
NAFA	National Forestry Authority (former authority)	Office Rwandais de Gestion et de Promotion des Forêts	
ORTPN	Rwandan Office of Tourism & National Parks (former office)	Office Rwandais du Tourisme et des Parcs Nationaux	ORTPN
PAFOR	Forest Management Support Project	Projet d'Appui à l'Aménagement des Forêts du Rwanda	PAFOR

Background

This study of timber flows within, to and from Rwanda has been prepared as a part of a wider study that covered nine countries in Eastern and Southern Africa, with an identical objective in each to these countries that consisted of two main parts:

1. To provide a baseline of the wood based trade flow information
2. To provide an overview and analysis of the regulatory framework for timber production, processing and trade.

The study is quite timely considering that widespread illegal logging in recent years has had a devastating effect on the valuable forest resources in the countries in this part of Africa, which has had not only environmental consequences but also economic and social ones. The response by the European Commission has been the introduction of FLEGT, the Forest Law Enforcement, Governance and Trade Action Plan, to provide a set of measures to prevent illegally harvested timber from reaching the European markets. With the European Union Timber Regulation, EUTR, the placing of illegal timber on the European market has been prohibited starting from 3 March 2013.

Against this background, it becomes important to understand the dynamics of the timber trade flows not only in Rwanda but also in Eastern and Southern Africa, including the volume and value of the trade, within, to and from these countries, and the potential interest that individual countries might have in improving forest management and entering into VPAs. This study has therefore identified many burning issues that need to be addressed to prevent illegal logging and trade in illegally harvested products, in Rwanda as well as in the other countries of the study.

The study has produced nine comprehensive country reports, each of 50-60 pages, covering Burundi, Kenya, Madagascar, Mozambique, Rwanda, South Africa, Tanzania, Uganda and Zambia, in addition to one Summary Report. This particular country report, on Rwanda, was prepared by Nicolas Blondel.

Executive Summary

Rwanda has a total area of 2.6 million ha. The forest cover is around 500 000 ha, which corresponds to 20% of the land area, distributed as 125,000 ha of mountain forest, 25,000 ha of indigenous woodlands and 350,000 ha of forest plantations. All natural forests of the country are protected areas (gazetted as national parks or reserves) and are not used for wood production. The bulk of forest resources that can be harvested are the plantations, consisting mainly of eucalyptus but also Grevillea robusta and pines. For all forest resources, protection of watersheds is an important function.

One remarkable characteristic of forest governance in Rwanda is that natural forests and protected areas are effectively protected, making Rwanda one of few countries in Africa where deforestation is under control. On the other hand, scarcity of land available for forestry is major constraint for expansion.

Rwanda exports very small amounts of wood products, most of them processed or at least semi-processed. Imports of both sawn wood and particularly paper are on the increase. The procedures of exporting wood-based products are not different from the procedures for other products, i.e. there are no specific provisions in the forest law but in the national laws that regulate imports and exports. Still, to export timber legally from Rwanda, which currently rarely takes place, an export permit issued by the forest administration in Kigali is necessary. A transport permit is required to transport imported wood from the border to Kigali or any other market in Rwanda.

The Department of Forestry and Nature Conservation is one of four departments under the Rwanda Natural Resources Authority, established in 2008 and created out of a former Ministry of Forests and Mines. The new department is not well staffed and only a few professionals have been trained in forestry. Forests gazetted as national parks are managed by the Department of Tourism and Conservation, under the Rwanda Development Board.

A new Forestry Policy was published in 2010. This forest policy has received an international award, the Future Policy Award by the World Future Council, seeing it as a most exemplary national policy being able to create better living conditions for current and future generations by producing practical and tangible results. In contrast to the new forest policy, the regulation of forests and woodlands in Rwanda is still organized by the old Forest Law from 1988, which is no longer consistent with more recent political and administrative reforms. A revised forest law is therefore under preparation. One policy document on forestry much cited by decision-makers is the "Vision 2020" which presents the framework of a long-term development policy for Rwanda and recognizes that the development of the forestry sector is a national priority. In that context, the Government sets the target that the national forest areas should reach at 30%, up from the present 20%.

There is a ban on the use of fuelwood for making bricks and tiles and a ban on the use of poles for scaffolding.

The regulatory framework for the forestry sector is quite transparent particularly in comparison to other countries of the region. In general, the rules are clear and published. Forest law enforcement is very strict. Pit sawing of hardwood timber species was stopped about 10 years ago. Illegal activities are minor and entail mainly collection of fuelwood.

There are no certified forestry operations in Rwanda.

Firewood and charcoal together represent more than 98% of cooking energy consumption. The national consumption for these products is estimated to be equivalent to about 4.6 million m3 RWE per year. It is generally believed that the current consumption of firewood and charcoal, even when including the large amounts of wood coming from scattered trees, exceeds the sustainable supply. Similar conclusions have been drawn regarding the consumption of sawn wood.

There are currently no industrial scale processing operations in the country. For timber harvesting and extraction, most of the downstream processing of the wood in Rwanda is done in an informal way and either manually or in small-scale units. Some producers in Kigali make wooden furniture and have well developed workshops.

The main characteristics of the trade in wood-based products are that exports are particularly small (about 5000 m3RWE in 2011) and imports are not very big (about 120,000 m3 RWE in 2011), but both are steadily increasing.

Exports from Rwanda to EU-27 of wood-based products are nil. The national demand of sawn wood is mainly met by softwood produced in plantations in Rwanda, the main species being Grevillea robusta, and various coniferous timber especially pine. Hardly any softwood from plantations is imported as there is no surplus of these products within reach in any of the neighbouring countries. Rwanda does not produce hardwood so about 10% of the national consumption of sawn wood consists of hardwood imported from D.R. Congo (LTS, 2010c). The rest of the imports of wood-based products by Rwanda are processed or semi-processed (paper, panels in particular), as the country currently does not have a wood processing industry.

Illegal logging is not a serious issue within Rwanda.

Forest governance in Rwanda should be considered in a wider context of what is going on in D.R. Congo. The current period is a kind of transition time for forest governance in Rwanda as the new forest law, the details of which are not known, is being finalized. When it is enacted, and when the new institutions like the Department of Forest and Nature Conservation are fully staffed, it will hopefully bring some change to the sustainable management of forest resources. By that time it will be easier to see what needs to be done to enhance forest governance.

1. Introduction

Rwanda has a total area of 2.6 million ha, and an estimated population of approximately 10.6 million people (FAOSTAT 2011), which makes it one of the most densely populated countries in Africa.

According to some sources, forestry is estimated to contribute less than 5 % to the GDP1 and according to MARGE (2008), the sector of charcoal alone has a contribution of 5%. On the other hand forestry provides only a negligible proportion (less than 1%) of all exports by value.

This land-locked highland country occupies a position at the junction between Central Africa and East Africa.

The information presented in this country study has been gathered from July to September 2012 during a desk-based study followed by a fact-finding mission to Rwanda, as described in Annex I.

[1] http://www.indexmundi.com/facts/rwanda/natural-resources-contribution-to-gdp. These figures exclude fuel wood and other timber and non-timber forest products directly consumed by the rural population or sold in local markets.

2. The Forest sector

2.1 Forest resources

Until very recently, the total coverage of forests and woodlands in Rwanda could not be measured with accuracy, except from the protected areas. The available figures at the time of the fact-finding mission are gathered in **Table 1**.

Table 1 Areas of forest resources (natural forests & plantations) by forest type and protection / management status. Rough estimates before the publication of the results of the recent national forest mapping.

Type of forest or woodland	Protected areas for conservation (ha)	Other forest resources, for sustainable production (ha)	Total forest resources (ha)	Proportion
Montane rainforest	120,000		120,000	29%
Eastern woodlands (indigenous species)	No figures available	No figures available	No figures available	
Total plantations		300,000	300,000	71%
public		100,000	100,000	24%
private		200,000	200,000	4%
Total forest resources	**120,000 (5%)**	**300,000 (12%)**	**420,000 (17%)**	**100%**
Total land area Rwanda			2,467,000 (100%)	

Notes: For protected areas, the source is Tourism and Conservation in 2012. The figures are fairly accurate and comprise all protected areas of the country except Akagera National Park which is a savannah park.

For plantations, the figures presented are derived from NDUWAMUNGU (2011) as the best provisional estimates. This author has taken into account the estimates mentioned by various sources in the last decade, which range from 115,000 ha to 310,000 ha. The proportion of public plantations is thought to be between 35 and 45% of all plantations. Scattered agro-forestry trees ("trees on farms") and woodlots smaller than 0.25 ha are definitely not included in the table.

A national forest cover mapping study conducted in the framework of the PAREF.nl programme has been conducted in the last months, which will provide updated and much more accurate figures, which will fill an important gap in the knowledge of the resource. This mapping exercise has been based on the country-wide coverage of rectified aerial photographs produced by Swedish survey in 2008-09, which has allowed mapping the forest plots for the first time up to a minimum area of 0.25 ha. Consequently the preliminary results of this mapping study indicate that the percentage of the national land area covered by forest resources is significantly higher than the figures of **Table 1**.

As can be seen in the table, practically all natural forests of the country are protected areas (national parks or reserves) and not used for wood production. Tree plantations comprise the great majority of the area which can be harvested. For all forest resources, protection of watersheds is regarded as an important function, and can even be the main one for some "production" woodlands.

The country is crossed by a north-south ridge, the Congo-Nile divide, the western slopes of which go down to the banks of Lake Kivu at 1500 m above sea level (see maps of the country of **Figure 3** and **4** in ***Annex 3***). The eastern slopes of the ridge go down gradually across the country up to the banks of the Akagera River at the border with Tanzania at about 800 m above sea level. Most natural forests remaining today occupy the ridge, where rainfall is highest. The main forest type is equatorial montane rainforest, with some bamboo forest, above which exist some afro-subalpine woody vegetation (tree heather mainly) which reach an altitude of about 3500 m above sea level. The main blocks of natural montane forests are the following:

- Nyungwe National Park: 101,900 ha, almost entirely made of forest ecosystems (this includes Cyamudongo forest fragment).
- Volcanoes National Park: 16,000 ha, the higher part of which is not woody vegetation.
- Gishwati Reserve and Mukura Reserve: about 2600 ha, recovering from past degradation.

In the eastern part of the country, dominated by savannah ecosystems, some dry woodlands composed of indigenous species exist. There is also some gallery forest in valleys. Some of these forest resources are "open areas" and the rest is part of the third national park of the country, Akagera National Park (total area 112,200 ha, most of it savannah and marshland).

Outside protected areas, in spite of the acute land scarcity in Rwanda, trees are very present in the landscape. As regards exotic plantations, most of the large areas of plantations were established between 1970 and 1990. Afforestation efforts were halted during the troubled and post-crisis period between 1990 and 2002 and restarted with the support of AfDB and then more recently the Belgian and Dutch cooperation.

Furthermore, very small woodlots (smaller than 0.25ha) and scattered trees on farms are two significant contributions to the woody resources. Indeed, beside the existence of natural forests and forest plantations, for a very long time Rwandans have shaped landscapes into a mosaic of wooded fields and gardens. The result is that agro-forestry has become a very common land use practice.

As regards the main commercial species, Nyungwe forest contains some valuable timber species, in particular *Entandrophragma excelsum* (afromontane mahogany, local name umuyove) but both the species and the territory of the park are entirely protected. The main commercial species of the tree plantations are (HAMBIYAMBERE, 2010):

- Eucalyptus species: by far the most important group of species (*E. saligna, globulus, camaldulensis, grandis, tereticornis, citriodora*, etc.), mainly for fuelwood, secondarily for sawn timber. Around 2010, based on a suspicion that eucalyptus trees had a bad impact on soils and water resources, the Government considered forbidding the plantation of these species altogether. Some forestry professionals had different views on the impacts of eucalyptus species and had reservations about such a measure given the keystone role of these species in the forest economy and wood production. This issue has been resolved in a pragmatic way, whereby a list of eucalyptus species still usable in plantations has been defined by the forest research institution and adopted (some of the above-mentioned species are no longer recommended);
- *Grevillea robusta*: mainly for sawn timber, also for firewood;
- Pine species: mainly for sawn timber (*P. patula, oocarpa, caribea, kesiya*);
- *Cupressus lusitanica*: for sawn timber but its importance has diminished due to heavy insect attacks.
- A mixture of other broadleaved and coniferous species. The current trend is to diversify the species planted and to increase the use of indigenous species in plantations.

As to the land tenure aspects, outside protected areas there are 3 main types of forest ownership:

- Public woodlands (plantations):
  - State woodlands: large plantations established by government afforestation projects;
  - Local government woodlands (District woodlands): plantations usually of a smaller size than the State woodlands (medium-sized);
  - Woodlands of public institutions (forest research stations e.g.);
- Private woodlands (plantations):
  - Individual plantations;
  - Woodlands of private institutions: churches, schools, etc.;
  - Other private woodlands: estates of tea factories, etc.

Concerning the main threats against forest resources, compared to regional standards, one remarkable characteristic of forest governance in Rwanda is that natural forests and protected areas are effectively protected. That is why it is one of the few countries of that part of Africa where “deforestation” (steady reduction of the area of natural forest) is under control. A consequence of this is that the forest economy is "unbiased" and healthy, in that wood *grown* and harvested in plantations is not really affected by unfair competition from cheap wood illegally cut in natural forests, which in particular does not deter private investments in forestry.

Serious wildfires affected Nyungwe forest during the period 1997-2004 when the effects of climate change started to be felt. There is now a higher degree of preparedness, significantly reducing this threat. Bushfires are still a constraint to forestry activities in the eastern part of Rwanda, but not really a threat. As regards plantations, district woodlands were still at risk across the country a few years ago because of land tenure uncertainties and because some of the newly developed District Forest Management Plans were too much oriented towards a quick harvest of the old plantations, which form a large part of the stands. In the meantime this risk has been set aside as the cadastre has been developed and the implementation of the first wave of District Forest Management Plans, not sufficiently strong, has been suspended. Stealing of wood and gradual depletion of forest plantations does exist and is common in woodlands of the State. However, to some extent this degradation is offset by the growth of the remaining trees (stealing somehow replaces thinnings) so that the resulting impact is not always obvious.

The area of existing woodlands and natural forests of the country has been stable for 10 years now and it is actually increasing thanks to the afforestation efforts. At least 3500 ha were planted per year between 2008 and 2012 by the large programmes. An additional area has been planted by smaller projects.

In spite of this quite reassuring picture, the forest resources of Rwanda have weak points, some of them quite marked:

- The scarcity of land available for forestry is a major constraint, especially in the western half of the country where forest productivity would be highest.
- Most forest resources available for production belong to smallholders and are very fragmented.
- Another constraint due to the steep relief is the accessibility of forest resources.
- The productivity of existing plantations is low due to a lack of proper management and the poor genetic quality of seeds which have been used until recently.
- If eucalyptus trees were not coppicing, forest resources of Rwanda would not be what they are (easy and automatic regeneration is an essential asset). However, many stands are growing on old stumps which have been coppiced a large number of times, so that the productivity has deteriorated.
- By regional standards, processing efficiency ratios are very poor for sawing and not better than elsewhere for charcoal production.

2.2 Position of the forestry sector within the national economy and development process

In the last decade, Rwanda has experienced rapid development and strong growth of the economy. Related to that, the degree of general management and organization of the country has increased.

At the same time, in spite of concrete and essential achievements (forest law enforcement, afforestation, land registration, forest policy development, etc.), compared to other sectors of the economy, the forestry sector has been facing difficulties in gathering momentum. In particular, apart from a few exceptions, forest management is still basic, in many cases non-existent. Probably its main current constraint is the acute shortage of human resources specifically trained and operational in forestry, at all levels (public sector, private sector, central level, field level).

3. CITES

Rwanda signed the CITES convention. In that framework, no indigenous trees of Rwanda are in Annex I or Annex III of CITES. *Prunus africana*, a species present in montane forest that could produce timber but is mostly threatened in Africa by the harvest of its bark, is in Annex II.

4. The Forest Administration

As regards woodlands for production and watershed protection (i.e. forest resources not set aside primarily for conservation), in the case of Rwanda today, it is difficult to speak about a "forest administration" as it is usually conceived in most countries. The responsibilities of such an administration are here distributed and organized at two levels, which need to be understood in the context of the successive reforms of the institutions in recent years that have led to a thorough and effective process of decentralization.

At central level, the highest forestry institution is the Department of Forestry and Nature Conservation (DFNC). Generally speaking, its role is to promote the development of forestry (this includes agro-forestry, erosion control and value addition to forest products). Its main responsibilities, also emphasized as services, are as follows:

- advising the Government on policies, strategies and legislation related to forestry;
- ensuring the implementation of such policies and strategies: preparing national programs in matters of reforestation, forest management and helping districts to prepare their own forest management and supervising the implementation of such programs; ensuring the management and exploitation of public forest resources; encouraging private sector stakeholders in engaging in forestry (including the provision of technical advice); evaluating and closely monitoring development programs regarding rational utilization of forests;
- preparing technical norms in forestry, including undertaking forest-related research and studies; providing advice and instructions on forestry matters and disseminating forestry knowledge;
- a responsibility in international forestry affairs (implementation of international conventions relating to forestry, collaboration with international organizations dealing with forest resources);
- a responsibility in forest law enforcement.

DFNC is one among four departments of a higher "Authority" called RNRA: Rwanda Natural Resources Authority. The three other departments are significant ones, National Land Center, Water Resources and Geology and Mines. RNRA is headed by a Director General, above who is a Board of Directors, while DFNC is headed by a Deputy Director General (DDG Forestry and Nature Conservation). RNRA belongs to the Ministry of Natural Resources, MINIRENA. The organizational chart of the ministry, showing the position of the different institutions related to forest resources is presented in **Figure 10** of ***Annex 5*** and the one of RNRA in **Figure 11** of ***Annex 5***.

DFNC complete staff is planned to comprise a total of 29 employees. It is organized in 4 units: (i) the Forestry Management Unit, (ii) the Forest Research and Extension Unit, (iii) the Forestry Inspection and Monitoring Unit and (iv) the Critical Ecosystems Management Unit. Created in 2008, it is still a weak institution. 20 positions of this organizational chart have remained unoccupied and it is only in 2012 that the recruitment to fill 18 of them has been organized. One weakness of DFNC is that a significant proportion of its staff are junior profiles or did not have a forestry background when they were recruited, so that they do not have a long track record of field forestry experience.

It is at the decentralized level that the actual implementation of the national forestry policy is carried out. This responsibility is in the hands of the district authorities. Indeed for all activities of development, including forestry, the district is the most important level of planning, development coordination and resource mobilization. Districts are administered by a District Council and an Executive Committee headed by the Mayor. District foresters ("District Forestry Officers", DFOs) were appointed for the first time in 2010, one per district. Initially they were officers of DFNC working for the districts but they have been recently fully decentralized, that is to say they now belong to the district staff. Although they also send reports to DFNC, they directly report to the Vice-Mayor of the district in charge of Economic Affairs.

Administratively, the national territory of Rwanda is divided into 4 provinces (these have limited roles), 30 districts (hence 30 DFOs) and 416 sectors. Sectors are in turn divided into cells. 226 « Forest Extensionists » are currently employed in the administrative sectors. They are not very qualified as they were originally recruited as forest guards. The organizational chart of district and sector staff is presented in Annex. Generally speaking, the

Districts suffer from a real shortage of resources, human resources in particular, and their capacities are still limited. Like for DFNC, there are many junior profiles among DFOs and some have a background outside forestry. Despite the existence of the 226 forest extension workers, the two sectors they are supposed to cover are a large area and the need for an effective forest extension system has been an unresolved issue.

As regards Government funding of the sector, the national budget for forestry is channelled to these different institutions (DFNC, districts). The ordinary budget of the forestry sector in Rwanda has been on the increase in the last 10 years, especially since 2005. It was equivalent to about 100,000 € /year from 2000 to 2004 and about 500,000 €/year from 2005 to 2010. In spite of this important increase, this level of ordinary funding cannot meet the needs in investments to renew the forestry sector and up-grade the resource to the required extent. The forest law in force, enacted in 1988, established the National Forestry Fund for public investments to develop forestry activities. A reform is currently introduced which creates the FONERWA (National Fund for the Environment in Rwanda), which will absorb the National Forestry Fund. The principle of FONERWA is that it will centralize investment funds for all sectors related to the environment, including forestry. The law creating the FONERWA and determining its functioning has been enacted in 2012, but the details on this reform, how the FONERWA will work and the level of availability of funds for forestry investments are not yet known among the forestry professionals, including in forestry institutions. Some fears have been expressed that the functioning of the FONERWA will be heavy.

As regards forests gazetted as National Parks, they are managed at the central level by Tourism and Conservation, a department of Rwanda Development Board (RDB)[2]: see paragraph 4.2.

Civil servants in Rwanda, especially the highest ones (Directors General, Mayors, heads of important departments, etc.) are under performance contracts with the Government. According to this system of result-based management, these contracts, which are different from the employment contract signed by the officer at the time of the recruitment, specify annually a number of targets that need to be reached. This can be a source of replacements, although in the forestry sector the scarcity of qualified senior professionals has been a limiting factor to these replacements. On the other hand, in the last decade, successive institutional reforms have occurred at a fast pace, affecting the whole governance system (decentralization e.g.) including the institutions in charge of forestry, in a search for ever more efficiency.

In the latest of these reforms, the country ceased to have a ministry of forests (Ministry of Forests and Mines, MINIFOM) and the central institution in charge of forestry receded one level lower in the hierarchy (the former National Forestry Authority (NAFA) became DFNC). The highest civil servant for forestry, the DDG is now number 3 under the minister instead of number 2 (Minister, Permanent Secretary of the ministry, DG RNRA, DDG Forestry) and the "authority" is now RNRA, no longer DFNC. This has been felt by various national forestry professionals as a "downgrading" of forestry institutions and they express concerns that this might cause a dilution of the importance of the sector.

Some mention that in the governance approach applied, emphasis has been put mainly on quantitative objectives and outputs (for example, the number of seedlings produced and number of hectares afforested is a leitmotiv), and less emphasis on qualitative aspects and final impacts (right species selection, quality of seedlings produced, survival rate of seedlings planted, actual growth and productivity, etc.).

Forest governance in Rwanda has been studied and described by LTS (2010a). Most of the information presented in that study is still up-to-date. The main changes observed today result from the institutional reforms and adaptations mentioned above that have occurred since 2010.

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[2] Although most natural forests are protected areas and as such are managed by Tourism and Conservation / RDB (including Gishwati in the near future), natural forests and nature conservation are also in theory one of the responsibilities of DFNC.

5. The Regulatory framework for timber production and harvesting, processing, transport and marketing

5.1 The legal framework for the sector (forest policy and law)

National forest policy

As regards forestry, one of the reference policy documents most cited by governmental decision-makers has been the "Vision 2020" (MINECOFIN, 2002). It presents the framework of a long-term development policy for Rwanda and recognizes that the development of the forestry sector is a national priority. In that context, the Government sets the target that the national forest areas must increase significantly and reach 30% of the national territory by 2020 (from an assumed 20% when the vision was prepared). At the same time, the coverage of agro-forestry systems must increase to 85% of all croplands. The preliminary results of the recent national forest cover mapping study (final results were not available at the time of the fact-finding mission), taking into account woodlots up to a minimum size of 0.25 ha, suggest that the country might be much closer to this objective of 30% of forest cover than previously assumed. Moreover, it is regularly assumed that there is practically no area remaining for forest plantation expansion in Rwanda, whereas the recent experience of the programme PAREF.nl shows that bare land remaining available for afforestation can be underestimated. Indeed, in the last 4 years, PAREF.nl has planted 12,000 ha on public land while the objectives of the programme were 10,000 ha and concerns had been expressed in 2009 that such an area available for afforestation would be difficult to find in this heavily settled country.

More specifically a new Forestry Policy was prepared in recent years and has been published in 2010 (MINIFOM, 2010a). In 2011 it received an international award, the Future Policy Award (World Future Council). The Award celebrates the world’s most exemplary national policies that create better living conditions for current and future generations and that produce practical and tangible results.

More details on the views of the local stakeholders (farmers) on the applicability of the Government’s forest policy in particular the possibility to expand forest plantations despite the challenge of the land shortage can be found in NDUWAMUNGU (2011). Admittedly, afforestation of large blocks will cease to be possible in the near future but scattered new plantations (small woodlands, woodlots, clumps, line of trees, scattered trees) will remain a substantial option. At the same time, reforestation and intensification of the management on wooded lands will gain importance. If competition with agriculture and settlements and some unfavourable aspects of forest finance are a reality, two major incentives to tree plantations have been practiced by the government and supporting projects, namely the free distribution of the seedlings (it has been the general "policy" for a long time) and initial woodlot establishment support (approach of some projects). This form of subsidy given to private forestry together with the strict control of deforestation allows maintaining a real interest in tree planting among the population.

Given that more than 95% of household needs of energy of the population are currently covered by firewood and charcoal and given that the contribution of the woody biomass to the overall national energy balance remains higher than 80% (MARGE, 2008a), the national policies and strategies in the Energy Sector are also important references to consider. Of particular interest is the Biomass Energy Strategy for Rwanda (BEST) that was produced in 2008 by MININFRA with the support of GTZ (MARGE, 2008a-e). Furthermore and in the meantime, in the context of the striking economic development experienced by the country, enhanced energy supply has become one of the top priorities of the Government who deploys a very dynamic policy in that sector, likely to influence the forestry sector. At this point, MININFRA has prepared a draft strategic plan for the energy sector 2012-2017 (MININFRA, 2012). This is further discussed in point 5 below (content and consequences of the current energy policy, trends).

Forest legislation

The regulation of forests and woodlands in Rwanda is still organized by the law 47/1988 organizing the forestry regime, and its application measures. A number of measures that were proposed by this law have not been applied because of the troubled period that followed soon after it was enacted. More importantly, this legislation is no longer consistent with more recent political and administrative reforms such as the decentralization. It is commonly agreed that the current law is no longer appropriate for a number of reasons:

- It assumes that wood comes from natural forests and it does not envisage that it can come from plantations belonging to private owners. So one objection sometimes mentioned to the current legislation is that in some common instances it could rather act as a deterrent to good forestry practices. In the current system to deliver cutting authorizations and levy taxes on the wood products, private owners encounter difficulties to market the trees they have planted and in turn could become more reluctant to maintain their trees or plant more trees. The way these authorizations are delivered and those taxes levied are also deemed not to be transparent enough. The development of informal, hidden and illegal activities of wood extraction, processing and transport becomes a threat, with the consequence that efficient transformation techniques are not applied (improved charcoal making techniques unused, increase of charcoal making out of green wood).
- The sanctions for the infractions are no longer up-to-date.
- The stipulations regarding the delegation of the management of public woodlands to private operators are not sufficiently developed to be applicable. The 1988 forest law introduces the concept of private Forest Group ("groupement forestier privé") with whom the State or the decentralized authorities can sign a "contract of forest management" of public woodlands (also called "permit to manage the forests of the State" in the case of State woodlands). Nevertheless, the law does not elaborate the modalities of this system.

That is why the forest law has been through a lengthy process of revision for several years but the new law has not been enacted yet. Different agencies have provided advice and the process have included several workshops to consult the multiple stakeholders. Although some draft versions prepared at various stages of the process are available, it has been difficult to obtain information on the content of the latest version and one can only speculate about what will be retained in the final version. There is some expectancy among forestry professionals because certain important improvements in forest resource management have been delayed for lack of a proper legal framework (involvement of the private sector in the management of public woodlands e.g.).

Application texts of national coverage are few and most of them have not been translated into English or French. No specific and synthetic study has been conducted and published on the forest legislation. The following application texts can be mentioned (NDUWAMUNGU, 2011):

2000 Ministerial order to stop tree harvesting in all public woodlands .... (in force until now but obsolete)

2003 Ministerial order on the procedures governing the public forest management contracts (not implemented)

2004 Ministerial order to ban brick making using fuel wood (in force)

2006 Ministerial order to decentralize the process of issuing permits for harvesting, transport and marketing of forest products (partially still in force)

2011 Ministerial order reclaiming back from the District the power to issue harvesting permits on forest stands with one ha or more or with estimated value exceeding one million RWF (about US$ 1,700) and entrusting it to DFNC (in force)

On the other hand, an intricate series of numerous local regulations are reported, mostly pertaining to tax collection on wood products.

Other fundamental texts of the legislation which in one way or another concern forest resources, are (i) the organic law 04/2005 of 8 April 2005 on the modalities to protect, safeguard and promote the environment in Rwanda and the organic law 08/2005 of 14 July 2005 on the land tenure regime in Rwanda. These two laws set some general principles which apply to and protect forest resources. The recent law 16/2012 of 22 May 2012 determining the organization, functioning and mission of the National Fund for the Environment (FONERWA), will also influence the forestry sector.

Legislation on protected areas and species

The orientations in conservation are expressed in a draft Wildlife Policy. The law creating Rwanda Development Board (RDB) enacted in 2011 makes the old law creating the former Office of Tourism and National Parks (ORTPN) obsolete. Therefore, a new Wildlife Law is being prepared that could be enacted in 2013 and in the meantime the old ORTPN law is still applied. Some aspects of the organic law nr 04/2005 on the environment, like illegal extractive activities, are also relevant for conservation.

Ministerial Order 007/2008 of 15 August 2008 establishing the list of protected animal and plant species includes more than a dozen indigenous tree species including *Entandrophragma excelsum* (afromontane mahogany, local name umuyove), *Podocarpus sp* and *Prunus africana*. According to this order, a special authorization is required to cut these species. The list is currently being reviewed and a new order is in the pipeline.

Rules of access to the resource (how can one log legally?) and rules for marketing the wood

(a) Public woodlands (plantations)

Apart from one pilot development explained below, for a long time now no authorization to log in public forest plantations has been issued (ban since 2000). In other words, in those plantations there is no official logging and that resource is in waiting.

In recent years, District Forest Management Plans were systematically developed. However, their implementation has been difficult due to problems of variable reliability and also because the current forest law does not provide a sufficient and adequate framework for certain aspects. Practically speaking, they have not been implemented and as they expire in 2012, new plans will need to be developed, once the new forest law is enacted. At this stage, it is not clear who will authorize logging in district woodlands when harvest there is opened (old system of authorization from forest department in Kigali or district authorities based on the conclusions of a committee).

One recent development is the signature in 2011 of a long term concession contract between a private international forestry company (New Forests Company NFC) and the Rwandan Government concerning the management of the buffer zone of Nyungwe National Park, made of extensive plantations, most of them mature. The contract concerns the harvest and replanting on the estate, together with the setting up of mechanized processing facilities. The area concerned is about 10,000 ha and the standing stock has been estimated around 2 million m^3. The concession was awarded based on a tender procedure. The company has completed its inventory and from there management operations are being planned. Incidentally, some professional stakeholders interviewed expressed the feeling that the allocation of such a logging concession to a private company could reduce the capacity of these plantations to act as a typical buffer for the forest of the national park against the pressure of the adjacent population (diversion of the initial objectives of the buffer zone). Tourism and Conservation officers interviewed at central level, besides careful to guarantee the protection of the park expressed no such concerns about the NFC concession. Once operational, this model will be applied to other plantation blocks in the country: about 3000 ha of pine and 550,000 m^3 in Gishwati and about 1000 ha in Mukura (these are blocks around remnants of natural forest).

(b) Private woodlands (plantations)

Private owners of wood plantations cannot harvest their trees and sell their products based on their own decision alone. 3 types of permits are required and are delivered at district level by the DFO:

(b.1) Cutting permit:

Such a permit is compulsory for woodlots of at least 0.5 ha (although in some instances owners have been fined for having harvested in their woodlot of less than 0.5 ha). The permit is delivered by the DFO based on (i) a report by the administrative sector (in turn based on a report by the administrative cell) confirming that the wood comes from the applicant's woodlot, in order to avoid conflicts and (ii) a visit report by the Forest Extensionist or the DFO himself to evaluate the value of the wood. The taxes paid to obtain the cutting permit are: 1% of the value of the wood to the National Forestry Fund and a fixed amount to the district (N.B. not to RRA) (3000 RWF e.g.). A cutting permit is valid 3 months or less.

(b.2) Transport permit:

This permit is necessary when the wood products are transported in a vehicle and even when the transport is limited to within an administrative sector. Otherwise it can be valid for the whole country. The permit is signed by the DFO based on (i) the cutting permit, (ii) the receipt showing payment of the specific tax (see below) and (iii) if the wood has been bought to someone else the invoice. The tax paid to obtain the transport permit is a fixed amount to the district. This fixed amount varies according to the district across Rwanda (from 1200 to 20000 RWF). In order to travel, the truck (or boat) needs to be able to present in theory the copy of the cutting permit (but this is rarely controlled) and the original transport permit. The latter is valid 3 months or less and mentions (a) the name of the owner of the products, (b) the type and quantity of the products (pieces of sawn timber, sacks of charcoal, cubic metres of stacked firewood), (c) the origin of the products, (d) the destination of the products, (e) the plate number of the vehicle, (f) the name of the driver and (g) the period of validity. 1 permit is necessary for 1 type of product.

(b.3) Certificate of sale of forest products:

The sale certificate is similar to the transport permit but separate. It normally concerns the location of the sale, after the transport. The permit is delivered by the DFO of the district where the sale takes place, based on (i) a copy of the cutting permit, (ii) the receipt showing payment of the specific tax (see below) and (iii) the invoice if the wood has been bought to someone else. The sale certificate corresponds to the payment of a tax to be allowed to sell the products. This tax is a fixed amount to the district. This fixed amount varies according to the district across Rwanda (from 1200 to 20000 RWF). A sale certificate is also valid 3 months or less.

Additional rules and remarks

Until now the National Forestry Fund has been supplied by one of the taxes on cutting permits and by fines for forest infractions. It seems that fines are now collected by the districts and are also variable according to the districts.

Two conspicuous measures were taken in the last years to reduce the pressure on wood resources, in particular on "immature" trees, and they are effectively enforced:

- the ban of the use of firewood to make bricks and tiles: this sector of construction used to consume huge amounts of wood as these were the main materials to build houses.
- the ban of the use of round wood poles for scaffolding. Nowadays, scaffolding in use in the country is made of sawn planks and re-used wooden materials, sometimes of steel.

Both measures were controversial when they were taken. Namely, the one on bricks because alternatives also have an environmental impact (switch to non-renewable energy sources, use of more polluting fuels), whereas the one on scaffoldings because it was a specific market for the sale of young eucalyptus poles for private woodlot owners (measure seen as economically artificial and potentially a deterrent to private investments in forestry). Nevertheless, the construction sector has continued its spectacular growth so that these measures have probably had a useful effect.

LTS (2010) and NDUWAMUNGU (2011) report difficulties encountered by private woodlot owners when they apply for permits (long or very long delays) and the possible negative consequences of this situation on the forestry sector. On the other hand, the ministerial order of 2011 mentioned above (removing from Districts the issuance of cutting permits in the larger plantations) was taken to reduce reported abuses at the level of local government.

Permit requirements for imports and exports of wood products

Imports and exports of wood, which are very small, are governed by the national law regulating all imports and exports at national level (no specific provisions in the forest law). The procedure for exports is further explained in point 4.7. A transport permit is required to transport imported wood from the border to Kigali or any other market in Rwanda (sale certificate also required, no cutting permit required). Conversely, to export wood a permit delivered in Kigali by DFNC is required and so no transport permit is necessary.

5.2 Other institutional stakeholders

As introduced in paragraph 3, the three National Parks, two of them composed of forest ecosystems, are managed by Tourism & Conservation, a department of Rwanda Development Board (RDB). The organizational chart of Tourism and Conservation is presented on **Figure 12** in ***Annex 5***. With a total of 290 employees working for forest national parks in Tourism & Conservation (counting at central level only two thirds of the Conservation Division and only the staff of Nyungwe and Volcanoes National Parks, exclusive of NGO staff working in these parks), this is equivalent to 1 employee for 4 km^2 . Talking about trends, in the third National Park of the country, Akagera, which is a savannah park, a new system has been implemented since 2011 whereby the management of the park is sub-contracted by the Government to a professional operator. This model might be eventually extended to the two forest national parks, Volcanoes and Nyungwe, although in Akagera some questions about these new modalities have not found a satisfactory solution (implications and official status of armed rangers if employed by the operator).

The management authority regarding CITES species is within Tourism & Conservation (one officer of its Conservation Division).

Rwanda Environment Management Authority REMA is the overall regulatory institution for environment in Rwanda and as such has a cross-cutting role. REMA and RNRA have collaborative relationships as they are the two authorities that make up MINIRENA. REMA is seen by stakeholders as an influential, powerful and dynamic institution. Regarding its role in forestry, it can for example forbid the use of eucalyptus species on some sites. Questions of overlaps of competence with other institutions such as DFNC or Tourism and Conservation (sometimes depicted in the past as encroachment) have been gradually solved as the missions of each institution are better and better defined.

Some staff of the ministry of agriculture and decentralized agricultural officers also has a role to promote agro-forestry, beside DFNC.

As indicated in paragraph 4.1, the Ministry of Infrastructure MININFRA, in particular its Energy, Water and Sanitation Authority (EWSA), is responsible for policy definition in the sector of energy and therefore also works on the subject of wood biomass energy such as issues of charcoal production and use (supply, end-user side, etc.).

Awareness of the importance of forest resources for protection purposes (watershed services) and wood production is widespread among decision-makers, with an associated political will in that sense. As explained in paragraph 3, district authorities and their staff have the main role to organize concrete forestry actions on the ground. It is at the level of the protection of the woodlands that many types of local civil servants are involved and take an active part, beside the district forester and sector forest animators: Local Defence (local police), army, head of administrative cell, village chief.

The police force has the main role in the control of the transport of the wood along the roads and in town, based on the permits issued by the DFOs. This is part of their daily work and is effective. District forestry staff, DFOs in particular, sometimes takes part to road controls of the transport of wood but this is irregular as they have many other important tasks.

The Customs are responsible of the whole procedure of imports of wood products and a large part of the procedure of export of wood products (see paragraph 4.7: on customs procedures). The Customs Services are one department of Rwanda Revenue Authority (RRA), the authority collecting most forms of taxes in a centralized way (Ministry of Finance and Economic Planning, MINECOFIN). The customs are using the internationally standardized ASYCUDA system (Automated System for Customs Data) introduced by UNCTAD (United Nations Conference on Trade and Development).

MAGERWA is the privatized enterprise which runs the customs warehouses. It has a contract with the Customs services and is supervised by them.

The tribunals and the judicial system have a role in law enforcement in theory. Nevertheless, serious forest offences are very rare as few would dare engaging in large scale illegal forest activities. No specific cases in court relating to forest resources have been mentioned. No problems of lack of penalty application are reported at any level.

The government is strictly controlling corruption in all administrations. Severe penalties are applied when civil servants are convicted of being corrupt. As a consequence, the prevalence of corruption is much rarer than in other countries of the region. As regards forestry services, due to the unclear nature of the obsolete regulations on the forest finance (still in force but being revised), petty corruption is reported to affect the issuance of permits (LTS, 2010a).

Regarding armed institutions and forces, which in some countries have factions frequently involved in trafficking forest natural resources, sometimes on a large scale, no cases of such a nature have ever been reported concerning Tourism & Conservation in Rwandan national parks or the army. On the contrary, the army is seen as collaborating with forest institutions to protect Rwandan forest resources.

Forest research in Rwanda is conducted by a sub-department of the agricultural research (Rwanda Agricultural Board, RAB). DFNC has a unit partly dedicated to forestry research, which will work in liaison with RAB forest-based programmes.

5.3 Other actors

As regards the technical and financial partners of Rwanda (development agencies and projects), their action is coordinated in platforms of discussion, the sector working groups. In the case of agencies working in forestry, it is a sub-sector within the sector Environment and Natural Resources and the platform is chaired by MINIRENA. There are monthly meetings plus joint sector reviews twice a year. In one review, the workplan (policy actions) for the next fiscal year is presented and in the other review the ministry, MINIRENA in this case, presents the actual achievements to MINECOFIN and the Presidency and is evaluated for each policy action. Among donors, the Swedish cooperation is the current trainer for the sector Environment and Natural Resources and the Belgian cooperation has played a similar role in forestry, although this official leadership role is not so marked.

The Belgian cooperation has been supporting the implementation of the national forestry policy for several years through the implementation of the PAREF (Support Program to the Development of the Forestry Sector in Rwanda, "PAREF.be") which deals with institutional support, with afforestation on public and private land and with capacity building for the actors of the forest sector.

The Dutch cooperation has been supporting the forestry sector through another component of the PAREF, concentrating on afforestation on public land for energy purposes, with associated institutional support to district authorities and the development of specific decision-making tools useful to the sector ("PAREF.nl").

The Swedish cooperation has funded the project Rwanda Land Use & Development Master Plan (2008-2010), the primary output of which has been the country-wide coverage of rectified aerial photographs produced by Swede survey. Based on this, the Land Registration Project has achieved the registration of land properties for the whole country, including forest plantation plots, an exercise which is being completed and is a significant progress. The Swedish cooperation considers funding projects in forestry but has postponed decisions on this.

AfDB is funding the project of sustainable Management of forest plantations and Restoration of natural Forests of Rwanda (PGReF). It deals with agro-forestry plantations, forest plantations on public land, management of existing public plantations and the restoration of natural forests (inside and outside national parks). It is coordinated by DFNC.

FAO has been supporting DFNC in developing a methodology to prepare the woodfuel Supply Master Plan of Kigali. As part of that project, the system called WISDOM has been set up, focusing on woodfuel, which can be used to prepare and manage the Supply Master Plan (DRIGO & NZABANITA, 2011).

The EU supports FLEGT-related projects through FAO (calls for proposals; see point 4.12 below).

Besides "governmental" international cooperation agencies, international environmental NGOs are present and active in the forest sector in Rwanda. The main ones engaged in forestry activities are Vi-Life (Vi Agroforestry and Swedish Cooperative Centre), IFDC (SEW project), SNV (charcoal value chain). The conservation NGOs giving support to the two forest national parks of the country are WCS in Nyungwe and several ones in Volcanoes National Park.

Many civil society organizations (NGOs, cooperatives and associations) are active in the forestry sector across the country. Nevertheless, most of them have local objectives. The majority of them are involved in tree planting activities. Among the main ones with a national presence are ARECO, NBDF (Nile Basin Discourse Forum), RWABASO, RWASSEF, Forest Company Volcanoes Gorillas, Helpage Rwanda, Duhamic ADRI, ACNR, etc.

Tea factories use large amounts of firewood and they have their eucalyptus plantation estate to produce at least part of their wood supply. At least one (SORWATHE) is known to apply intensive management in their woodlands, but otherwise little is known on these estates.

Given the size of woodlands, the availability of labour, logging is hardly ever mechanized (felling and timber extraction) (see point 7) and there are no "logging companies" in Rwanda as they exist in central Africa for example. The buffer zone of Nyungwe National Park is currently the only and very new example of a large and long term concession given by the State to a private investor. The latter, the New Forests Company NFC (international with national investors) will log but also regenerate the whole estate. (See point 7 regarding the industrial facilities planned around Nyungwe and also regarding any other actors of the processing industry).

Apart from tea factories for their own use and NFC, currently the involvement of the private sector in forestry is concentrated in manual harvesting, manual processing (stacking of firewood, charcoal making, pit sawing), transportation and marketing of wood products. More information of these actors of the wood value chain, until now mostly informal, can be found in LTS (2010d). Various initiatives of the Government and its technical and financial partners to structure these actors have been launched (promotion of formal cooperatives, etc.).

In recent years, some private operators have engaged in nursery seedling production and tree plantations, but most were initially not professionals of this activity and still have organizational and technical weaknesses. Private companies implementing contracts of forestry works (nurseries, plantations e.g.) have few professional qualifications in forestry in most cases (senior management with no forestry background, employing junior rural development technicians). Yet, the new forest policy promotes the involvement of the private sector in all forestry activities, including on public woodlands.

Downstream, the wood retailers (sawn wood) and carpenters of Kigali are gathered in a centralized market in Gakingiro. The trucks transporting the timber from harvest zones in the country or from the Congolese border bring the wood to that market daily. The wood retailers and carpenters are organized in two similar cooperatives, ADARWA and APARWA. These cooperatives have a role of intermediary between the craftsmen and the State. ADARWA keeps records of the truckloads entering the market but the data have not been fully processed.

5.4 The Legality Verification Systems

A base or an embryo of several components of a Legality Verification System exists and other elements remain to be built. For a start, one weak point is that currently the information systems in use are minimal.

On the other hand, the definition of legal timber does not cause many problems. It is anticipated that the enacting of the new forest law will further improve that point.

The movement of the wood is fairly strictly controlled. It is a system adapted to a situation of very limited forestry staff at decentralized level, while the road police are deployed everywhere: transport permits are issued by the DFO, and the trucks and vans are systematically controlled on all roads by the police, based on this document. Nevertheless, there is no associated wood tracking system (see paragraph 4.5 below), so that the ultimate efficiency of these effective controls is limited.

Finally, there is no particular independent monitoring.

5.5 Timber Tracing

There is currently no timber tracking system in place, neither at the level of database or written records nor at the level of marking of wood products.

5.6 International conventions and trade agreements

International conventions

Rwanda is a member of the COMIFAC / CEFDHAC.

The Greater Virunga Transboundary Collaboration GVTC between Rwanda, Uganda and D.R. Congo is a collaborative management framework concerning the mountain gorilla habitat on the Virunga volcanoes.

Trade agreements

Rwanda has concluded bilateral trade agreements to facilitate movement of goods with neighbouring countries. At the regional level, Rwanda is a member of the Economic Community of the Great Lakes Countries (CEPGL), the Common Market for Eastern and Southern Africa (COMESA). Rwanda left the Economic Community of Central African States (ECCAS) and joined the East African Community (EAC) in 2007 and is a member of the Commonwealth since 2009. Practically speaking, it is the membership of the EAC that seems to have most influence over the modalities of Rwanda's imports and exports of wood.

5.7 Requirements for Export of Forest Products (including custom procedures)

Rwanda exports very small amounts of wood products, most of them processed or at least semi-processed. The procedures of export of these products are not different from the procedures for other products. These procedures can be found on the RRA website / Customs Services. To export timber legally from Rwanda, which currently rarely takes place, an export permit delivered by DFNC in Kigali is necessary.

5.8 Law Enforcement

Compared to the countries of the region, forest law enforcement is strict. For example, Nyungwe forest was already managed de facto as a national park at least 5 years before being gazetted as an official one, meaning that in a number of cases good governance practices *precede* the actual law to establish them. Forest clearing and then pit sawing of hardwood timber species were stopped about 10 years ago. Illegal activities which still occur in forest national parks are the collection of firewood, the cutting of bamboo poles and poaching. This is the result of the work of park staff (decent number of rangers, even if their number is not so high compared to the population density; effective patrolling; application of penalties for infractions; etc.) and the fair collaboration received from local authorities around the parks. The army had a role some years ago to collaborate with park rangers when there were security problems near the borders but nowadays plays a limited role in park law enforcement. Transborder collaboration networks between Rwanda, Uganda and D.R. Congo national parks were developed around the Virunga volcanoes already in the mid-90s (Volcanoes National Park, Mgahinga Gorilla National Park and Virunga National Park respectively). Similar transborder collaboration has been built the last years between Rwanda and Burundi (Nyungwe and Kibira National Parks). A stone wall is being built around Volcanoes National Park to further reduce the pressure.

Outside protected areas the clearing of planted woodlands is no longer a problem either. Cutting of wood in private woodlands by the owners is even strictly controlled by the governmental services (see the list of these services in one of the next sentences). The weak point is the surveillance of public forest plantations, which are subject to gradual illegal cuttings (pilfering or more substantial impacts). The fact that public plantations are the main target of illegal activities is due to their relative isolation and the fact that for many years they have been abandoned. Given their relatively large size, they occupy comparatively more isolated sites, often on hill tops, more distant from populated areas where there are many witnesses. As they have not been managed and open to harvesting, there is no or little presence of civil servants in their vicinity. The small number of Forest Extensionists that are appointed at sector level is another explanation.

At central level, the law creating RNRA stipulates the following: in order to fulfil its responsibilities, and in the framework of protection and preservation of forest resources and tracking all those who abuse these resources, DFNC has the competence to order the suspension of activities of deforestation, trade of forestry products, import and export of wood in case these activities do not respect the provisions of laws relating to forestry in

Rwanda. DFNC is currently setting up its Forestry Inspection and Monitoring Unit, as Forestry Inspectors are being recruited to be deployed at the level of the 4 provinces.

At decentralized level, as explained in paragraph 4.2, all sorts of authorities and forces take part to forest law enforcement: DFO, Forest Extensionists, police, Local Defence, army, local authority at cell and village level.

Among them, DFOs and ordinary traffic police are the main one to follow up the adherence of forest dealers to regulations. Any contravention is generally fined, the amount depending on the type of offence, including sometimes confiscation of products. For example, when a dealer is found transporting wood products without transport permit, the fines applied range from about US$ 80 to US$ 120. In order to restrict corruption, all payments are normally done in a nearby bank and a receipt is issued upon exhibition of a deposit slip for corresponding charges. No police or forestry staff is allowed to receive cash (NDUWAMUNGU, 2011).

5.9 Information and Monitoring Systems

For a number of years now various systems of monitoring and information management are operational for forest protected areas, even though they could still be improved: GIS, Ranger-Based Monitoring System, scientific surveys, etc.

In contrast, as regards forest resources for production, as indicated in point 4.4 above, until very recently information and monitoring systems in use have been minimal. But a series of forestry decision-making tools have been developed in the last years with the support of international cooperation agencies, and the construction of such information systems is on-going. A small GIS has been set up in the offices of the main afforestation programmes to manage the plantation sites and related plantation operations. The country-wide coverage of rectified aerial photographs produced by the Swedish survey in 2008-09 is a very important tool allowing many applications, in particular the national forest mapping which has been completed recently. Based on that, a national forest inventory is being launched. The WISDOM GIS has been developed and upgraded and a woodfuel Supply Master Plan of the capital will be available soon. The development of such information systems has met constraints of limited capacities of DFNC in terms of human resources and problems of delayed ownership taking of these tools.

The building of a “System of Information and Permanent Evaluation” for DFNC is an activity planned by the programme PAREF.be. This system, combined to a GIS, would integrate the aforementioned tools and centralize the various types of information necessary for forest management and planning. However, the feasibility of setting up such an elaborate system in the short term remains to be confirmed: see constraints mentioned above, gaps are the individual components to integrate. The National Institute of Statistics of Rwanda has created recently a monitoring system of the forestry sector (as a kind of module of their larger data management for all sectors of the economy) (NISR, 2011), but it has been done in an independent way from DFNC and is not in use. NISR will be involved in the development of the System of Information and Permanent Evaluation for DFNC to avoid duplications.

Until now, a general trend observed in reporting systems and performance measurement systems of the Government is an overemphasis asked and put on figures of number of seedlings produced, number of seedlings planted and number of hectares planted and a big gap concerning other elements of information which are as crucial for forest resource management and planning: survival rate, growth, management parameters, wood harvest, etc.

NDUWAMUNGU (2011) indicates that the lack of an adequate and systematic recording system of forestry business transactions is a great bottleneck to the development of a profitable forest business in the country. Forest actors should be educated on record keeping so as ensuring easy monitoring and evaluation of the performance of the sector. This author adds that, even though private forest plantation owners pay taxes in order to obtain harvesting permits from local governments, these payments cannot be easily separated from other taxes due to poor recording systems of sources. Even penalties paid for contraventions related to forestry business such as transportation of illegal timber, illegal harvesting and transportation of forest products, etc. are entered in the general basket “revenue” account.

5.10 Certification

There are currently no certified forestry operations in Rwanda.

5.11 Transparency in the Sector

On the one hand the regulatory framework is pretty much transparent as a whole and compared to countries of the region. In general, the main rules are clear and published. There is usually a special section on regulations and procedures on the web site of the main authorities, even if these sections could be improved. Progress is still needed in forestry regarding some subjects like forest fiscality which remain obscure as long as the new law is awaited. Most dealers involved in the production and marketing of wood products are complaining about the process of issuing permits by local governments, which is seen as not transparent; it is commonly admitted that this system needs to be reviewed and harmonized throughout the country (NDUWAMUNGU, 2011).

On the other hand, it has been difficult during this mission to obtain information on the new concession in the buffer zone of Nyungwe National Park and the procedure that was followed to award that contract. Of course details of the contract are confidential due to commercial reasons but tender documents could not even be accessed. It has also been difficult to obtain information on the content of the new law in preparation.

5.12 FLEGT activities to date

Taken as a whole, the concepts of improved forest governance, forest law enforcement and legal wood trade (AFLEG, FLEGT) have been on the agenda for several years in Rwanda. Indeed, the country has taken part in these discussions and processes under different umbrellas or with different support sources (EAC, CARPE/IUCN, FAO ACP-FLEGT Support Programme). In particular, the following meetings have taken place: meeting in Nairobi in 2008 to discuss the preparation of a FLEGT action Plan for the 5 countries of the East African Community, national workshop on FLEGT in 2009 in Kigali (MINIRENA, UICN, 2009), international workshop on FLEGT in the Great Lakes Region in 2010 in Bujumbura (FAO, 2010a). The report HAMBIYAMBERE (2008), validated at the 2009 national workshop, presented the progress of the implementation of AFLEG in Rwanda at that time. The Great Lakes workshop in 2010 was an important benchmark as it offered an opportunity of dialogue between the countries concerned. The progress of the FLEGT process in Rwanda by 2010 was also discussed at that workshop. Finally, one officer of DFNC is the national FLEGT focal point.

As regards more precisely the FAO ACP-FLEGT Support Programme, it funds the Project to support the improvement of the legislations regulating the transboundary wood value chains in the Great Lakes countries (Rwanda, Burundi, Uganda, D.R. Congo). This project is still on-going and its focal point for the implementation is the DDG Forestry and Nature Conservation at DFNC in Kigali.

Practically speaking, a bottleneck to improve forest governance in the country has been for some time now the need to reform the forest law. The on-going process of revision of this law is one of the important steps taken that goes in the direction of FLEGT objectives. Once this is completed, the bottleneck of the shortage of available experienced human resources to engage in effective forest management will still need to be overcome. On the other hand, law enforcement to protect national forests is advanced in Rwanda compared to the neighbouring countries (deforestation was checked around 2002 after the previous troubled period). As to the question of the use in Rwanda of timber harvested in D.R. Congo without guarantees of legality in that country, officials met in Rwanda consider that the wood is legally imported. In other words, the smuggling of timber through the borders between the two countries is prevented altogether so that all products are imported through the border posts where all procedures are followed. Consequently, no specific improvement measures were suggested concerning those imports.

As regards the interest of the authorities in the FLEGT action plan, there are some contrasts. On the one hand there is a kind of wariness of something which can be perceived as costly and heavy imposed from outside or at least driven by outside preoccupations. On the other hand, the question of the harvesting of the various natural resources of D.R. Congo is a sensitive one, in which Rwanda has been regularly depicted as a transit country for these resources. In order to counter this depiction, the Government seeks to portray the country as a champion or leader in good governance as regards natural resources in the Great Lakes region. In that framework, there is a declared interest of the Government for processes which increase the degree of control over the timber production, harvest and trade flows, in particular principles like tracing and certification.

5.13 REDD+

Generally speaking, Rwanda takes part to the REDD process (increase carbon sequestration, etc.) but is not in a position to sell carbon credits. There is currently no direct REDD+ programme. DFNC has a Carbon Market Officer. An afforestation programme like PAREF.nl certainly has a tangible effect in carbon sequestration. The PAREF.be programme will soon launch a national forest inventory based on the high resolution mapping of national forest resources completed in 2012. The development and setting up of a system of determination and monitoring of carbon stocks is planned as one activity of the PGReF project of AfDB. Otherwise the REDD+ mechanism remains not well known among forestry stakeholders.

6. The Fuelwood Market

Firewood and charcoal together represent more than 98% of cooking energy consumption. The national consumption for these products is estimated to be equivalent to about 4.6 million m^3 RWE per year (MARGE, 2008a).

Details on the woodfuel market and in particular the charcoal value chain can be found in MARGE (2008), DRIGO & NZABANITA (2011), BLODGETT (2011) and RICHTER (2012).

As introduced in point 4.1 above, in a context of rapid development of the country in the last years, energy supply (all forms) has become a major preoccupation and one of the top priorities of the government. The current ambitious policy is marked by an objective of diversification of the sources and an objective of scaling up very significantly electricity access (from the current 100 MW to 700 MW by 2017), including for households. This means challenges like the need / determination to maintain affordable prices and to find technical solutions for rural supply given that the housing in Rwanda is typically scattered. Wood biomass energy is felt to become insufficient to satisfy the demand and as part of the diversification strategy, household use of woody biomass could eventually be partly replaced by the alternatives developed. On the other hand, improved and controlled charcoal making, including some industrial production, is going to be an important aspect of this strategy.

7. Forest utilisation

As explained in paragraphs 2 and 4.1, practically all natural forests and woodlands are set aside as protected areas for conservation. Therefore, practically all the national production of wood has to come from tree plantations. Since the ban on harvesting of public plantations in 2000 (which starts to be lifted as in Nyungwe buffer zone), except for imported products, almost all wood products used in the country are extracted from private tree plantations/woodlots.

According to many published calculations, a few of them based on original surveys, even including the large amounts of wood produced from scattered trees, the current consumption of firewood and charcoal exceeds sustainable supply (over-harvesting of the resource). Similar conclusions are drawn for timber: sawnwood consumption, even taking into account imports of hardwoods seems to exceed the levels of sustainable production (LTS, 2010c). However, these calculations published until now are based on the figures on the extent of forest resources available until now, which were not accurate. Moreover, to field professionals the condition of woodlands does not really seem to have deteriorated in the last decade: the resource seems more or less stable (no obvious decrease of the average age of the stands, etc.).

Nonetheless, if this fragile balance is confirmed, the following improvements appear vital for the forestry sector: use of better seeds, improvement of the standards of nursery production, improvement of site-species matching, introduction of stand “maintenance” (not to mention silviculture), introduction of forest management (few woodlands have proper management plans actually applied: some tea plantations e.g.), increasing of the resource by planting (woodlots or agro-forestry), improvement of wood processing ratios.

As natural forests and protected areas are effectively protected and deforestation is under control, it is one of the few countries of this part of Africa where private forestry, involving voluntary planting and tree tending, does not suffer so much from the marketing competition of wood harvested illegally without supporting production costs.

8. The Forest Industry Sector and Domestic Timber Market

At present, there is actually no real wood industry in Rwanda, it is an artisanal sector.

As regards the forest based industry, most operations of harvesting are done by hand and using manpower. Downstream processing is also mostly manual, apart from the use of electric machine tools in the carpentry workshops, which remain small scale activities.

Felling, harvesting systems and logging operators have been discussed above in point 4.3 describing the actors concerned. As indicated, logging operations are hardly ever mechanized in Rwanda. NFC envisages the removal of harvested timber by cable in the steep Nyungwe buffer zone.

Like for timber harvesting and extraction, most of the downstream processing of the wood in Rwanda is done in an informal way and either manually or in small-scale units.

The carpenters of Gakingiro wood market of Kigali have been briefly described in paragraph 4.3. In this market, the main cooperative of wood dealers and carpenters, ADARWA, includes more than 100 members (wood dealers), provides employment to about 4000 people (including casuals, wood transport staff, etc.). In 2009, it handled (processed / resold) about 44,000 m^3 of sawn timber (NDUWAMUNGU, 2011).

Until recently, a single industrial processing unit existed in the country, SORWAL, which was producing matches (before 2000 from timber thinned in the plantations of Nyungwe buffer zone). NDUWAMUNGU (2011) indicates that its performance deteriorated and it was closed in 2008 pending payment of Government taxes and staff salaries amounting to about US$ 3 million. The plant has a capacity of processing 2,160 m^3 of wood, but in the last decades it was processing much less. Negotiations are on-going in order to operationalize the plant again and increase its production to full capacity.

There are currently no industrial scale processing operations in the country. Some companies in Kigali make wooden furniture and have well developed workshops, but these are not really industrial in terms of size and automation.

One recent development is the signature of the long term concession contract between the private international forestry company NFC and the Rwandan Government concerning the management of the buffer zone of Nyungwe National Park, made of extensive timber plantations, many of them mature. The contract concerns the harvest and replanting on the estate, together with the setting up of industrial processing facilities. After completing earlier in 2012 their general forest inventory of the woodlands of the buffer zone, NFC is currently taking strategic decisions on what products it will produce from the wood harvested and where the processing units will be established in the near future. The company plans or envisages the following processing facilities (by order of priority or decision taken):

- charcoal production: from eucalyptus;
- two sawmills to produce sawn wood;
- electric poles: from eucalyptus;
- plywood (triplex) (rotary peeling).

At the time of the study mission, no further details were disclosed like capacities, destination markets, timetable, recruitment, equipment technology, etc.

9. The timber trade

9.1 General picture

The following chart in the **Figure 1**, derived from UN Comtrade data, summarises Rwanda's trade in wood-based products for the period 2000-2012. This series of UN Comtrade data on Rwanda already included in March 2012 the figures of 2011, which was not the case for other countries of the study. This is followed by **Figure 2**, which is a map of the main flows of wood products in 2012.

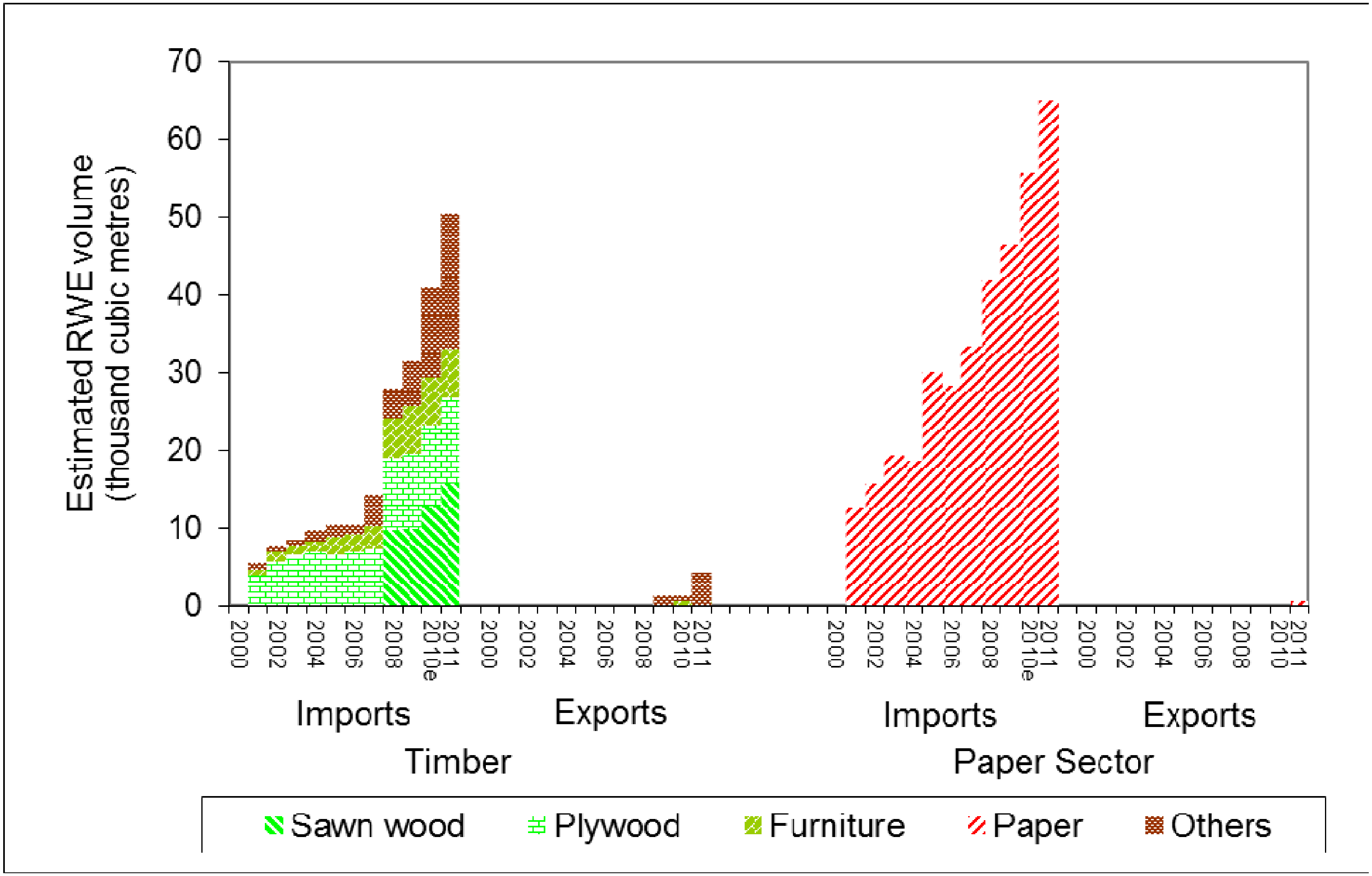

Figure 1 Rwanda's trade in wood-based products (2000-2011, by product)

Source: based on UN Comtrade, 2012 (see metadata in Annex 4). Import statistics for 2010 are not presented by the source and are estimated here (as the average of data for 2009 and 2011)

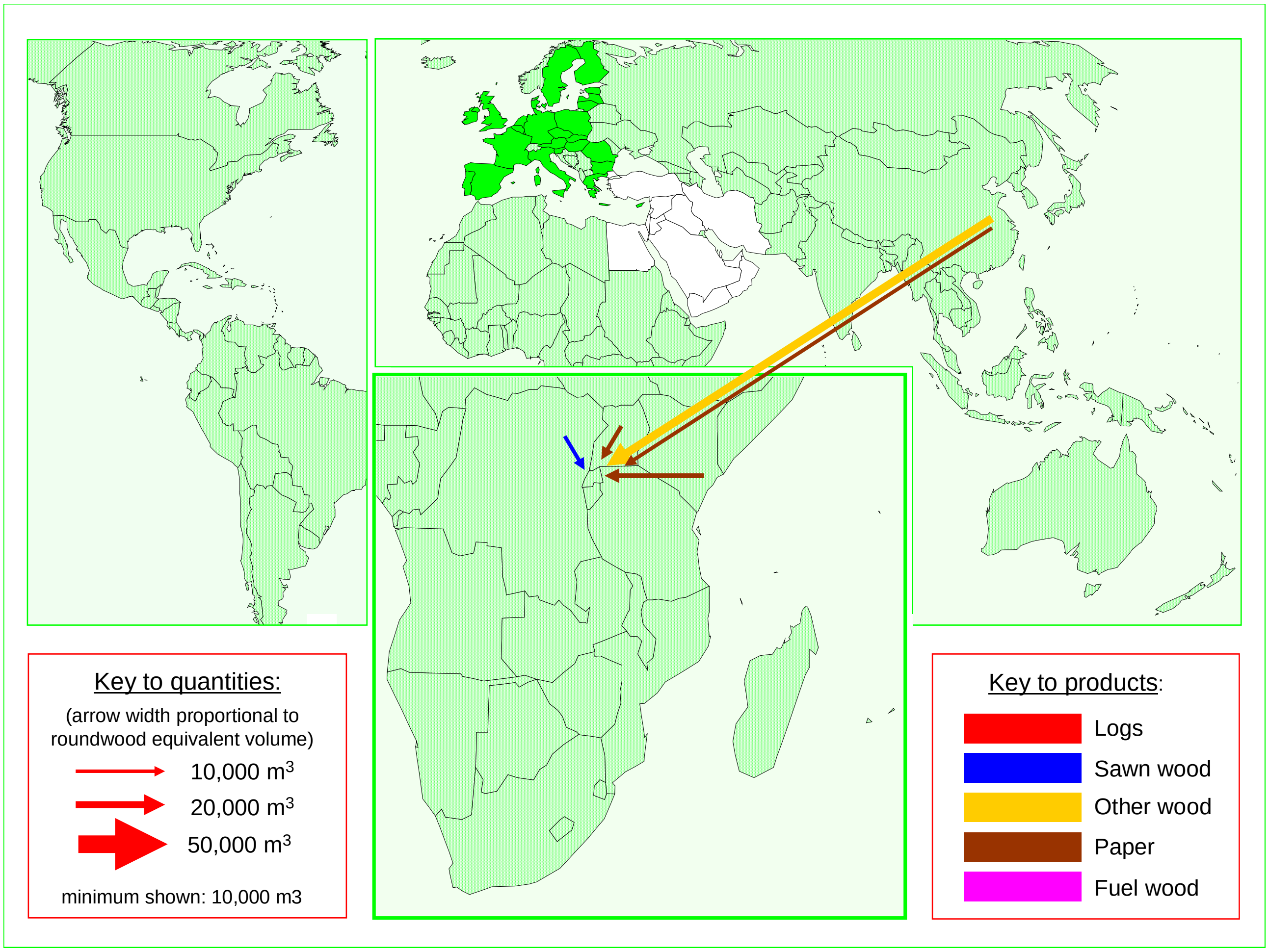

Figure 2 Map of the main flows of wood-based products concerning Rwanda (2011)
Source: based on UN Comtrade, 2012. (Estimated RWE. See metadata in Annex 4).

The main characteristics of the exchanges of wood products concerning Rwanda are that exports are particularly small (about 5000 m^3 RWE in 2011) and imports are not very big (about 120,000 m^3 RWE in 2011), but both are steadily increasing. Exports of Rwanda to EU-27 of all wood-based products, useful to consider when FLEGT perspectives are discussed, are nil. The national demand of sawn wood is mainly met by softwood produced in plantations in Rwanda, the main species being *Grevillea robusta*, and various coniferous timber especially pine. Hardly any softwood from plantations is imported as there is no surplus of these products within reach in any of the neighbouring countries). Conversely, Rwanda does not produce hardwood so that about 10% of the national consumption of sawn wood is hardwood imported from D.R. Congo (LTS, 2010c). The rest of the imports of wood-based products by Rwanda are processed or semi-processed (paper, panels in particular), as the country currently does not have a wood processing industry.

In the last decade, one of the main concerns as regards forest resources in the Great Lakes region has been illegal logging in eastern D.R. Congo for export to the east (Uganda, Rwanda, Burundi, Kenya, Tanzania and further), because of the scale and ecological impacts of this logging. A large number of studies have been conducted on this subject and numerous reports produced. In particular, timber flows from D.R. Congo across the borders of the aforementioned countries have been the subject of 3 studies before the present one in the last years: the study of Forests Monitor (2007) remains a reference (field surveys carried out); the study of CHEVALLIER *et al*. (2012) is partly based on the previous one; WHITE *et al*. (2012) (field surveys carried out with the participation of DFNC); RUZIGANDEKWE (2012). Regarding recent results as far as Rwanda is concerned, the findings of WHITE *et al*. (2012), after conversion to RWE volumes, are not very different from the ones processed from the UN

Comtrade database (in turn coming from Rwanda customs services), and were not contradicted by the observations during the present mission.

Therefore, the main flows of wood products across the Rwandan borders can be summarized as follows for the last years:

- No significant flows of logs (hardwoods or softwoods);
- D.R. Congo to Rwanda (imports): about 14,000 m3 RWE of sawn hardwood, some of it via Uganda, nothing via Burundi;
- D.R. Congo to Tanzania (or Kenya) via Rwanda (transit): no evidence found of transit of sawn hardwood;
- Rwanda to D.R. Congo: some charcoal, some sawn softwood, not in large quantities though;
- Tanzania to Rwanda (imports): no evidence found of imports of sawn hardwood. Main source of manufactured products coming from Dar-es-Salaam (paper, panels, furniture, etc.). Small amounts of charcoal imported by the drivers of ordinary trucks;
- Uganda to Rwanda (imports): other source of manufactured products mainly from Mombasa (paper, panels, furniture, etc.);
- Burundi to Rwanda (net imports): opportunistic, small scale and local flows of wood products, mainly towards Rwanda because forest law enforcement is stricter in Rwanda.

More details on these flows can be found below and in the above-mentioned studies, in particular in WHITE *et al*. (2012).

The map of **Figure 4** in ***Annex 3*** shows the main roads of Rwanda and the distribution of border posts.

9.2 Exports

Exports of all wood-based products by Rwanda were nil until 2008 and have been increasing since then, although they remain very small: 1,000 m^3 RWE in 2009 to 5,000 m^3 RWE in 2011. As no VPA core products and no furniture are exported, these very small exports are miscellaneous other timber sector products, mainly panels other than plywood, to Uganda.

In spite of the contrast in forest resources between the two countries, Rwanda exports some charcoal towards D.R. Congo, mainly to the town of Bukavu and also towards the town of Goma. Some sawn softwood timber from Rwanda is also sold in Bukavu. Although this is in small quantities, it is a sign of the depletion of the wood resources around these towns that have significantly grown during the last decades. These exports of charcoal do not appear in the UN Comtrade statistics (maybe because the figures are too small) and surprisingly at least some of this transborder trade is informal (not through border posts and without formalities). During the fact-finding mission, a truck of charcoal was observed being offloaded into a boat with passengers bound for Goma (D.R. Congo) in a cove a little south of Ginsenyi, with no sign of presence of customs officers. These informal transboundary movements are also mentioned by WHITE *et al*. Although it is probably not worth making a fuss about these informal exports, given the small quantities and given that the wood is produced in man-made woodlands, it contradicts the idea of perfectly controlled movements of wood products through the border.

Until quite recently, the usefulness and value of the wood of the large plantations of pine was strangely unknown in Rwanda, even among foresters. Loggers from Uganda were welcomed to carry out thinnings in those woodlands and the wood harvested was exported to their country for a time, until the marketing potential of that wood was realized locally and exports of sawn pine stopped soon after it started.

9.3 Imports

The series of UN Comtrade data on Rwanda indicate that imports have been steadily increasing during the decade. Imports of all wood-based products evolved from 15,000 to 120,000 m^3 RWE / year. Among these, paper imports represent about two thirds: from 10,000 to 65,000 m^3 RWE/ year. As regards timber products imported, they are processed, and after 2007 also semi-processed. Rwanda has imported a few “logs” only in 2011 (probably eucalyptus poles for electric lines). So imports of timber products concern mainly three types of products: sawn wood (0 to 16,000 m^3 RWE/ year), plywood (4,000 to 11,000 m^3 RWE / year) and furniture (1,000 to 6,000 m^3 RWE / year). Paper imported by Rwanda mainly comes from the study countries (Kenya, South Africa, Uganda), some from the rest of Africa (increasing), from the rest of the world (increasing), from China (increasing) and EU-27 (decreasing). The recent limited imports of logs / poles come from the study countries. Sawn wood imported comes from DR Congo (0 from 2000 to 2007 and 5,000 to 8,000 m^3 / year from 2008 to 2011, mainly hardwoods). Plywood imported comes from the study countries and some from China.

Sawn hardwood imported from D.R. Congo is of 3 main species:

(i) Libuyu, which is the regional commercial name for a group of mahogany species of eastern Congo, mainly of the genus *Entandrophragma* (some may come from montane forest which follows the west of lake Kivu and Virunga National Park, umuyove; some may come from transition or lowland rainforest further (north /) west) but maybe also of the genus *Khaya*.

(ii) Umusave (*Markhamia lutea*), a tree of montane forests also present in Rwanda but in smaller diameters.

(iii) Muvula (*Milicia excelsa*), a tree of rainforests of the Congo basin (international commercial name Iroko).

This Congolese wood is imported in Rwanda as beams ("madriers") of 4.0 m x 0.25 m x 0.09 m, all of them sawn with a chainsaw (so not from sawmills). Most of this hardwood is transported to Gakingiro wood market in Kigali where it is sold next to sawn softwood produced in Rwanda. According to a rough and rapid visual estimation (snapshot during the visits of the fact-finding mission), about 10%, maybe more, of the volume of sawn wood sold in Gakingiro market is hardwood from D.R. Congo. Some beams bear no marks, some a mark with paint (the majority), and some are marked with a hammer indicating “DRC SORTIE KASINDI”. Kasindi is a Congolese border post with Uganda, next to Mpondwe (main entry point of Congolese timber to Uganda).

According to the various sources consulted the timber flows from DR Congo to the east, including Rwanda, have decreased compared to about 10 years ago. This reduction is caused by a combination of factors, the main ones being the multiplication of various / informal taxes paid on the Congolese side on the way between the forest and the border and apparently a gradual depletion of the forests, the most accessible ones first. Indeed, logging in eastern D.R. Congo is not industrial (wood sawn manually or using chainsaws and extracted from the forest without large vehicles) so that the forests near the existing road network are harvested excessively and eventually emptied. According to observations and interviews during this field mission, the volume of timber imported from D.R. Congo has declined significantly in 2012 since the beginning of the combats in the Kivu region of Congo related to the rebellion of the movement M23. However, the relationship between insecurity and intensity of logging is not straightforward as at times logging is an activity of armed groups which foster it.

As regards the question of any illegal imports of timber from D.R. Congo, see paragraph 10.1.

10. Trends and Key Issues

If current trends continue, with the growth of the economy, imports will continue to increase. At the same time, with the planned developments in Nyungwe buffer zone (NFC) which will probably be replicated elsewhere in the country, some exports are likely to start to the neighbouring countries. They will not be very large though, since the demand will remain high in Rwanda. If dependency on woodfuel decreases in the medium term, thanks to the development of alternative sources of energy, timber production for the national sawn wood market will increase and replace some of the hardwood imports from DRC. This could concern in particular eucalyptus of good quality, especially as the quality of plantations and sylviculture is expected to eventually increase. This trend can be strengthened if depletion of wood resources increases in eastern DRC.

11. Anecdotal information on volumes of undocumented and illegal harvesting and trade, major types of illegal logging cases

11.1 Anecdotal information on volumes of undocumented and illegal harvesting and trade

As regards imports from logging in eastern D.R. Congo and the discussion of the illegal nature of this logging, see paragraphs 8.1 and 8.3 above and WHITE *et al*. (2012). Smuggling of timber from Congo to Rwanda across Lake Kivu or across the Rusizi River south of Cyangugu is possible. During the rapid enquiries of this fact-finding mission and the survey of WHITE *et al*. (2012), the existence of this smuggling was confirmed by different sources but it is limited. WHITE *et al*. (2012) gives details on these illegal imports of sawn hardwood timber and also illegal exports of sawn softwood timber, which remain difficult to quantify; for the southern end of Lake Kivu, the tentative figure of around 1000 m^3 of sawn hardwood per year smuggled from D.R. Congo is provided, while no figures are available for the middle of the lake and its northern end.

Most sources confirm that some illegal cutting of trees is taking place in public woodlands in Rwanda, like it has been the case until now for example in Nyungwe buffer zone (for firewood, service wood (poles) and sawn timber). It is not real "logging" as it is hidden and gradual, apparently rarely with the use of vehicles, but the condition of the stands can be affected. No specific survey of this phenomenon has been carried out recently. The planned national forest inventory may shed some light on it.

11.2 Main types of illegal logging cases

The main types of illegal activities related to logging that are reported are:

- Harvesting of wood in private woodlands by the owner without cutting permit: rare;
- Transport of wood without transport permit: rare;
- Cutting and transport of more wood than what is indicated on cutting permit and transport permit: not mentioned as a big problem but likely to occur;
- Stealing of wood in public woodlands (plantations): common;
- Under-declaration of the value and amounts of imported products: common;
- Smuggling of hardwood timber from Congo to Rwanda: in spite of the fact that it is usually not recognized by Rwandan officials, it exists but is limited;
- Smuggling of softwood timber and charcoal from Rwanda to Congo: exists but is limited. At least, controls do not seem to be strict, so that this smuggling is rather like an informal export.

12. Stakeholder perceptions of illegal logging, challenges and the way forward

12.1 Stakeholder perceptions of illegal logging

There is not much to say about stakeholder perceptions of illegal logging as this is not a serious issue within Rwanda. The lack of management of public woodlands until now is deplored by many a forestry professional as it is an important cause of the illegal cuttings in those woodlands.

As to the perception of forest governance, several stakeholders of the forestry sector have deplored that the contribution of this sector to the national economy, which is quite important and essential, is not properly valued.

12.2 Challenges and the way forward

The shortage of trained and experienced forestry professionals has started to be addressed (a substantial part of the second phase of the programme PAREF.be is dedicated to this aspect, in particular through support to forestry schools) but it is not sufficient and it will take some time to fill the gap. Besides improving the capacities of DFNC staff and DFOs, it will be essential to transform the local Forest Extension Officers into a corps of forestry professionals forming an efficient field staff under the DFO in each district.

Maintaining some balance between the national production of wood and the demand in a country with an expanding economy and a still fast-growing population remains a challenge, keeping in mind that wood imports from the neighbouring countries will keep disadvantages (limited wood resources or limited forest governance). Nevertheless, as the context of forest governance is conducive, the current efforts in capacity building, afforestation, or more often in the future, reforestation, improvement of the productivity, introduction of forest management, will be fruitful if they are sustained.

13. Conclusions and Recommendations

A political will exists to solve the critical problems of the country, like energy supply, and make progress in the different sectors of the economy, including forestry. The Government of Rwanda has worked for years now on the themes covered by the FLEGT process and a good basis exists. Moreover, the Government is eager to present an image of good governance as regards natural resources. It means that there could be some potential for eventually discussing a Voluntary Partnership Agreement. Nevertheless, attention should be paid to the following considerations:

Rwanda is not exporting wood products to the European Union. Given the existing timber flows, any FLEGT discussions about Rwanda should naturally be considered in the wider context of forest governance and FLEGT activities in the Great Lakes region and what is going on in D.R. Congo in particular, which has not been the focus of the present regional study, so that definite recommendations cannot be given here.

On the other hand, compared to other sectors of the economy, forestry has actually received less attention from the Government (apart from the “mechanical” or “mathematical” emphasis on afforestation) and progress has been somewhat slower: substantial improvement in the management of the forest plantations within Rwanda is still required. Important issues in that regard concern the proper staffing of the institutions (including district forestry staff) and the system of sustainable funding of public interventions in forestry (including the channelling of this funding to the districts).

At the same time, the current period is a kind of transition for forest governance in Rwanda as the new forest law, the details of which are not known, is being finalized. When it is enacted and institutions like the Department of Forestry & Nature Conservation are fully staffed, it will bring evolution and some changes in the management of forest resources, hopefully in the direction of FLEGT principles. By that time it will be easier to precisely see what still needs to be done on that new base to enhance forest governance.

Besides developing Legality Verification Systems, a concrete possibility to contribute to the reduction of imports by Rwanda of hardwood that is harvested in dubious conditions in D.R. Congo is to develop the production of sawn wood of proper quality in Rwanda. This can be achieved by working on two aspects:

On the one hand by reducing the proportion of the wood resources which is consumed to produce charcoal: the main leverage is the improvement of the ratio of the conversion to charcoal by the replacement of the current traditional kilns by more efficient systems (improved small-scale kilns and possible introduction of semi-industrial kilns), which in theory “automatically” leads to large scale savings of wood. Currently, improved kilns are still marginally used and the objective would be to replace them altogether: the current efforts in that area should be multiplied. In many countries such a scheme would remain theoretical and difficult to actually achieve, but in Rwanda a transformation of this type is feasible. Of course, in this process it is necessary to continue to work simultaneously on the other aspects influencing the production of charcoal (improvement of the value chain as a whole, improvement of the forest legislation and fiscality influencing it) and to keep taking into account the realities on the ground (avoid solutions which are too sophisticated and not pragmatic enough).

On the other hand, by improving the quality of the timber produced (genetic material used (shape), improvement of the management standards and improvement of the harvest system). The fast grown eucalyptus wood has often the reputation to be of poor technological quality. However, in a number of countries of the tropics, eucalyptus wood of stable and fine quality that can be compared to the quality of hardwoods from natural forests is produced by applying the following specific harvesting method: girdling to kill the tree, which is then left standing for one year, and felling only after that rest period.

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Annexes

Annex 1. Organization of the field mission

The present country report presents the results of the desk study carried out in July and August and the mission in Rwanda which has taken place from 30 August to 7 September 2012 and from 21 to 27 September 2012. The mission schedule and the list of people met are presented in ***Annex 2***.

The work has been organized as follows:

- meeting of stakeholders in the capital. Objective: to obtain an in depth understanding on the situation and roles. Visits to the centralized wood market of Kigali (Gakingiro);
- field tour in the country with the following objectives:
  - visit to the main border crossing points. These are the western "gates" on the DR Congo /Lake Kivu side (mainly Gisenyi and Cyangugu), the border with Uganda to the north, the border with Tanzania to the east (Rusumo) and the different border posts with Burundi to the south;
  - meetings with decentralized forestry authorities (districts);
  - visits and meetings in Nyungwe National Park, Nyungwe buffer zone and other wood processing sites of the country;
  - visit to Butare / Huye District to meet academic resource people.
- complementary meetings, visits, collection of data and analysis in the capital.

The main difficulties met concern (i) the beginning of the mission which happened to coincide with the stepping down of the head of the Department of Forestry and Nature Conservation (DDG Forestry); (ii) the formalities that were required to get permission to visit border posts, to interview customs officers and to obtain customs statistics; once these formalities were completed, the Customs provided all information requested.

Annex 2. List of people met – Mission schedule

List of people met

N°	Name	Organization / Title / Position
1	Dr Emmanuel NKURUNZIZA	Rwanda Natural Resources Authority RNRA, Director General and the Registrar of Land Titles
2	Dismas BAKUNDUKIZE	Rwanda Natural Resources Authority RNRA, Department of Forestry and Nature Conservation DFNC, Acting Director of Forestry Management Unit
3	Augustin MIHIGO	Department of Forestry and Nature Conservation DFNC, Forest Industry and Carbon Market Officer. Coordinator of Rwanda Sustainable Woodland Management and Natural Forest Restoration Project
4	Jean-Claude SEBAHIRE	Department of Forestry and Nature Conservation DFNC, Forest Inventory, Licensing and Mapping Officer
5	Triphine UKWIYIMPUNDU	Department of Forestry and Nature Conservation DFNC, FLEGT focal point and Afforestation Officer
6	Janvière MUHAYIMANA	Department of Forestry and Nature Conservation DFNC, Forest Extension Officer
7	Télésphore NGOGA	Rwanda Development Board RDB / Tourism and Conservation, Acting Conservation Division Manager
8	François BIZIMUNGU	Rwanda Development Board RDB / Tourism and Conservation, Senior Conservation Planning Officer
9	Tony MUDAKIKWE	Rwanda Development Board RDB / Tourism and Conservation, Head of Veterinary Unit and Research and Monitoring in the National Parks and CITES Focal Point in Rwanda
10	Emmanuel HABIYAREME	Director of Planning, District Rusizi
11	Pierre NIYIBIZI	District Forestry Officer Rusizi
12	Ezéchiel NSABIMANA	District Environment Officer Rusizi
13	Ezéchiel NSENGUIYUMVA	Vice-Mayor in charge of Finance and Economic Development, District Rubavu
14	Assumani MWEMEZI	District Forestry Officer Rubavu
15	Raphaël MPAYANA	REMA, Coordinator of the Protected Areas Biodiversity Project PAB (GEF)
16	Jean GAPUSI	RAB, Head of the Programme Forest Tree Seed Center
17	Thaddée HABIYAMBERE	President of the national Forum of CEFDHAC and freelance forestry expert
18	Rosine UWAMARIYA	Rwanda Revenue Authority RRA, Office of the Commissioner of Customs, Gikondo Head Office
19	Jérôme MUGEMANYI	Rwanda Revenue Authority RRA, Section Trade Statistics & Documentation, Gikondo Customs Head Office
20	Théoneste MUTAGOMA	Rwanda Revenue Authority RRA, Customs Officer Rusizi II
21		Rwanda Revenue Authority RRA, Customs Officer Akanyaru-Haut
22	François BAYINGANA	Rwanda Revenue Authority RRA, Customs Manager Ruhwa Border
23	Epimaque KABANDA	Rwanda Revenue Authority RRA, Customs Officer Ruhwa
24	Théophile NSANZIMANA	Rwanda Revenue Authority RRA, Acting Customs Manager Rusumo Border
25	Mr MURANGI	Rwanda Revenue Authority RRA, Customs Officer Gisenyi Grande Barrière (Gisenyi Corniche)
26	Jean-Claude MBARUSHIMANA	Rwanda Revenue Authority RRA, Customs Officer Gisenyi Petite Barrière (Gisenyi Poids Lourds)
27	Boniface MBARUTE	Rwanda Revenue Authority RRA, Customs Manager Cyanika Border
28	Mr Dixon	Rwanda Revenue Authority RRA, Customs Verification Officer, Gikondo Head Office
29	Diego ZURDO	Delegation of the European Union to Rwanda, 2nd Secretary, Head of Section Rural Economy, Food Security, Decentralisation and Environment
30	Olivier MACHIELS	Delegation of the European Union to Rwanda, Attaché, Rural Economy, Food Security and Environment
31	Johan NIEUWENHUIS	Belgian Technical Cooperation BTC , Support Programme to Reforestation in Rwanda PAREF.nl, Délégué de Cogestion
32	Claudien HABIMANA	Belgian Technical Cooperation BTC / MINIRENA / RNRA, Support

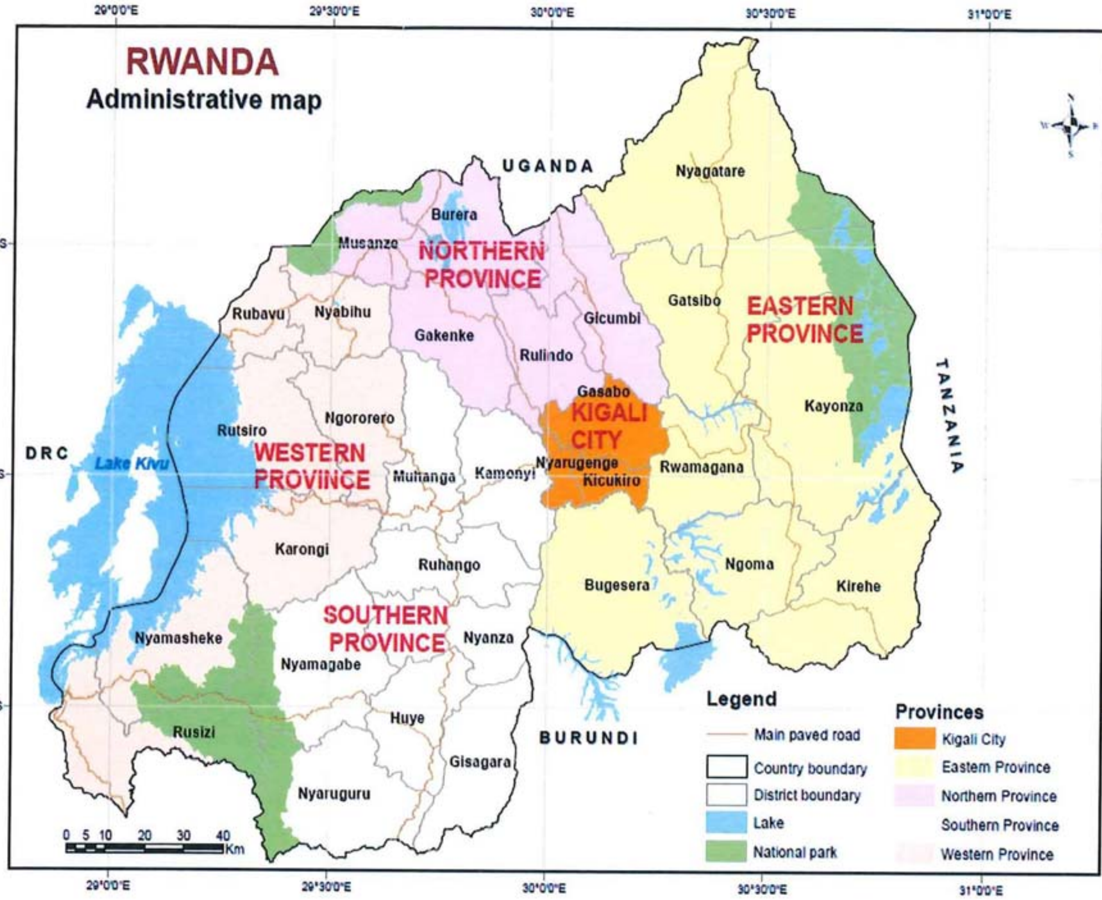
N°	Name	Organization / Title / Position
		Programme to Reforestation in Rwanda PAREF.nl, Directeur d'Intervention
33	Eddy DE LAETHAUWER	Belgian Technical Cooperation BTC, Support Programme to Reforestation in Rwanda PAREF.nl, Technical Assistant
34	Jacques PEETERS	Belgian Technical Cooperation BTC, Support Program to the Development of the Forestry Sector in Rwanda PAREF.be, Délégué de Cogestion
35	Théobald MASHINGA	Embassy of Sweden in Kigali, National Programme Officer, Environment and Natural Resources
36	Michel MASOZERA	Wildlife Conservation Society WCS, Rwanda Country Program Director
37	Fidèle RUZIGANDEKWE	Wildlife Conservation Society WCS, Rwanda Programme. Expert of the IUCN study for FAO ACP-FLEGT support programme
38	Sabin MURERerehe	Entreprise Multiservices EMS in Rwanda (specialized in environment, forestry, biomass energy), Managing Director
39	Laurien NGIRABANZI	Forestry Expert
40	Hannes WINTER	The New Forests Company NFC, Project Manager
41	Gonzague NSHIMIYIMANA	ADARWA Coordinator and wood retailer / carpenter
42	Fulgence UKOBUKEYE	ADARWA Accountant
43	Jean Bosco SONGA	MAGERWA, Clearing Agent
44	Jean-Marie SEBARUNGU	Agence ZBR in Ruhwa and Bugarama, Clearing Agent

Mission Schedule

Date	Place of Performance	Activities
30 August	Flight / Kigali	Mission to Rwanda: Travel Brussels – Kigali
31	Kigali	Briefing at EU Delegation. Briefing of the local expert and further steps to organize the mission. Meeting at DFNC (Acting Director of Forestry Management Unit, Forest Inventory, Licensing and Mapping Officer, Afforestation Officer and FLEGT Focal Point, Forest Extension Officer, meeting with DDG cancelled).
01 September	Kigali	Visit of Gakingiro wood market of Kigali and interview of wood retailers, carpenters and crews of wood trucks. Meeting with RDB / Tourism and Conservation, Senior Conservation Planning Officer.
02	Kigali	Reading of documents and preparation of meetings
03	Kigali	Meeting with Mr Sabin Murererehe (freelance Forestry Expert). Meeting with WCS Rwanda Country Program. Meeting with the expert of the IUCN study for FAO ACP-FLEGT support programme. Meeting with the DG of Rwanda Natural Resources Authority RNRA
04	Kigali	Meeting with RRA Customs, Office of the Commissioner of Customs; Section Trade Statistics and Documentation. First meeting with the President of the national forum of CEFDHAC and freelance forestry expert. Meeting with the Direction of the Support Program to Reforestation in Rwanda PAREF.nl.
05	Kigali; travel; Butare; Nyungwe forest; Cyangugu	Second meeting with the President of the national Forum of CEFDHAC and freelance forestry expert. Travel by road Kigali - Butare. Visit to the forest research station of Ruhande. Travel by road Butare - Nyungwe National Park - Cyangugu. First meeting with the Project Manager of the New Forests Company (management of the plantations of Nyungwe buffer zone).
06	Cyangugu; Rusizi border; travel; Nyungwe forest; Butare	Second meeting with the Project Manager of the New Forests Company. Meeting with the District Forestry Officer Rusizi and the Director of Planning of Rusizi District. Visit of Rusizi I and II border posts with DR Congo and interview of Customs staff. Travel by road Cyangugu - Nyungwe - Butare.
07	Butare; travel; Akanyaru-Haut border	Travel by road Butare - Akanyaru-Haut. Visit of Akanyaru-Haut border post with Burundi and interview of Customs staff.
08-20 September		Interruption (similar study mission to Burundi).
21 September	Travel; Ruhwa border; Bugarama border; Nyungwe forest; Butare; Kigali	Visit of Ruhwa border post with Burundi and Bugarama border post with D.R. Congo and interview of Customs staff. Travel by road Ruhwa - Bugarama - Cyangugu - Nyungwe National Park (Nyungwe Forest Conservation Project WCS) - Butare. Meeting with RAB, forest-based programs of research.
22	Travel; Rusumo border	Travel by road Kigali - Rusumo - Kigali. Visit of Rusumo border post with Tanzania and interview of Customs staff.
23	Kigali; travel; Gisenyi	Meeting with Environment & Natural Resources Programme Officer of the Swedish Embassy. Travel by road Kigali - Gisenyi. Visit of Gisenyi border posts with DR Congo (Grande Barrière et Petite Barrière) and interview of Customs staff.
24	Gisenyi; travel; Cyanika border	Meeting with Vice-Mayor District Rubavu. Meeting with the District Forestry Officer Rubavu. Travel by road Gisenyi - Cyanika. Visit of Cyanika border post with Uganda and interview of Customs staff. Travel by road Cyanika - Kigali.
25	Kigali	Meetings at DFNC (Acting Director of Forestry Management Unit, Forest Industry and Carbon Market Officer, Coordinator of AfDB Rwanda Sustainable Woodland Management and Natural Forest Restoration Project). Visit of Gakingiro wood market of Kigali and interview of wood retailers, carpenters and crews of wood trucks (continued). First meeting with ADARWA staff. Second meeting with the Section Trade Statistics and Documentation at Gikondo Customs Head Office.
26	Kigali	Second meeting with ADARWA staff. Meeting with RDB / Tourism & Conservation staff and with CITES Focal Point for Rwanda. Meeting with REMA staff. Meeting with staff of Gikondo Customs Head Office. Meeting with staff of MAGERWA in Gikondo. Meeting with the Délégué de Cogestion of the Support Program to the Development of the Forestry Sector in Rwanda PAREF.be.
27	Kigali; flight	Final meeting at DFNC (Acting Director of Forestry Management Unit). Debriefing at

Date	Place of Performance	Activities
		EU Delegation. Work with the local expert. Travel Kigali - Brussels.
28	Flight	Travel Kigali – Brussels. End of mission in Rwanda

Annex 3. Maps of Rwanda



(Source: CGIS-NUR).

Figure 3 Administrative map of Rwanda

Notes: The 3 national parks are Volcanoes National Park in the north-west (forest), Nyungwe National Park in the south-west (forest) and Akagera National Park in the east (savanna).

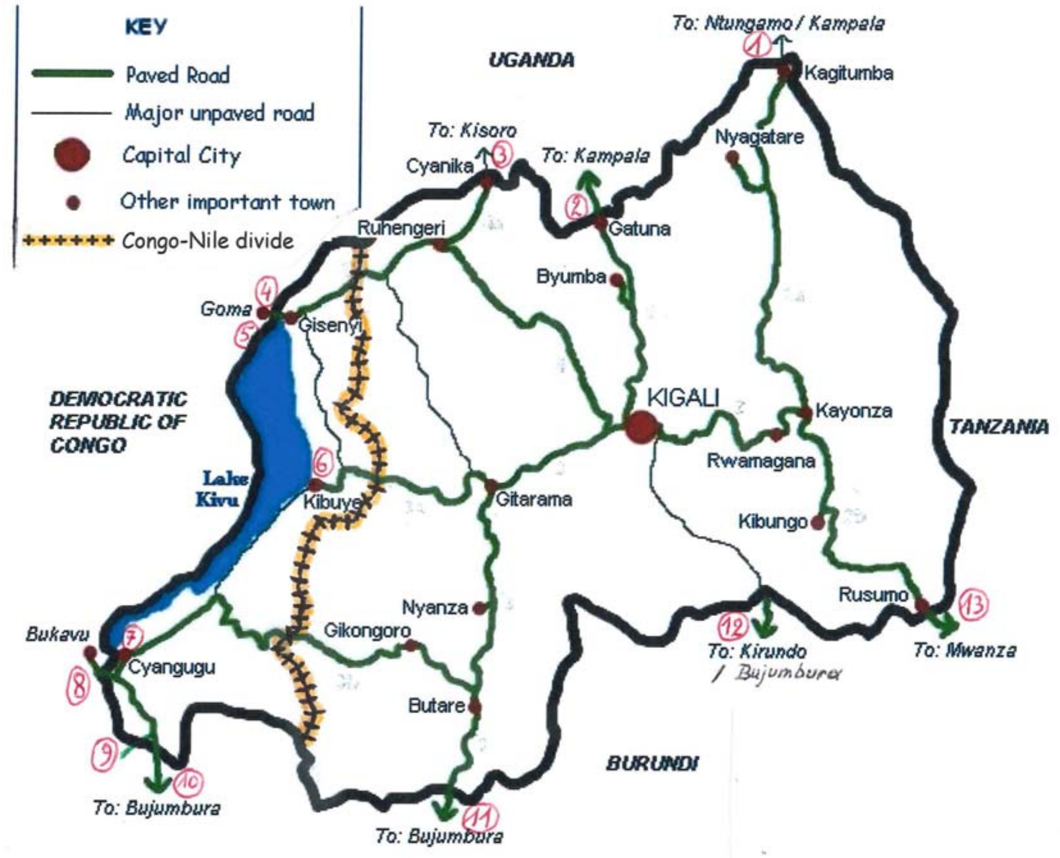


Figure 4 Map of towns, roads and border posts of Rwanda

Notes: Source of base map: Wikipedia
See list of border posts next page

Notes on Figure 4: List of border posts.
The posts are numbered anticlockwise around the country

Border with	Nr on map	Name	Remark
Uganda			
	(1)	Kagitumba	
	(2)	Gatuna	
	(3)	Cyanika	
D.R. Congo			
	(2)	Gatuna	via Uganda
	(3)	Cyanika	via Uganda
	(4)	Gisenyi Petite Barrière (Gisenyi Poids lourds)	Main post for trucks, recently modernized
	(5)	Gisenyi Grande Barrière (Gisenyi Corniche)	
	(6)	Kibuye (harbour)	Via Lake Kivu
	(7)	Rusizi I	No trucks use this post
	(8)	Rusizi II	For the trucks
	(9)	Bugarama	
Burundi			
	(10)	Ruhwa	One-Stop Border Post recently built
	(11)	Akanyaru Haut	
	(12)	Gasenyi	One-Stop Border Post recently built
Tanzania			
	(13)	Rusumo	One-Stop Border Post starts to be built

Annex 4. Charts and tables on timber flows

Rwanda's trade in selected groups of wood-based product (2000-2011, by partner country)

Source: based on UN Comtrade (2012)[3]

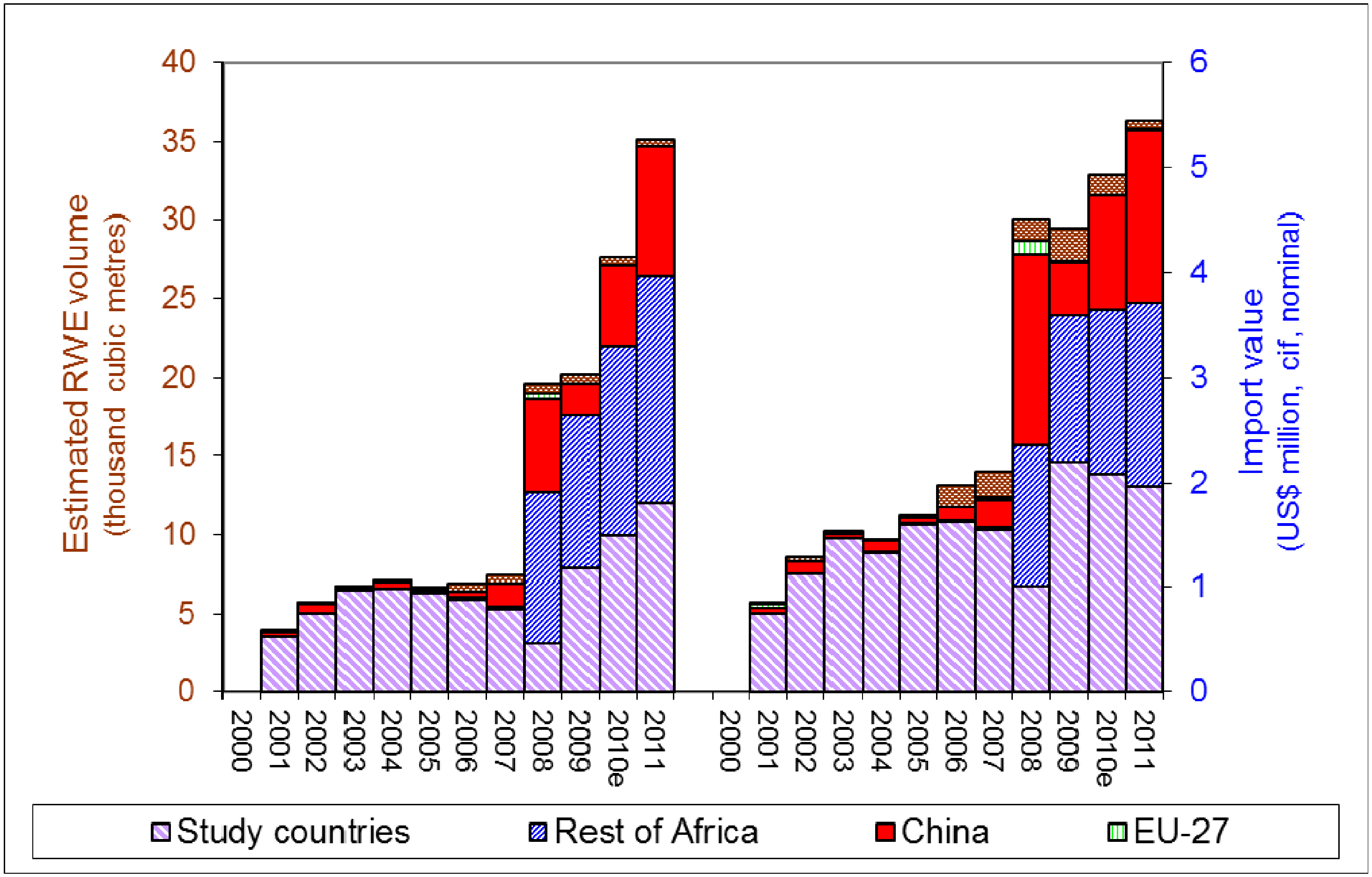


Figure 5 Rwanda's imports of VPA core products

Note: Rwanda's exports of VPA core products: Negligible

[3] Estimates of weight or volume have been made where source data seems anomalous. Weight or volume has been converted to estimated roundwood equivalent volume by multiplying volume by (in m3 per m3) 1.4 (particleboard), 1.8 (sawn wood and fibre board), 1.9 (veneer and mouldings), 2.3 (plywood) and (in m3 per tonne) 1.6 (wood chips), 2.8 (wooden furniture), 4.5 (wood-based pulp), 3.5 (paper, joinery and other finished products), 6 (charcoal). VPA core products are defined here as logs, sawn wood, veneer and plywood. The Paper Sector is defined here as wood chips, wood-based pulp and paper. Import statistics for 2010 are not presented by the source and are estimated here (as the average of data for 2009 and 2011).

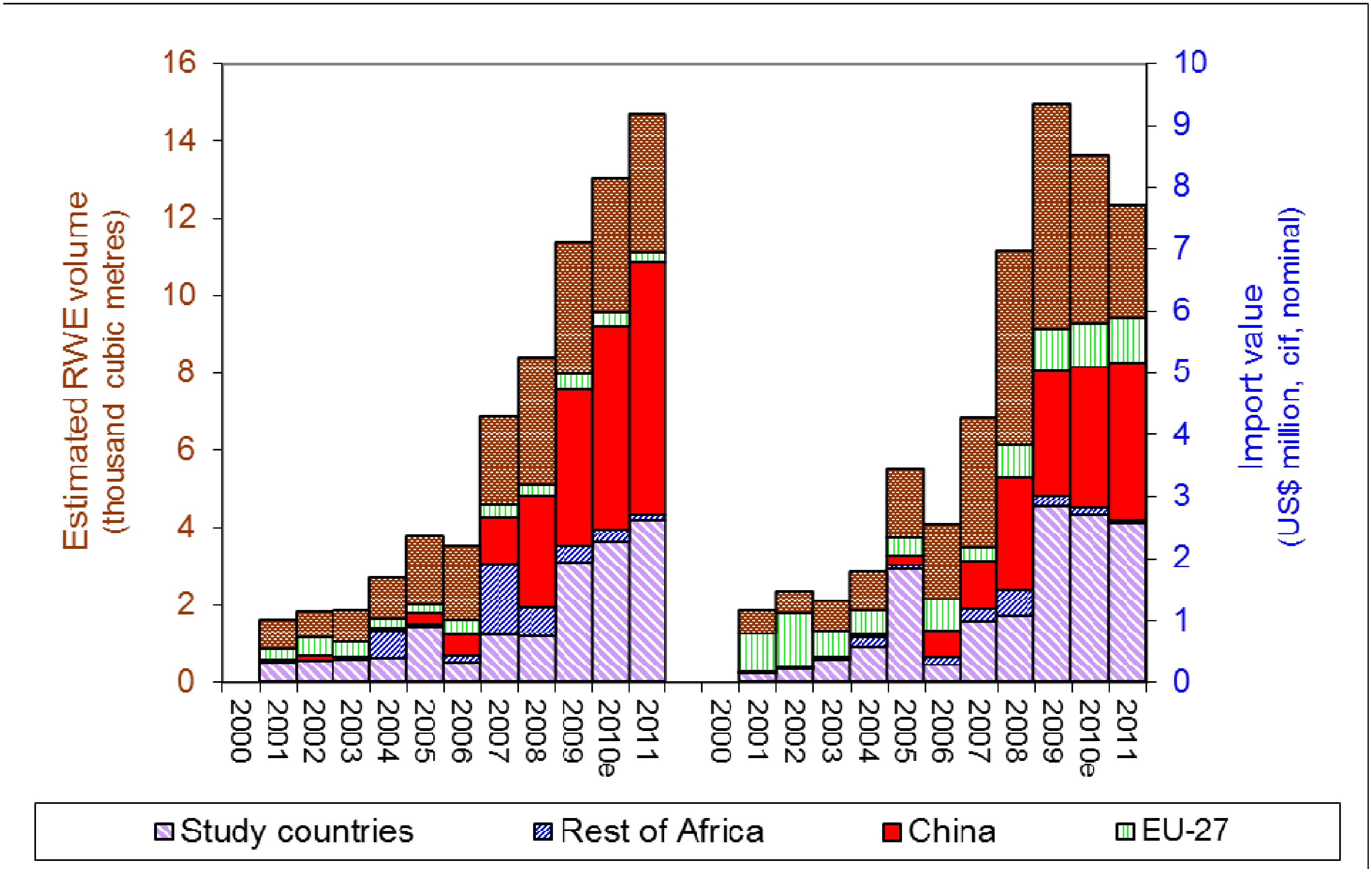


Figure 6 Rwanda's imports of other Timber Sector products

Note: Rwanda's exports of other Timber Sector products: Negligible

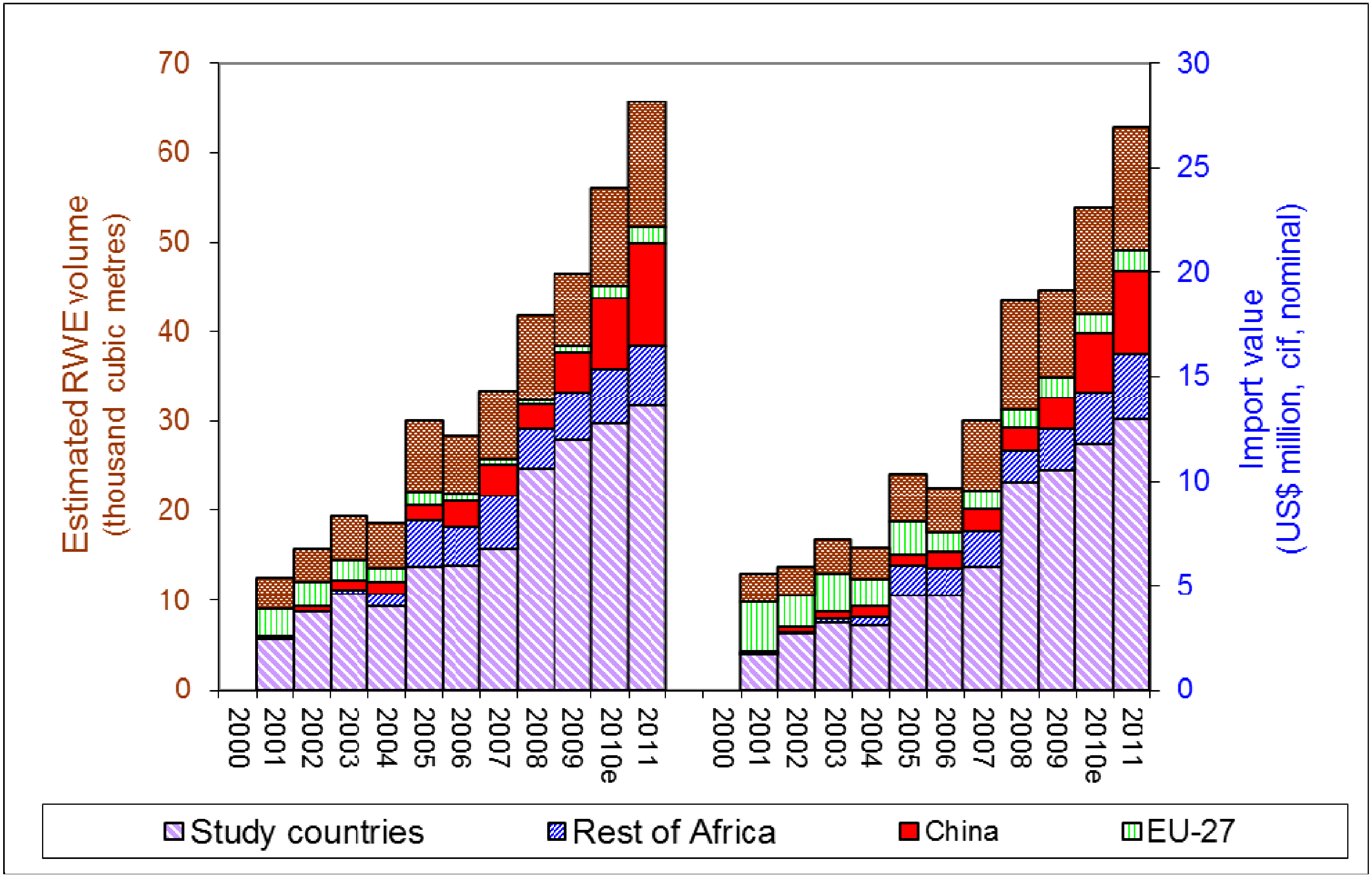


Figure 7 Rwanda's imports of Paper Sector products

Note: Rwanda's exports of Paper Sector products: Negligible

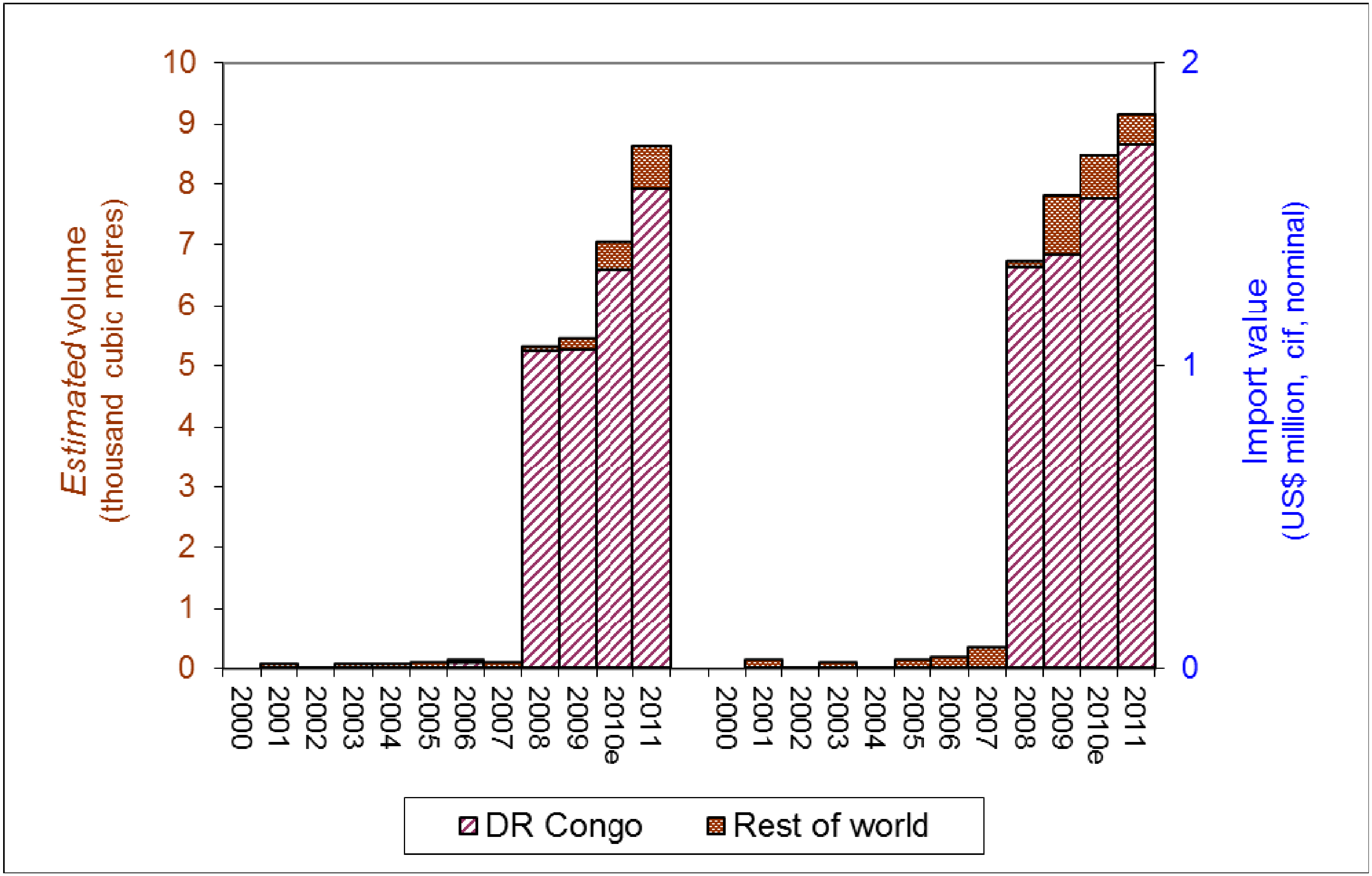


Figure 8 Rwanda's imports of sawn wood

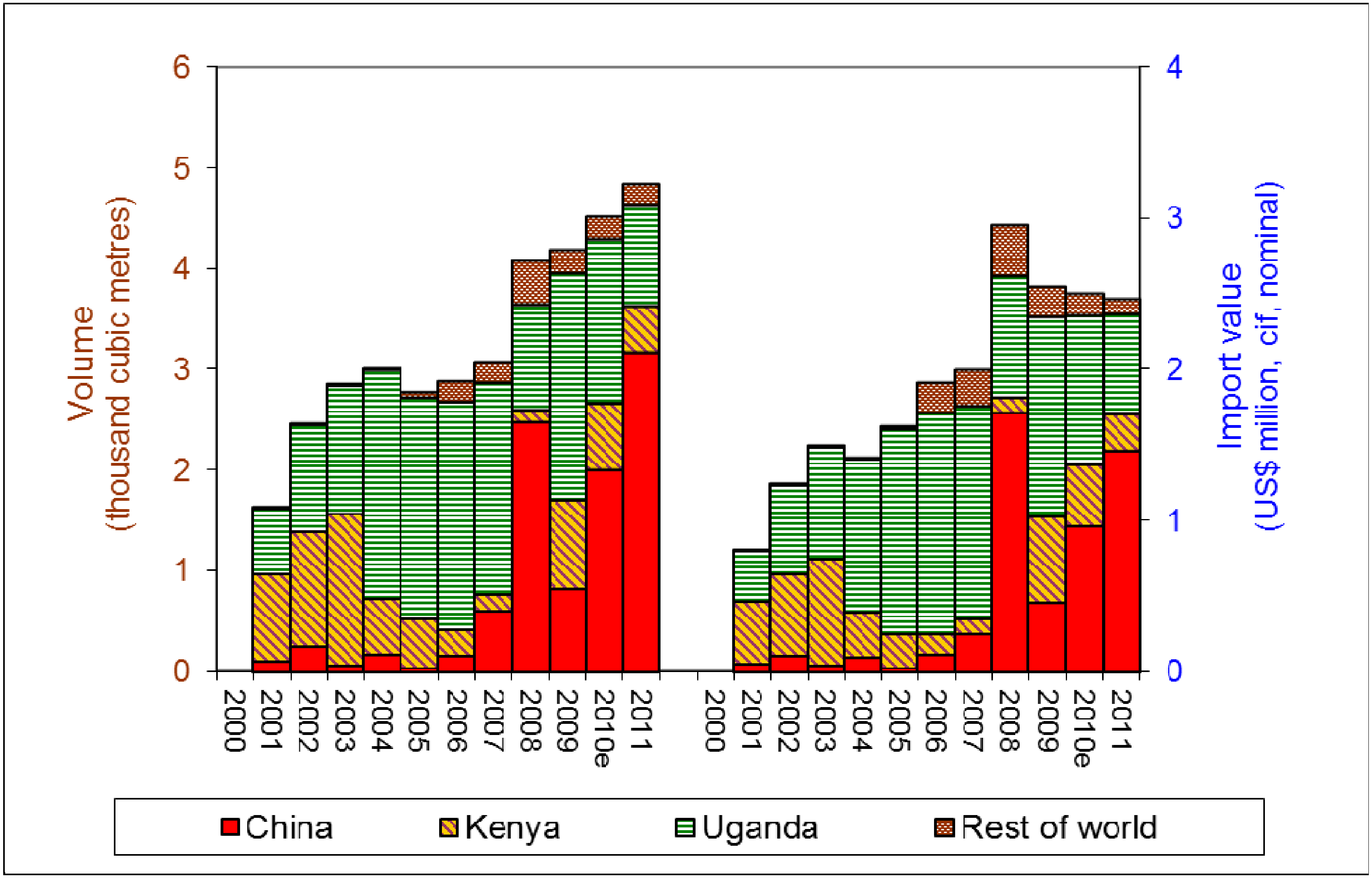


Figure 9 Rwanda's imports of plywood

Table 2 Rwanda's trade in wood-based products (by product groups)

Rwanda's trade in wood-based products (by sector and major product group)[4, 5]

Exports:

Product group	Estimated roundwood equivalent volume (thousand cubic metres)										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**5**
Timber sector	0	0	0	0	0	0	0	0	1	1	4
Paper sector	0	0	0	0	0	0	0	0	0	0	1
Fuel sector	0	0	0	0	0	0	0	0	0	0	0

Product group	Export value (US$ million, fob, nominal)										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Timber sector	0	0	0	0	0	0	0	0	0	0	0
Paper sector	0	0	0	0	0	0	0	0	0	0	0
Fuel sector	0	0	0	0	0	0	0	0	0	0	0

Imports:

Product group	Estimated roundwood equivalent volume (thousand cubic metres)										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**18**	**23**	**28**	**28**	**40**	**39**	**48**	**70**	**78**	**97**	**116**
Timber sector	5	8	9	10	10	10	14	28	32	41	50
Paper sector	13	16	19	19	30	28	33	42	46	56	66
Fuel sector	0	0	0	0	0	0	0	0	0	0	0
VPA core products	*4*	*6*	*7*	*7*	*7*	*7*	*7*	*20*	20	28	35
Sawn wood	0	0	0	0	0	0	0	10	10	13	16
Plywood	4	6	7	7	6	7	7	9	10	10	11
Furniture	1	1	1	1	2	2	3	5	6	6	6
Paper	13	16	19	19	30	28	33	42	46	56	65

Product group	Import value (US$ million, cif, nominal)										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**8**	**9**	**10**	**10**	**15**	**14**	**19**	**30**	**33**	**36**	**40**
Timber sector	2	3	3	3	5	5	6	11	14	13	13
Paper sector	6	6	7	7	10	10	13	19	19	23	27
Fuel sector	0	0	0	0	0	0	0	0	0	0	0
VPA core products	*1*	*1*	*2*	*1*	*2*	*2*	*2*	*5*	*4*	*5*	*5*
Sawn wood	0	0	0	0	0	0	0	1	2	2	2
Plywood	1	1	2	1	2	2	2	3	3	3	2
Furniture	1	1	1	1	2	2	3	5	6	5	4
Paper	6	6	7	7	10	10	13	19	19	23	27

[4] Source: based on UN Comtrade; having revised any anomalies, source data have been converted to roundwood equivalent volume by multiplying by – in cubic metres per cubic metre – 1 (logs), 1.4 (particleboard), 1.8 (sawn wood and fibre board), 2.3 (plywood) and by – in cubic metres per tonne – 2.8 (wooden furniture) and 3.5 (paper).

[5] Definitions of terms used in these tables:

Fuel sector - firewood (HS code 440110) and charcoal (HS code 440200);

Paper sector – wood chips (HS code 44012*), wood-based pulp (HS codes 4701** to 47005* inclusive) and paper (HS codes 48****);

Timber sector – wooden furniture (HS codes 940161, 940169, and 940330 to 940360 inclusive) and other wood (HS codes 4403** to 4421** inclusive);

VPA core products – logs, sawn wood, veneer and plywood.

UN Comtrade does not provide data for Rwanda's imports during 2010. Statistics for 2010 provided by FAOSTAT are much smaller than those presented by UN Comtrade for 2009 and 2011. The data for 2010 shown in this set of documents are the average of the corresponding amounts for 2009 and 2011.

Table 3 Rwanda's exports of particular wood-based products (by destination country)

Official statistics indicate that Rwanda exports a negligible quantity of wood-based products.

Table 4 Rwanda's imports of particular wood-based products (by supplying country)

Same source and metadata as for Table 2.

Product group	Physical quantity (thousand cubic metres or thousand tonnes)											Import value (US$ million, cif, nominal)											
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Logs *(physical quantity – volume)*																							
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**7**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Study countries	0	0	0	0	0	0	0	0	0	4	7		0	0	0	0	0	0	0	0	0	1	1
Rest of Africa	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
China	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
EU-27	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Rest of world	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	0	0	0	0	0	0	2	4		0	0	0	0	0	0	0	0	0	0	1
Uganda	0	0	0	0	0	0	0	0	0	2	3		0	0	0	0	0	0	0	0	0	0	0
Sawn wood *(physical quantity – volume)*																							
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**5**	**7**	**9**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**2**	**2**
Study countries	0	0	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0
Rest of Africa	0	0	0	0	0	0	0	5	5	7	8		0	0	0	0	0	0	0	1	1	2	2
China	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
EU-27	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Rest of world	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
DR Congo	0	0	0	0	0	0	0	5	5	7	8		0	0	0	0	0	0	0	1	1	2	2
Plywood *(physical quantity – volume)*																							
Total	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**4**	**4**	**5**	**5**		**1**	**1**	**2**	**1**	**2**	**2**	**2**	**3**	**3**	**3**	**2**
Study countries	2	2	3	3	3	3	2	1	3	2	1		1	1	1	1	2	2	2	1	2	1	1
Rest of Africa	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
China	0	0	0	0	0	0	1	2	1	2	3		0	0	0	0	0	0	0	2	0	1	1
EU-27	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Rest of world	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Uganda	1	1	1	2	2	2	2	1	2	2	1		0	1	1	1	1	1	1	1	1	1	1
Paper *(physical quantity – weight)*																							
Total	**4**	**4**	**6**	**5**	**9**	**8**	**10**	**12**	**13**	**16**	**19**		**6**	**6**	**7**	**7**	**10**	**10**	**13**	**19**	**19**	**23**	**27**
Study countries	2	2	3	3	4	4	5	7	8	9	9		2	3	3	3	5	5	6	10	11	12	13
Rest of Africa	0	0	0	0	2	1	2	1	2	2	2		0	0	0	0	1	1	2	1	2	3	3
China	0	0	0	0	0	1	1	1	1	2	3		0	0	0	0	1	1	1	1	2	3	4
EU-27	1	1	1	0	0	0	0	0	0	0	1		2	2	2	1	2	1	1	1	1	1	1
Rest of world	1	1	1	1	2	2	2	3	2	3	4		1	1	2	2	2	2	3	5	4	5	6
Kenya	1	1	1	2	2	2	3	3	4	4	3		1	1	1	2	3	3	4	5	5	6	7

Annex 5. Organizational charts

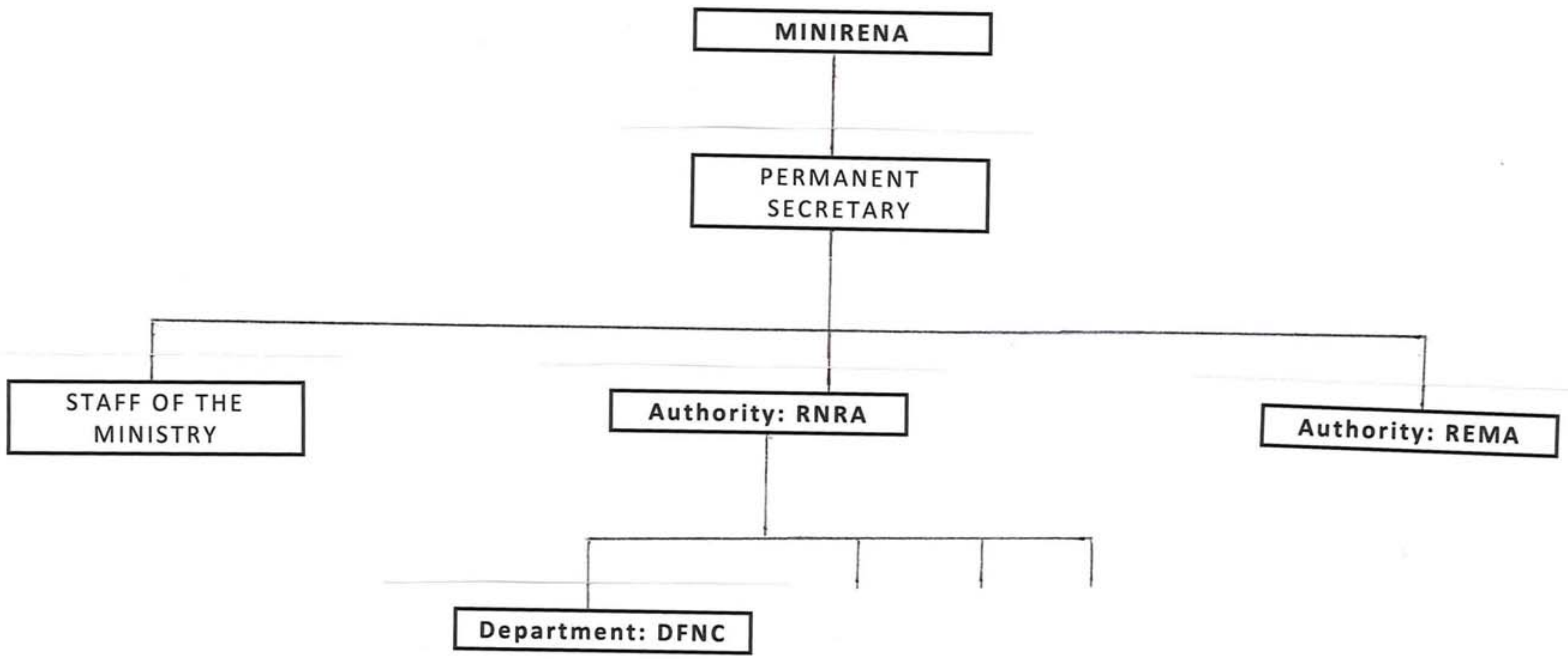


Figure 10 Simplified organizational chart of MINIRENA

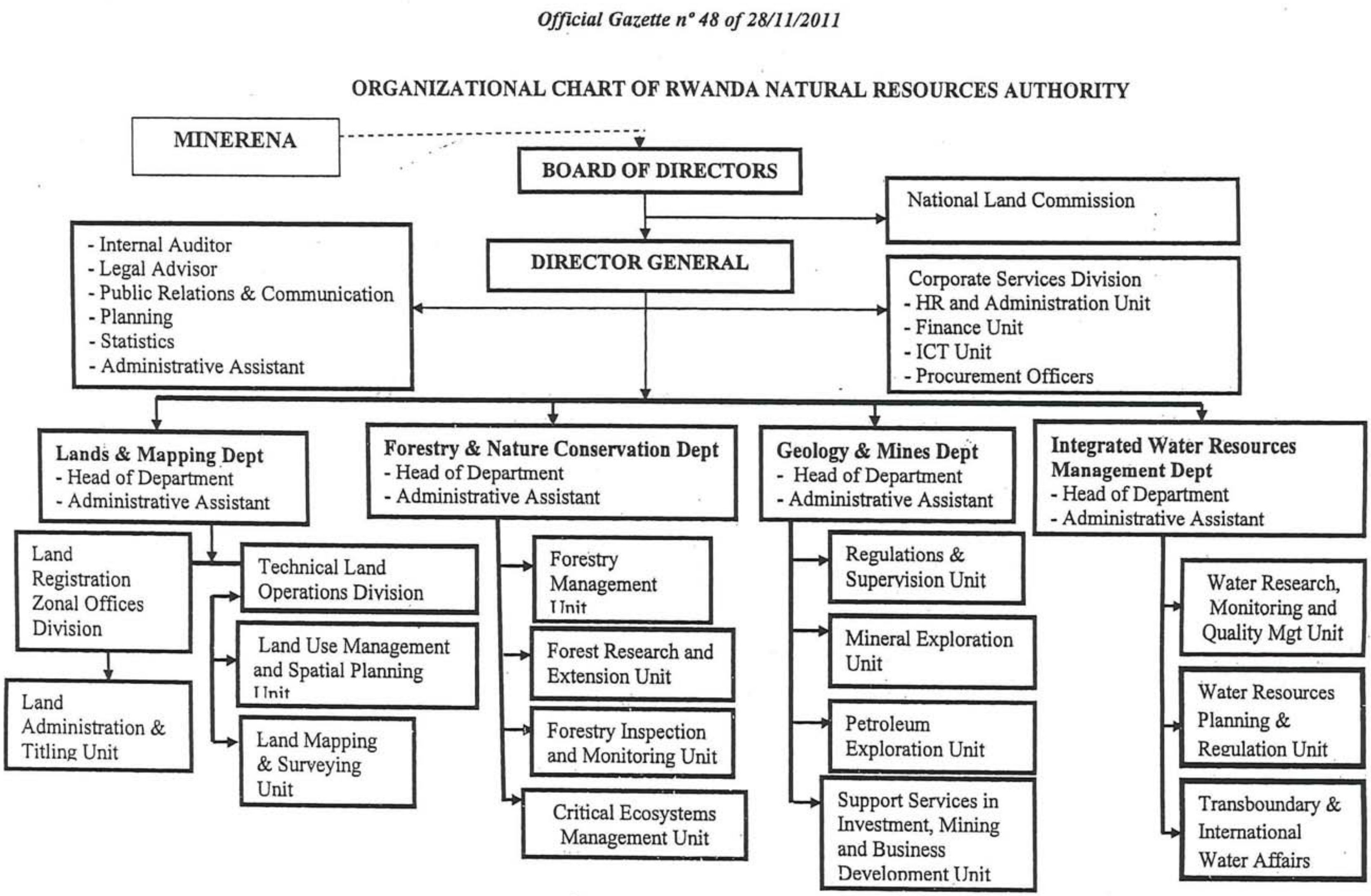


Figure 11 Organizational chart of RNRA and DFNC

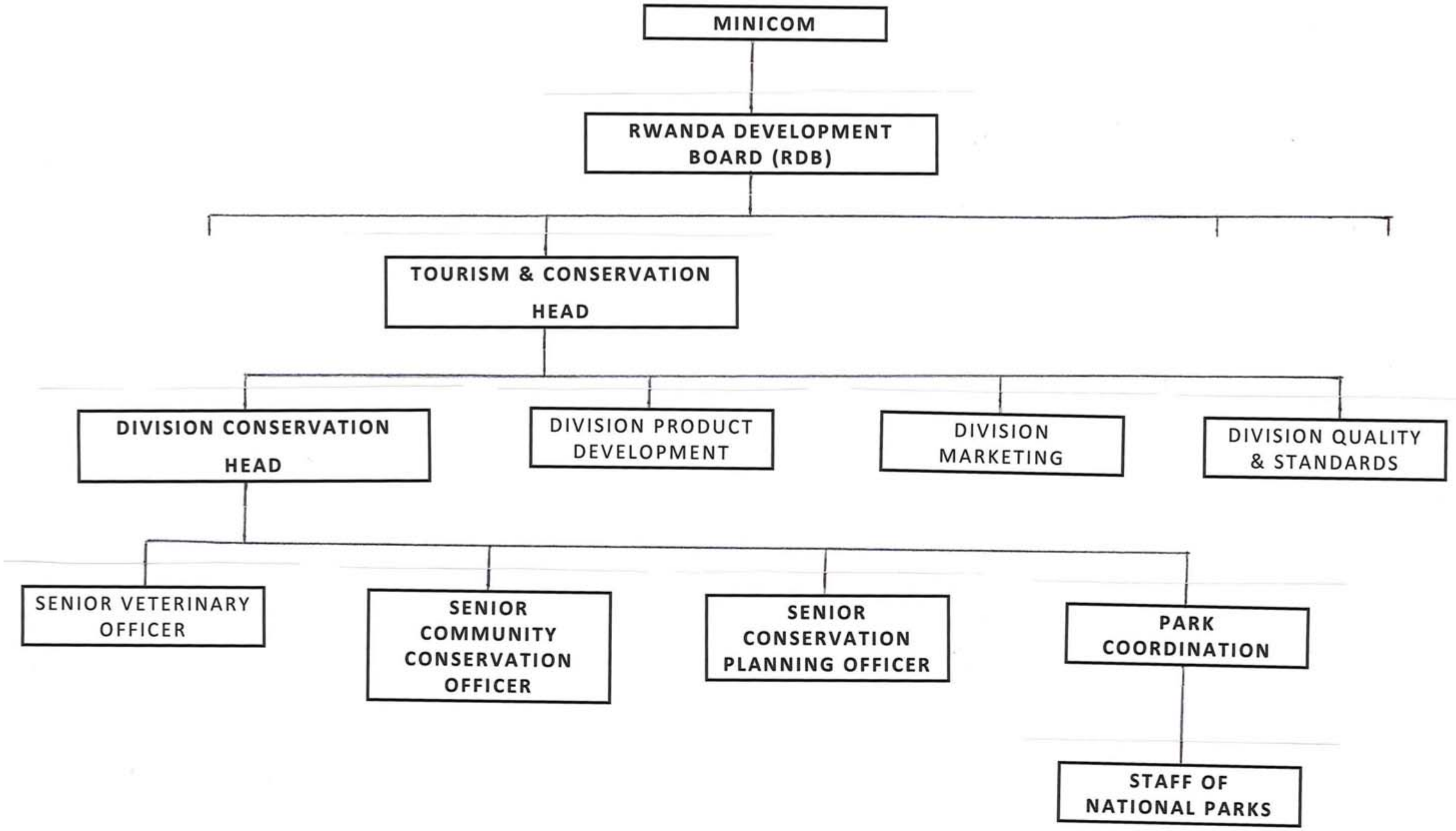


Figure 12 Organizational chart of Tourism & Conservation within RDB