



EXTENT OF ILLEGAL TIMBER, CHARCOAL, AND WILDLIFE TRADE IN THE GREATER VIRUNGA LANDSCAPE



**A STUDY COMMISSIONED BY THE
GREATER VIRUNGA TRANSBOUNDARY
COLLABORATION SECRETARIAT**

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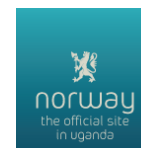


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ACRONYMS

ACODE	Advocates Coalition for Development and Environment
ADF/ NALU	Allied Democratic Front
ARCOS	Albertine Rift Conservation Society
AWF	African Wildlife Foundation
BINP	Bwindi Impenetrable National Park
BMCT	Bwindi Mgahinga Conservation Trust
CBA	Cost Benefit Analysis
CBO	Community Based Organisations
CFM	Collaborative Forest Management
CID	Criminal Investigation Department
CITES	Convention on International Trade in Endangered Species
CNDP	Congrès National de Défense du People
CSO	Civil Society Organisation
DFS	District Forestry Services
DGIS	Netherlands Directorate-General for International Cooperation
DPC	District Police Commander
DRC	Democratic Republic of Congo
EEEGL	Enterprise, Environment, and Equity in the Great Lakes Region
ETIS	Elephant Trade Information System
FAO	Food and Agricultural Organisation
FARDC	Forces Armées de la République Démocratique du Congo
FD	Forest Department
FDLR	Forces Démocratiques de Libération du Rwanda
FSSD	Forest Sector Support Department
GIS	Geographical Information Systems
GMP	General Management Plan
GPS	Global Positioning Systems
GVL	Greater Virunga Landscape
GVTC	Greater Virunga Transboundary Collaboration
ICCN	Institut Congolais pour la Conservation de la Nature
IGCP	International Gorilla Conservation Programme
INTERPOL	International Criminal Police Organisation
ITFC	Institute of Tropical Forest Conservation
IUCN	International Union for Conservation of Nature
KATIC	Katwe Tourism Information Centre
KNP	Kibale National Park
LATF	Lusaka Agreement Task Force
M & E	Monitoring & Evaluation
MEA	Millennium Ecosystems Assessment

MGNP	Mgahinga Gorilla National Park
MINICOM	Ministry of Commerce
MIST	Management Information Systems
MONUC	UN Mission in the Democratic Republic of Congo
NFA	National Forest Authority
NGO	Non-Governmental Organisation
NORAD	Norwegian International Development Agency
NU	Nature Uganda
PA	Protected Area
PAA	Protected Area Authority
PNV	Volcanoes National Park
PNVi	Virunga National Park
QEPA	Queen Elizabeth National Park
RBM	Ranger Based Monitoring
RDB	Rwanda Development Board
REDD+	Reducing Emissions from Deforestation and Forest Degradation
STAR	Sustainable Tourism in Albertine Rift
TRAFFIC	The Wildlife Monitoring Network
TSWR	Toro Semliki Wildlife Reserve
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UPDF	Uganda People's Defence Forces
URA	Uganda Revenue Authority
USA	United States of America
USAID	United States Agency for International Development
UWA	Uganda Wildlife Authority
WCS	Wildlife Conservation Society
WWF-UCO	World Wide Fund for Nature – Uganda Country Office

EXECUTIVE SUMMARY

The illegal trade in timber, charcoal and wildlife in the Greater Virunga Landscape (GVL) has been a matter of great concern dating way back to the 1960s. Illegal ivory and timber shipments from the Democratic Republic of Congo (DRC) involving high level political actors made national and international news headlines in the 1960s through the 1980s and the 1990s. In addition, sophisticated live wildlife trafficking has happened across the borders of Uganda, Rwanda and DRC involving mainly chimpanzees, gorillas, parrots and chameleons since the 1970s. Despite concerted efforts by the respective governments to address illegal trade in timber and wildlife over the years, the problem still persists, and today, the illegal charcoal and bush meat trade has also become a serious issue to address (UN 2001).

The GVL straddles the three countries of Uganda, Rwanda and DRC within the Albertine Rift Valley. It is one of the richest ecosystems in the world in terms of species diversity and endemism and has been described as one of the biodiversity hotspots on the African continent with eight national parks, four forest reserves and three wildlife reserves. These natural endowments draw a lot of interest at national and international level from conservationists, researchers, conservation and environmental NGOs, government and inter-governmental agencies, the private sector and local communities.

This study was commissioned by the Greater Virunga Transboundary Collaboration Executive Secretariat (GVTC-ES) as part of on-going efforts to help find solutions to the persistent illegal trade in timber, charcoal and wildlife in the GVL. The study was also aimed at exploring sustainable conservation-related enterprises as incentives for natural resource conservation and potential for REDD+ financing.

The study was conducted in the countries of Uganda, Rwanda and DRC. It covered all the protected areas both forests and national parks in the Greater Virunga Landscape as well as the adjacent communities within a radius of 50kms or adjacent districts. The protected areas include Semuliki, Rwenzori, Queen Elizabeth, Bwindi Impenetrable and Mgahinga Gorilla National Parks, and the contiguous forest reserves of Kalinzu and Kashyoha Kitomi in Uganda; Volcanoes National Park in Rwanda, and Virunga National Park (Northern, Central and Southern Sectors) in DRC.

Data collection involved use of questionnaire and key informants interviews, literature review, field observations, group discussions with relevant communities and other interest groups such as timber dealers associations, satellite imagery and GIS. As part of investigative information gathering, the study team also engaged field staff from the wildlife and forest agencies, and sister departments in Uganda, Rwanda and DRC in an interactive approach – team members spent time and worked with the staff in the field in addition to the interviews. The interactive approach was aimed at motivating the wildlife and forestry agencies and government officials from the sister departments (police, customs, army etc.) to work with and share useful information with the study team.

A desk review and content analysis revealed that some work has been on-going as a response to illegal trade in timber, charcoal and wildlife but with quite some challenges. Chevallier *et al.*, (2012) observed that the border separating the eastern Democratic Republic of Congo (DRC) from its fellow Great Lakes countries Uganda, Rwanda and Burundi, is long and porous and there are many ways to cross it, at both official and unofficial points.

The definition of “illegal” in as far as it applies to forestry and wildlife resource is itself contentious with some authorities terming what is deemed “illegal” as informal. This is particularly so when it comes to access and use of forestry and wildlife resources by local communities living within or close to forests and protected areas. To such communities, who are even more conscious of the need for

conservation because their very survival is dependent on these resources, the aspect of illegality does not arise but they instead feel cheated and denied.

Findings

This study established that over 90% of hard wood timber requirements of the natural forest species consumed in the border areas of Uganda and Rwanda comes from DRC. Ninety five percent (95%) (n=60) of the respondents on the Ugandan and Rwandan side of the borders said that nearly all of the hard wood timber on the market largely originates from the DRC. There are quite large quantities (in excess of 60,000 m³ per year) of timber originating from the DRC moving into Uganda, Rwanda, Kenya and other countries. It is difficult to determine the extent to which the timber traded from DRC into Uganda and Rwanda is illegal owing to the governance problems in DRC and capacity constraints of the forestry regulatory body in Uganda.

Although respondents disclosed that logging in DRC is facilitated by the DRC army and government officials, they considered timber trade as a legal business once the timber has crossed into Uganda and Rwanda through gazetted customs border points.

Within the GVL, it is in Rwanda where the laws and regulations applicable to timber trade were reported to be strictly enforced. In Uganda and DRC, serious governance and institutional weaknesses were said to be a hindrance to what should otherwise be legal and profitable timber trade.

In Uganda, charcoal was reported to be mostly extracted from public, communal and or privately owned land, Central Forest Reserves (CFRs) and Local Forest Reserves (LFRs); in DRC charcoal is from community reserves, forest reserves and Virunga National Park (PNVi); while in Rwanda it is from private (mostly eucalyptus) woodlots. In DRC, the study team found that charcoal was a significant trade commodity across the Rwanda-DRC border from Gisenyi to Goma. The main source of the charcoal was reported to be the Southern Sector of PNVi, mainly in the area of Kilolirwe and Kibumba. The team found that the main market for charcoal from PNVi is Goma town, the regional Capital of North Kivu province, in DRC. It is estimated that 90% of charcoal consumed in Goma comes from PNVi (interview with ICCN staff, January 2013). Patrols in PNVi are curtailed by the presence of militias and rebels inside the park who are also actively involved in the charcoal trade. During this study, the conservation agency in DRC, Institut Congolais pour la Conservation de la Nature (ICCN), indicated that since 2011, they have lost 14 rangers during patrols and fire exchange with the rebels. UNEP-INTERPOL (2010) put the number of rangers killed in the last 10 years at more than 200. The rangers are simply no match for a charcoal trade estimated at over US\$28 million annually, and another US\$4 million on road taxes on charcoal alone (Nellemann 2010).

It was consistently reported during the study that some members of the UN peace keeping force in the DRC, MONUC, stationed in various towns of Beni, Bunia and Goma, are alleged to be involved in illicit natural resource trade, particularly ivory. Members of the MONUC are said to connive with middlemen/businessmen who deal with the armed groups (FDLR of Rwanda, Mai Mai of DRC and others) to get them ivory. The same militia groups are reported to be involved in illegal timber, charcoal and bush meat trade in total disregard of the existing legal and official framework.

It was also found that the legislation in the respective countries of DRC, Rwanda and Uganda; and the policy guidelines at national level in respect to national parks, forest reserves and management and use of trees and wildlife outside protected areas is adequate with prescriptions for permitted and forbidden activities, procedures for access and penalties for offences. The main challenges rest in the implementation of these policies and laws. Among the factors limiting implementation at respective national level are political meddling, limited institutional capacity, lack of practical knowledge of

environmental laws within law enforcement agencies like the police, and poor investigation of offences.

Records and information obtained through interviews with customs officials at the borders indicate that annual timber exports, mainly hardwoods, e.g. mahogany (*Khaya anthotheca*), of up to 60,000 m³ are moved out of east DRC. This translates to up to 24,000 hectares of forest removed annually. It should be noted that in many instances, other trees are cut just to create access routes to the needed trees. The area of deforestation is certainly bigger considering that some timber is used within DRC and there are instances of under-declaration. The forests of eastern DRC however, have the capacity to sustainably support the current local and external demand of forest products, and thus the current trends of deforestation can in actual fact be checked to allow for sustainable use if regulatory systems can be enforced.

REDD+ was designed as one of the principal vehicles for catalyzing positive environmental change and sustainable development. One of the cardinal principals for REDD+ is long term sustainability of forest management based on all partners agreeing to regulate their operations, and to ensure that they meet the highest standards of rigor and that efforts to reduce deforestation in one location are not offset by an increase elsewhere. It would then appear that a regional approach to REDD+ would be of a far higher potential as it would catalyze positive environmental change and sustainable development in the GVL by helping address the interrelated and cross border timber and charcoal trade. Already there have been pilot REDD+ projects in DRC and Uganda has a proposal in place awaiting implementation.

Conclusions

The following conclusions are drawn based on data collected during this study and earlier reports:

1. The illegal trade in timber, charcoal and wildlife products in the GVL has been and continues to be abetted by the various armed groups operating in DRC within the GVL coupled by inadequacies in institutional capacity on the part of the Forest Department Services (FDS) in DRC and Uganda and the high demand for hard wood timber species and charcoal in the East African region.
2. Alternative energy to charcoal for domestic cooking within the GVL and beyond is not yet practically possible with the majority of people dependent on charcoal and firewood. Electricity and gas supplies are unreliable and inadequate and not affordable for the majority of the population.
3. Cooperation amongst the respective forestry and wildlife agencies in-country and regionally is inadequate. Each of the agencies operates independent of the other even where it is evident and inevitable that they should work together, for example in joint law enforcement operations. Although at a regional level there has been an attempt for the wildlife agencies to work together, and the arrangement does allow for the other relevant agencies including police and customs to join, in practice it has not happened yet.
4. There is a lot of data and information already existing on the extent and impact of illegal trade, including who are involved and possible solutions. However, the challenge is in finding a competent, acceptable and legally established institution(s) to take the lead in implementation of the recommendations at the regional level given the transboundary nature of the issues involved and the trade.
5. Uganda and Rwanda “happily” receive and welcome timber and charcoal from DRC even when they are aware that it is harvested illegally or unsustainably, while DRC “happily”

receives bush meat from Uganda. Uganda and Rwanda have been strict on wildlife and wildlife products entering their respective countries and made confiscations and arrests several times. It is therefore possible to exercise similar vigilance at the entry and exit points in respect to timber and charcoal rather than formalise the trade in the respective countries as the case is today.

6. The newly established International Consortium on Combating Wildlife Crime (ICCWC), chaired by the CITES Secretariat and comprised of INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank and the World Customs organization (WCO), provides an opportunity to help combat wildlife crime, including illegal logging. ICCWC represents the entire enforcement chain – customs, police and justice. It serves as a model at the international level for the sort of cooperation that is required amongst enforcement agencies at the national level to effectively combat illegal international trade in forestry and wildlife products.
7. The policy and legislative framework in DRC, Rwanda and Uganda, the challenges faced in addressing illegal trade in forestry products and the impact to date on the forestry biomass in GVL make a good case for a regional REDD+ funding consideration and a REDD+ regional project.
8. In designing and developing conservation based enterprises, a complete cost benefit analysis (model) must take into account environmental costs and have these integrated in the overall result. Of even greater importance for sustainability purposes is the approach to enterprise development and selection criteria for project champions/promoters and community members. A lot of enterprises have been developed and implemented in the hope that they will be economically self-sustaining and reduce dependency on forestry and wildlife resources from protected areas. Unfortunately this has been far from the reality as communities have continued to depend on protected area (PA) resources or the enterprises have crumbled once external funding stopped.

Recommendations

The following recommendations are proposed based on the findings of the study.

1. Support peace building efforts within the GVL

Peace is a key issue within the GVL. The Virunga National Park is host to several Congolese armed militia groups, Rwandese rebel groups and Ugandan rebel groups. The natural resources within the area are directly negatively impacted by the presence of all these illegitimate groups. The presence of the armed groups has compromised governance systems in DRC rendering any efforts to address poaching, illegal wildlife trade, illegal extraction of timber and charcoal ineffective within the whole GVL.

2. Expand role/mandate of security and law enforcement organs to support law enforcement operations in DRC and at the border crossings to address Forestry and Wildlife crime.

The Army: At a strategic level, the army is concerned not only with military operations but also the political, social and economic well being of the community it is protecting. The military therefore should ideally be concerned with the illicit trade, potential loss of revenue and turmoil that may result from uncontrolled poaching within individual countries but also in the GVL region. There are

practical examples (South Africa, Mozambique, Botswana, and Uganda) where the army has been enlisted in combating wildlife crime in Africa.

The role of the Congolese army and the MONUC soldiers stationed in the GVL needs to be expanded formally so as to play an active and supportive role with the guidance of ICCN to stop and check illegal activities within the PNVi and other forested and protected areas. Errant soldiers and commanders should be subjected to stiff disciplinary measures and criminal proceedings. Only then will their accomplices realize the need to follow established procedure.

The Police: The police have the broad mandate of enforcing law and order, with a section for international police (INTERPOL). INTERPOL has for a long time had a very close working relationship with the Convention on International Trade in Endangered Species (CITES) at an international level. On an annual basis, INTERPOL-CITES meets to review wildlife crime challenges globally and devise strategies to fight the crime. At regional and national level the opportunity for INTERPOL to coordinate and share information with national CITES authorities should be utilised. The framework is already in place as all three countries are signatories to CITES and parties to INTERPOL.

3. Cooperation and coordination among the relevant government agencies for combating illegal trade in forestry and wildlife products including police, customs and the judiciary need to be strengthened.

The newly established International Consortium on Combating Wildlife Crime (ICCWC), chaired by the CITES Secretariat and comprised of INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank and the World Customs Organization (WCO), provides an opportunity to help combat wildlife crime, including illegal logging. ICCWC represents the entire enforcement chain – customs, police and justice. The GVTC Secretariat, established to primarily foster cooperation and coordination to meet natural resource conservation and community development objectives in the GVL, should take advantage of this international effort to address illegal trade in timber, charcoal and wildlife in the GVL.

4. Information sharing among the technical agencies for forestry and wildlife as well as the relevant non-governmental agencies operating within the region should be enhanced, and trust and confidence built since all are pursuing common conservation and development objectives.

There is a lot of information and data already available that is either held by respective technical or NGO agencies or is shared selectively but sometimes treated with contempt and suspicion especially by government departments. Some of the information is accusatory and critical of government functionaries and politicians making it either unacceptable or embarrassing, and therefore the natural tendency is denial and sometimes anger which further exacerbates the illegal trade. The GVTC Secretariat as an intergovernmental and neutral body should play a pivotal role of coordination and facilitating communication and information sharing among the relevant agencies for effective collaboration across the borders.

5. A regional REDD+ funding project should be developed and implemented within the GVL to help catalyse positive environmental change and sustainable development.

As a response to climate change occasioned by greenhouse emissions, the United Nations Framework Convention on Climate Change (UNFCCC) approved a management approach, REDD, aimed at encouraging developing countries, through financial incentives, to curb deforestation and thereby reduce the greenhouse gas emissions that result from deforestation. REDD+ includes the added components of conservation and enhancement of forest carbon stocks and sustainable management of forests, particularly by the local communities and loggers. Countries with large forested areas and low rates of deforestation, such as those of the Congo Basin and other African countries where forest carbon stocks are considerable and increasing are expected to participate in and benefit from the mechanism. A practical approach would be to build on the current GVTC initiative for development and ultimately implementation of a regional REDD+ project.

6. Approach to conservation related enterprises should guarantee PA agency buy-in and sustainability, based on both economic and environmental considerations

Conservation related enterprises have long been designed with the key objective of addressing poverty as a key factor fuelling illegal and unsustainable use of resources and provision of alternatives to resources accessed from the PAs. It must be noted that even if poverty levels were substantially reduced, the demand for natural resources will always be there since the human population is increasing and alternatives can hardly substitute for energy and timber requirements or even food for forest dwelling communities and those adjacent to PAs.

7. Revise public procurement policies and procedures so as to exclude the supply and use of illegal timber

Procurement policies and procedures do not specifically exclude supply and use of illegal timber, the emphasis is on quality and price. The misleading assumption is that timber on the market is legally obtained and if it is not, the duty of verifying and taking action lie with the national forestry regulatory agencies in the respective countries. Procurement policies and procedures for timber should equally emphasize legality of timber supplies including supplies from another country. For example it is contradictory for governments to ban use of chain saws for sawing timber and yet government entities e.g. schools buy chain sawn timber for construction or furniture. Public procurement policies and procedures for government and donors therefore, need to be revised to include the aspect of legality of timber supplies, which should be verified by the national regulatory agencies.

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

The illegal trade in timber, charcoal and wildlife in the Greater Virunga Landscape (GVL) has been a matter of great concern dating back to the 1960s. Illegal ivory and timber shipments from the Democratic Republic of Congo (DRC) involving high level political actors made national and international news headlines in the 1960s through the 1980s and the 1990s (UN 2001; Crawford *et al.*, 2008). In addition, sophisticated live wildlife trafficking has happened across the borders of Uganda, Rwanda and DRC involving mainly chimpanzees, gorillas, parrots and chameleons since the 1970s. Despite concerted efforts by the

Despite concerted efforts by the respective governments to address illegal trade in timber and wildlife over the years, the problem still persists and today, illegal charcoal and bush meat trade has also become a serious issue to address.

respective governments to address illegal trade in timber and wildlife over the years, the problem still persists and today, the illegal charcoal and bush meat trade have also become serious issues to address. From 2004 there have been formal attempts at addressing issues of illegal harvest and trade in products originating from Protected Areas (PAs) in the Virunga Landscape through a collaborative effort among the national wildlife agencies of DRC, Rwanda and Uganda (GVTC, 2012). The formal collaboration resulted in, among others, the formation of the GVTC Secretariat, development of a Transboundary Strategic Plan (2006 to 2012), and donor funding and support from the Dutch Government, NORAD, USAID, and others.

1.2 Background

The Greater Virunga Landscape (GVL) straddles the 3 countries of Uganda, Rwanda and DRC within the Albertine Rift Valley. It is one of the richest ecosystems in the world in terms of species diversity and endemism and has been described as one of the biodiversity hotspots on the African continent with eight national parks, four forest reserves and three wildlife reserves (see Figure 1, map¹). These natural endowments in the GVL draw a lot of interest at national and international level from conservationists, researchers, conservation and environmental NGOs, government and inter-governmental agencies, the private sector and local



Figure 1: Map of Greater Virunga Landscape

¹Owiunji, I., N. Guma & A.J. Plumptre (2005); Transboundary Collaboration between Uganda Wildlife Authority and Institut Congolais pour la Conservation de la Nature. Report on Transboundary Law Enforcement Stakeholders Meeting, April.

communities. The region is internationally recognized with three World Heritage Sites (Virunga National Park in DRC, and Bwindi Impenetrable and Rwenzori Mountains National Parks in Uganda), one Ramsar site (Lake George and surrounding wetlands), and one Man and Biosphere Reserve (Queen Elizabeth National Park in Uganda).

In addition, other attributes which make the region a priority area for conservation locally, regionally, and at the global level include the following:

- It is an area of exceptional animal biodiversity, hosting the only population of mountain gorillas (*Gorilla beringei beringei*) in the world; and is inhabited by about 1,448 vertebrates out of which 150 are endemic to the region. Up to 48 species of mammals, birds and amphibians are threatened. The GVL once had the highest mammal biomass recorded on earth at 314 tonnes per sq km. It has about 3,180 plants species with 246 plant species only occurring in the region (Owiunji *et.al.* 2005).
- It has good climate and fertile volcanic soils and thus is a major source of food to the people within the landscape as well as those living outside the region in the three countries.
- Several million people rely on water that comes from the streams on the mountains
- The fisheries on the lakes are the most productive in Africa, relying on fertilization by hippopotamus.
- Forests provide goods for some of the poorest people in Africa – up to 35% of their annual income (Bush *et al.*, 2004).
- An estimate of the value of forests in Uganda was that \$350 million would be needed each year to replace services they provide, (Bush *et al.*, 2004)

1.2.1 Threats to Biodiversity Conservation

Human population pressure and insecurity are two of the greatest threats to the biodiversity in the region. The high population increases demand for natural resources, while illegal harvest and trade in forest and wildlife products is fuelled by insecurity.

1.2.1.1 Population dynamics

The human population in the Great Virunga Landscape is characterised by high poverty and dependency on subsistence farming for their livelihoods and income generation. The people use protected area resources to supplement their food and income from farming. These scenarios have created pressure on the natural resources in and outside the PAs as the surrounding communities utilize the PA resources to meet their increasing cash and livelihood needs. Further still, the GVL provides important environmental goods and services (water, non-timber products, and fisheries) that benefit approximately 1.2 million people living in the region (GVTC, 2012). Forests provide goods for some of the poorest people in Africa – up to 35% of their annual income.

1.2.1.2 Insecurity in the region

There has been high levels of insecurity in the region for many years, with many internally displaced people and others fleeing across borders for safety. The armed conflicts also cause negative impacts on biodiversity resources in the region as the various armed groups use the protected areas to launch attacks as well as fuelling illegal harvest of forest resources and poaching of animals for trade. In addition, the park rangers have borne the brunt of the armed conflicts, being kidnapped, killed, or seriously injured with most of these incidents happening in the DRC.

1.3 Objectives of the Study

The overall objective of the study was to document the extent of the illegal timber, charcoal and wildlife trade in the Greater Virunga Landscape with the view of proposing measures to curb the illegal practices.

The specific objectives included:

1. To undertake research on timber, charcoal and wildlife trade and market dynamics in the Greater Virunga region.
2. To document effects of the timber, charcoal and wildlife trade on the habitat and species of the protected park and forest areas in the Greater Virunga Landscape.
3. To propose practical solutions to mitigate illegal trade, habitat degradation and promote economic development in the Greater Virunga Region.

The study was also intended to collect data and information that would feed into updating or development of a new Transboundary Strategic Plan for the GVL. The study is also aimed at providing a baseline for action to address the illegal trade by the 3 governments through their mandated agencies.

2. METHODOLOGY AND APPROACH

2.1 Scope of study

The study focused on the Greater Virunga Landscape which is transboundary in nature, as shown in Figure 1, and where the protected areas of Semuliki, Rwenzori, Queen Elizabeth, Bwindi, Mgahinga; and the contiguous forests of Kalinzu and Kashyoha-Kitomi in Uganda; Volcanoes National Park (PNV) in Rwanda; and Virunga National Park (PNVi) in DRC as well as the adjacent communities to these protected areas are found.

The study focused on the following content:

- Identification of issues regarding illegal timber, charcoal and wildlife trade and market dynamics in the Greater Virunga Landscape.
- Mapping of routes and hotspot areas of these illegal activities within the landscape
- Documentation of effects of the timber, charcoal and wildlife illegal trade on the habitats and species of the wildlife protected areas and forest areas in Greater Virunga Landscape.
- Recommendations to mitigate illegal trade, habitat degradation and promote economic development in the Greater Virunga Landscape.

2.2 Areas for field visits and consultations

Sampling of sites for field visits was guided by the protected areas and forest reserves' locations as indicated by geographical scope (Figure 1) and agency staff. These criteria were augmented by consideration of impact areas (hotspots) for illegal timber, charcoal and wildlife trade within the landscape and other considerations made by the consultancy team based on literature review.

Relevant institutions specifically those involved in wildlife, forestry and other natural resources management, law enforcement, policy and legislation, and NGOs were selected for consultations and questionnaire interviews. These included among others: wildlife and forestry agencies in the three countries, police, customs, District local governments, national environment management authorities.

Based on the above considerations, the study team visited several areas, towns, customs and immigration exit and entry points, Protected Areas, and Districts; and interviewed as well as working with field based staff (as listed out in Appendix 3).

2.3 Approach to data collection

In collecting information on illegal timber and wildlife trade, the study team undertook questionnaire interviews, key informant interviews, group discussions and engaged field staff from the wildlife and forest agencies, and relevant departments in Uganda, Rwanda and DRC



Figure 2: Session with UWA rangers at Kayanja

in an interactive approach – team members spent time and worked with the staff in the field.

The approach was aimed at motivating the wildlife and forestry agencies and government officials from the relevant departments (including police, customs, and army), to work with and share useful information with the study team. The approach was also designed to facilitate capacity building of the selected teams to continue with monitoring and data collection on illegal wildlife trade using the tools and mechanisms developed for the study. The possibility of collaborating with the Lusaka Task Force on combating illegal wildlife trade in data collection was explored but found impractical due to the timing of the study.

The team also interacted with and gathered information independently from customs, police, local leaders, community groups, business people including timber and charcoal dealers, ex-poachers and Non-Governmental Organisations. Over 100 people were consulted / interviewed, 5 community groups/representatives consulted and 60 questionnaire interviews conducted.

2.4 Field Data Collection

The study applied the methodologies/techniques listed below to collect data and ensure that the study objectives were achieved:

- a. Desk review of literature
- b. Questionnaire interviews
- c. Client and key Stakeholder Consultations
- d. GIS and Remote Sensing
- e. Field visits
- f. Stakeholder validation meetings

Data collection focused on obtaining information regarding illegal practices on timber, charcoal and wildlife trade and market dynamics in the region; mapping routes, illegal hotspots and markets. The data collected also comprised of seasonality, quantities, volumes of the species traded in; the drivers and underlying causes of the trade, those involved and the methods that are employed to channel the forest and wildlife products. Other data collected were timber tracking mechanisms; effectiveness of existing litigation provisions and their effectiveness in relation to illegal timber trade in the local and central government authorities, as well as PA efforts to manage the illegal trade within and across borders. In addition, data on the effects of the illegal trade in forest products on the habitat and species of the protected parks and forest areas as well as on potential for REDD+ financing was collected.



(a)



(b)

**Figure 3a) Consultations with CBOs representatives at Bugeshi Sector- Rwanda;
3b) Interview with Director Forests and Nature Conservation North Kivu, Goma- DRC**

2.4.1 Literature Review

A desk review and content analysis undertaken as part of the study revealed that some work has been on-going as a response to the illegal trade in timber, charcoal and wildlife but with some challenges. Chevallier *et al.* (2012) observed that the border separating the eastern Democratic Republic of Congo (DRC) from the other Great Lakes countries (Uganda, Rwanda and Burundi), is long and porous and there are many ways to cross it, at both official and unofficial points. Depending on the kind of trade that is involved and the volumes and the source, there is a wide array of choices for crossing the borders at the many official and unofficial entry/exit points by road (on foot, by bicycle, car, bus or truck); by water (canoe, ferry or boat); or by air, either during the day or night. This was confirmed during this study when customs officials indicated that there were many porous points along the border especially between Uganda and DRC, while in Rwanda communities interviewed in Bugeshi sector indicated that traders cross with charcoal at official points on foot from DRC into Rwanda and vice-versa. Nellemann (2012) writing for the INTERPOL Environment Crime Program, noted that illegal logging and trade and illegally harvested wood products (including charcoal) have continued due in large part to a lack of coordinated international law enforcement efforts to combat the organized transnational nature of the criminal groups involved. Indeed, law enforcement has often been associated with “guns on the ground”, rather than full investigative operations examining tax fraud and laundering, which are essential for combating modern illegal logging and wildlife crime syndicates.

Although there have been efforts at collaboration by the three wildlife agencies of DRC, Uganda and Rwanda for purposes of law enforcement under the Greater Virunga Transboundary Collaboration, it has fallen short of rigorous investigative operations and has not brought on board the vital departments of Customs and Forestry. There should however, be hope for improvement as the newly established International Consortium on Combating Wildlife Crime (ICCWC), chaired by the CITES Secretariat and comprised of INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank and the World Customs organization (WCO), provides a substantial new commitment to the sharing and coordination of a comprehensive international effort to help combat wildlife crime, including illegal logging. ICCWC represents the entire enforcement chain – customs, police and justice. It also addresses anti-money laundering and serves as a model at the international level for the sort of cooperation that is required amongst enforcement agencies at the national level to more effectively combat illegal international trade in forestry and wildlife products (Nellemann, 2012).

Concerning habitat degradation/reduction and opportunities for REDD+ in the Greater Virunga Landscape, Nellemann *et al.* (2012), further argues that if REDD+ is to succeed, payments to communities for their conservation efforts need to be higher than the returns from activities that lead to environmental degradation. Illegal logging and charcoal trade threatens this payment system if the unlawful monies changing hands are bigger than from REDD+ payments.

Other documents reviewed particularly studies carried out in recent years in the region revealed loopholes and weaknesses in the regulatory mechanisms in Uganda and DRC for timber trade and forestry products. For example, although both countries have good laws for regulating timber trade, regulations are either not in place or not enforced due to weak institutions (WWF, 2012). While for Rwanda and to some extent Uganda, as long as there is a net benefit for the country, the regulatory systems are complacent about products coming in from DRC. This points to the aspect of less commitment to international obligations agreed to in the region such as Africa Forest Law Enforcement and Governance (AFLEG), African Timber Organization (ATO), and the Convention on International Trade in Endangered Species (CITES) (Hermosilla, 2007).

Kamugisha (2007) argued that the main cause of forest (and wildlife) crimes is corruption that cuts across all levels of society, including forest managers, politicians, law enforcement agencies, investors and local people. He further argued that civil conflicts in respective countries and therefore in the region often lead to forest crimes like encroachment, illegal harvesting and trade, especially timber, charcoal, firewood and more recently, rattan cane and some other non-timber forest products. Olupot *et al.* (2009) found that bush meat is a less important source of protein in East Africa (Uganda and Rwanda) which is mainly consumed for cultural reasons but a much more important source of food and trade (income) in Central DRC and West Africa.

On the other hand, based on a number of case studies particularly in Southern Africa, it has been observed that wildlife trade has the potential to create conservation incentives for local communities and local authorities around protected areas (NEMA, 2008). The same argument holds for timber and forestry products such as charcoal once issues of illegality are addressed.

The definition of “illegal” in as far as it applies to forestry and wildlife resource is itself contentious with some authorities terming what is deemed “illegal” as informal. This is particularly so when it comes to access and use of forestry and wildlife resources by local communities living within or close to forests and protected areas. To such communities, who are even more conscious of the need for conservation because their very survival is dependent on these resources, the aspect of illegality does not arise but instead they feel cheated and denied. These communities are in actual fact threatened by the so called “legal” trade by commercial logging and tourism operations among other developments as experience has shown in Latin America, Asia and Central Africa (Bowen-Jones, *et al.*, 2002; Nellemann, 2012; Cheveller, 2012; WWF, 2012).

The definition of “illegal” in as far as it applies to forestry and wildlife resource is itself contentious with some authorities terming what is deemed “illegal” as informal. This is particularly so when it comes to access and use of forestry and wildlife resources by local communities living within or close to forests and protected areas.

Illegal trade has in effect been variously defined. The European Union Forest Law Enforcement, Governance and Trade (EU FLEGT) program defines illegal logging as “harvesting of timber in contravention of the laws and regulations of the country of harvest”. Callister (1999) defines illegal timber trade as illegal logging, timber smuggling, practices specifically aimed at reducing payment of taxes and other fees, and illegal timber processing. According to CITES, illegal wildlife trade is broadly defined as an environmental crime, which directly harms the environment. The legal wildlife trade

includes ONLY those species that are not listed in any of the three CITES appendices, and for those with permits and certificates for import, export, re-export and introduction, which have been issued by the CITES Management Authorities of the respective countries. Illegal trade in timber, charcoal and wildlife, therefore, is trade that contravenes the laws and regulations of the countries through which the timber as well as charcoal and wildlife transits and those of the destination countries.

2.4.2 Remote sensing and GIS

2.4.2.1 Mapping Routes and hotspots of the illegal trade

GPS coordinates were captured in a spread sheet and imported into ArcGIS, GIS software. As a control measure, data stored in GPS units were also downloaded and imported directly into ArcGIS. In addition, coordinates of hotspot areas mentioned in various reports, key informant interviews and monitoring data [Ranger Based Monitoring (RBM) in PNV and PNVi and Management Information System (MIST) data in UWA] were identified on a base map from Google Earth and imported into ArcGIS. From this information, maps showing routes, major border crossing points and related hotspots were generated.

2.4.2.2 Estimation of forest cover (and analysis of historical land change)

To understand the magnitude of forest cover change within this area, a sample area of about 1.5 million hectares within the eastern DRC was used. This region has a lot of cloud cover and only 6 images were selected out of the available 23 Landsat images (See list in Appendix 5). Satellite images representing the years 1990, 2000 and 2010 were downloaded from www.glovis.usgs.gov. Image interpretation and analysis was done in ERDAS 2012 and ArcGIS 10 software.

2.4.2.3 Estimating quantities, volumes and species traded in

Quantities and volumes of traded items were generated as weighted averages of tallies and information got in the field. This information was corroborated by other reports and interviews/opinion of experts within the region (see Appendix 3).

2.5 Data analysis

Data from the field and questionnaires was captured in SPSS version 19. Pre-defined responses were coded to 'yes' or 'no', where 'yes' indicates where the issue has been ticked by the respondent as relevant and 'no' where it has not been ticked. Descriptive statistics including frequency tables and multi response tabulations were made. Some of this data, such as the current interventions in terms of alternatives to charcoal, is represented in the form of graphs.

Supervised classification was used to generate vegetation maps for 1987 and 2010. The forested area in 1987 was layered over the vegetation map of 2010 to extract areas that had changed from forest to other land use/cover classes. In addition to the above, a change detection technique known as image differencing was used to confirm areas where changes have occurred between 1995 and 2008. This period is close to the 2000 - 2010 deforestation assessment done by WRI and it was therefore possible to make some comparisons. Image differencing involves subtracting one date of imagery from a

second date that has been precisely registered to the first (Doak and Lackey, 1993). Details of this process and results are presented in Appendix 5.

Habitat loss in the sample area was calculated and is presented in table format in section 3.7. To each land use / cover type, a biomass stock and annual biomass increment value was attached to estimate current and future available forest resources. Biomass values were obtained from national studies (National Biomass Study, 2003), research topics and Global Forest inventories (IPCC biomass Default values) (see Appendix 5).

2.6 Limitations of the study

Due to insecurity and fighting in Eastern DRC between M23 rebels and DRC armed forces at the time of the study, the team only managed to reach Goma town for the field visits and was unable to go to all the other sites (key towns and hotspot areas around PNVi in DRC) that had been identified for the study. The team therefore relied on existing literature for most of the information on DRC.

No sample sites were taken on the Uganda and Rwanda sides of the Greater Virunga Landscape. Land use in this area is highly intensive and heterogeneous, composed of small land holdings, small agricultural fields of annual (e.g., maize, beans, and peas) and perennial crops (e.g., banana, coffee) interspersed with woodlots, fallow land and pasture land. Land use / cover change would require high resolution satellite data and intensive ground-truthing as well as a participatory validation of the change. This level of detail was beyond the means of this study. Discussion of habitat loss and gain in this area is based on other sources of information e.g., the Uganda National Biomass Study database and the Rwanda Biomass Energy Strategy report.

There was no up-to-date spatial data available on land cover /land use covering the whole of the study area. Within the scope of this study, it was also not possible to do a time series wall to wall mapping of the GVL due to a number of factors, but mainly lack of time series cloud free satellite images covering the whole region, lack of enough ground control points and most importantly, time constraints to source all the necessary remote sensed data.

3. FINDINGS AND RESULTS

The key issues to consider in discussing and understanding the trade and market dynamics in timber, charcoal and wildlife in the GVL are: the legality of the trade, the volume of trade, the source of the products traded in, and the markets. The simple and largely acceptable definition of legal trade is: “trade that does not contravene the laws and regulations of the country where the trade happens or the country of origin or country of transit”. This somewhat complicates the aspect of legality based on the laws and regulations of the 3 countries of Rwanda, Uganda and DRC that share the GVL. For example, as long as a trader bringing timber into Uganda satisfies the Ugandan customs requirements to sell timber in Uganda or transit it through Uganda, it is irrelevant whether it was legally harvested from the source, except where there is a binding international legal obligation.

The findings and results from this study are presented in the respective sections on each subject matter. Findings are presented in a descriptive narrative and with illustrations as was found necessary. Maps, figures and tables were used to capture key issues such as routes and hotspots; estimation of forest cover and estimation of volumes traded in.

For ease of discussion of the issues concerning the trade and market dynamics, each of the trade items is handled under separate subsections below.

3.1 Trade in Timber

This study established that over 90% of hard wood timber requirements of the natural species consumed in the border areas of Uganda and Rwanda comes from DRC. Ninety five percent (95%) (n=60) of the respondents on timber trade on the Ugandan and Rwandan side of the borders said that nearly all of the hard wood timber on the market largely originates from the DRC. Although key informants disclosed that logging in DRC is facilitated by the DRC army and sometimes government officials, they considered timber trade as a legal business once the timber has crossed into Uganda and Rwanda through gazetted customs border points.



(a)



(b)

Figure 4a) Timber Shade in Goma of Natural Forest Species- Mahogany
4b) Mahogany timber species being loaded on a truck for export to Rwanda

According to the Nature Conservation and Forests Provincial Office in Goma, 20% of the timber traded in eastern DRC and crossing over into Uganda and Rwanda is from North Kivu Province, Walikali District while 80% is from Orientale Province, Mambasa and Ilumu Districts. Although a law to regulate timber trade was passed in 2002 in DRC, implementation/enforcement has not been practically possible given the governance issues in eastern DRC. Timber trade has taken on a rather ‘informal’ management system whereby land owners, timber trade associations and traditional chiefs are at the core of managing the trade and only seek permits for export. The Forestry Provincial Office acknowledged the challenge of enforcing the law and monitoring but also reported that some pilot monitoring and tracking system had been established at Mahagi but will eventually cover Beni and Goma. Appendix 3 shows estimates of the volumes of timber, source and market based on field data collected, while Figure 6 shows the timber trade routes.

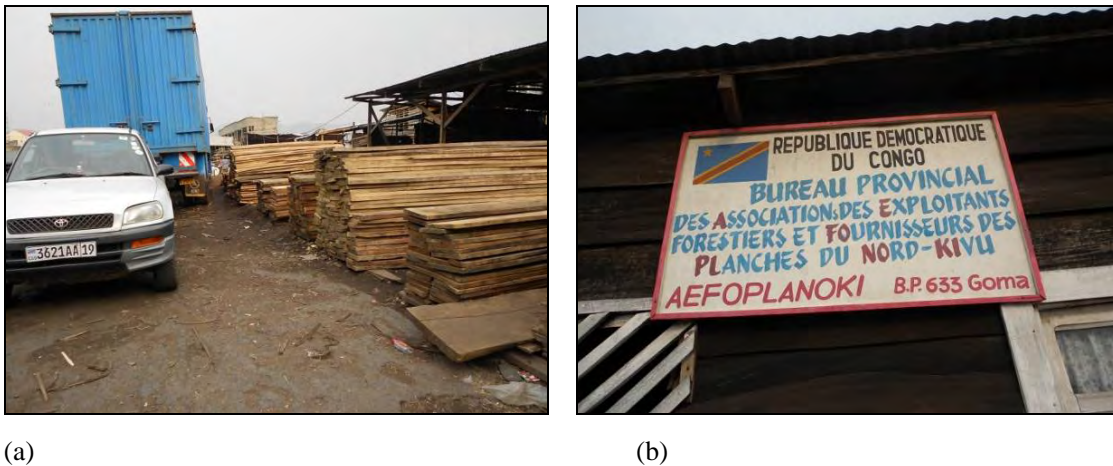


Figure 5a) Assorted Timber species being offloaded at a timber shade in Goma
5b) Office of Timber Association operating in Goma

In the areas visited along the common border of DRC/Uganda and DRC/Rwanda, 95% (n=60) of respondents claimed that illegal timber trade into Uganda and Rwanda was not possible due to the weight of timber, the rugged nature of the terrain, and very poor road infrastructure to facilitate timber smuggling. However, 5% (n=60) of the respondents said that in a few areas; specifically along water bodies because of many landing sites, illegal timber trade could possibly be happening.

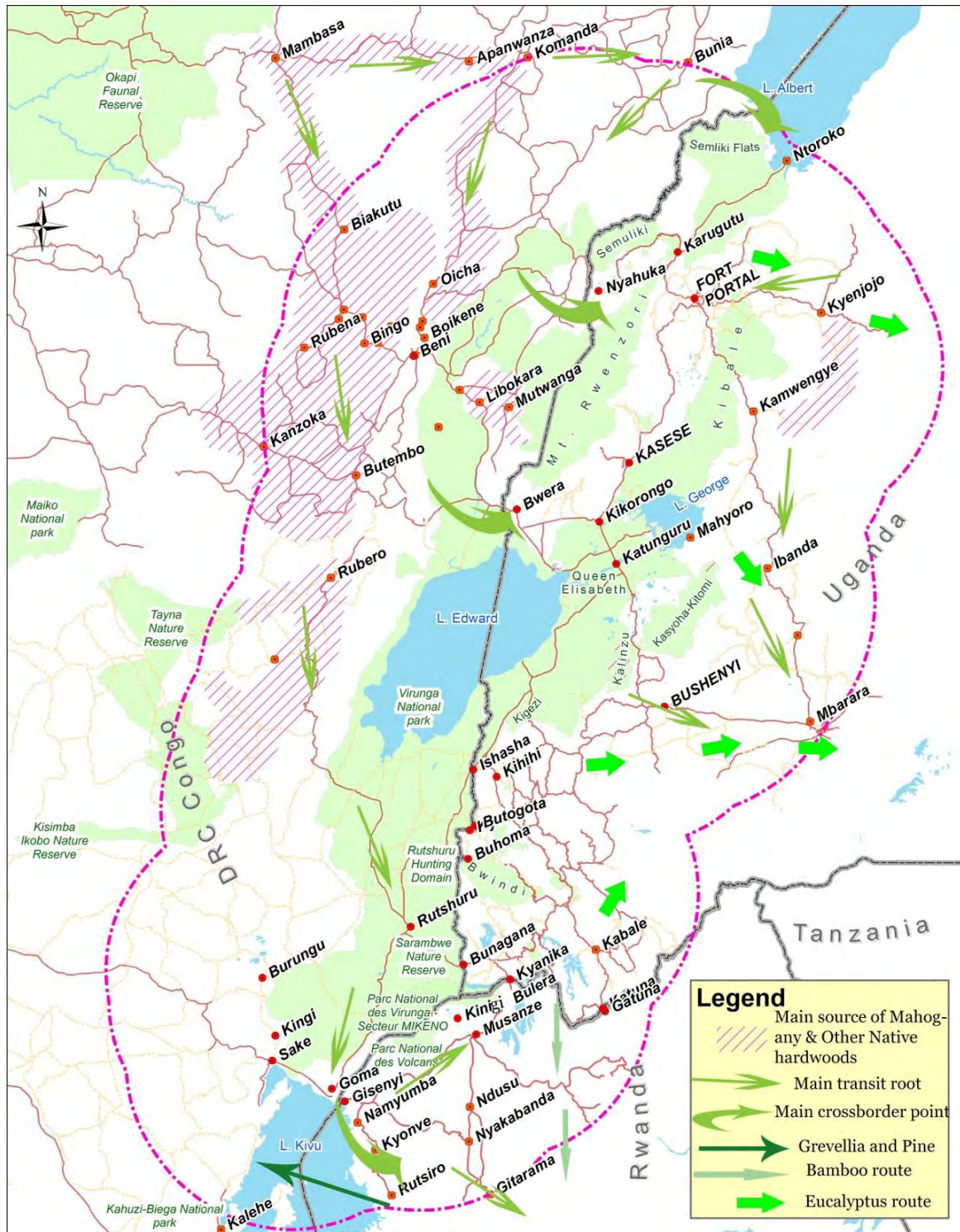


Figure 6: Map of Timber Trade Routes and Harvesting Hotspots

3.1.1 Timber Trade in Uganda

Though the Ministerial ban on timber harvesting in Uganda is still in force, there was evidence of continued harvesting. Timber is logged from local forest reserves and private land mainly for local consumption, in the areas of Ibanda, Kitagwenda, Bihanga and Kamwenge. Timber cutting was also reported to take place in Kasyoha-Kitomi CFR, with Katerera being the main collection centre. In Kalinzu CFR, there is harvesting of *Parinari excelsa* and *Funtumia elastica*. There was no evidence or report of timber from Uganda crossing into DR Congo or Rwanda.

3.1.2 Timber Trade in Rwanda

In Rwanda some timber harvesting occurs on public and private land from planted species mainly eucalyptus and cypress. *Grevillea* spp. is commonly planted in the southwest around L. Kivu that produces light timber exported to DR Congo, sometimes illegally over L. Kivu. There was no evidence or reports of timber harvesting in the natural forests in Rwanda.

3.1.3 Cross border trade

Ntoroko: In Ntoroko, on L. Albert in Uganda, while there are many landing sites, there is only one gazetted customs point where all official passage of goods takes place. The timber comes through Bunia port in DRC to the Ntoroko Customs point. The URA officials in Ntoroko indicated that it is likely some illegal timber transactions may be happening. This declaration is supported by WWF (2012) and Romy *et al.*'s (2012) observations that some timber enters through unofficial points, while the other timber is declared as transit goods when actually the destination is Uganda. Contrary to information received during the study that all the timber that passes through customs is offloaded, counted and properly valued and therefore legal, Romy *et al.* (2012) noted that undervaluation of timber occurs; and it is one of the main means of evading import tax. The team was informed that due to high taxes (40% of the total value of the product) and owing to small profit margins, traders are sometimes forced to evade or under declare goods. The estimated volume passing through Ntoroko customs was 50 m³ per month.

Nyahuka: At Nyahuka trading centre, Bundibugyo district in Uganda, which is approximately 7km to Busunga Border, respondents noted that all timber comes from DRC, and legally passes at the border post destined for various markets in Kampala. Further discussions with a timber dealer in the same area informed the team that they officially purchase timber from Nzayapanda open market in DRC, which is a distance of 3 km from Busunga Border Post. At Nzayapanda, timber products including panels are displayed by the Congolese sellers and the buyers select timbers of their choice. Traders in Uganda claim that they have lost hefty sums of money to unscrupulous middle men in DRC and thus are no longer willing to pay until timber is delivered on the Uganda side. Once timber is selected, the sellers will deliver to the border points on the Uganda side before they get paid. However, this arrangement can easily lead to tax evasions to the Congolese authorities. On the Uganda side of the border, the timber gets assessed by URA, collects import tax and /or issues import documents and transit documents, in the case of goods in transit. The timber is supposedly verified and certified in the presence of the District Forest Service (DFS) officials who are the designated body to certify and clear the timber for the various destinations, but are sometimes not present due to logistical problems. The DFS officials mark and stamp the timber to indicate the origin of the timber. The district at port of entry levies 1% tax of the value of the timber that has been determined by URA after which it

issues a movement permit. The DFS official, Kabarole district confirmed that when timber in transit from another country arrives at the border, URA values and taxes the product according to the set taxes but that there have been cases of under declaration. The estimated volume passing through Busunga customs was 25 m³ per month.

Bwera: In Bwera town, Kasese district in Uganda, it was communicated that timber comes through Mpondwe border post and is taken to Bwera workshops; to different landing sites on L. Edward for making fishing boats; for local consumption; to Kampala markets and beyond Uganda. Mpondwe – Bwera is the main entry/timber trade point where the largest volumes enter Uganda either for use locally or in transit to Kenya. Timber volumes are recorded by the customs offices for all timber crossing into Uganda. Volume estimates by customs and law enforcement officials was at 4,286 m³ per month or 51,428 m³ per year. This figure is within the range of previous studies carried out in the region but there are fears of under declaration and a bit of smuggling.

Kayanja: At Kayanja landing site, Queen Elizabeth National Park, Kasese district in Uganda, respondents reported that timber comes from Beni, Ituri forest in the counties of Witcha and Mtwanga and species traded in included Linzo, Iboa and Mahogany. From Kithoma zone which is closer to Kayanja there is less illegal activity due to the heavy nature of the timber product; and poor road network.

Nyamwesi: Timber originates from DRC through Nyamwesi border post and connects to Butogota township. Nyamwesi border post was recently closed but it was reported that timber trade is illegally going on. This area is near Bwindi Impenetrable National Park (BINP) which is contiguous with Sarambwe Forest Reserve in DRC. Sarambwe is however, now nearly an open area due to massive deforestation and encroachment mainly for crop cultivation, but the trees are reportedly felled for timber. There was no evidence or reports of timber harvesting in BINP.

Bunagana: At the time of the study there were no trade transactions because of insecurity in DRC. However earlier studies (WWF, 2012) show that there has been a modest timber trade from DRC in eucalyptus, pine and mahogany and that there was some smuggling since there are many ungazetted border crossings.

Ishango: Respondents indicated that timber comes from Isheshero – Inyanga area via the river Ishasha.

Cyanika: No timber is traded through this customs point.

Goma-Gisenyi: Timber is imported into Rwanda from DRC via Gisenyi. Most of the timber coming in is mainly Mahogany spp, Markamia and Mvule. The timber is harvested in DRC and transported to Goma where Rwandan traders purchase and supply to major carpentry workshops in Musanze (Ruhengeri Catholic Diocese), Kabgayi in Gitarama District), Muhanga and Kigali. According to the customs official in Gisenyi, on average 12 lorries of 5 tonnes each cross with timber from DRC into Rwanda per week, which translates into about 4,457 m³ of timber a year. This estimate is much lower than that of previous studies using data collected in 2009, 2010 and 2011 that averaged 6,000 m³ of timber coming into Rwanda from DRC. The reduction in volume was attributed to strict controls in Rwanda, increased taxation from the DRC side as here are several layers of taxation by both formal and informal administrative structures (WWF, 2012).

3.1.2 Timber Markets

The study team learnt that timber hailing from DRC via Bunia port to Ntoroko landing site, Mpondwe / Bwera and Busunga Customs posts is destined mainly to Kenya; followed by Uganda markets, especially Kampala, while other timber is consumed locally. Timber originating from Uganda FRs such as Kasyoha-Kitomi and Kalinzu CFRs is consumed locally in towns including Kampala, Fort Portal, Ibanda, Rubindi and Mbarara. No significant (if any) timber harvesting occurs in the UWA managed forested areas such as Kibale, Semiliki, Rwenzori, Bwindi and Mgahinga National Parks.

Timber from DRC to Rwanda is consumed within Rwanda, for furniture and finishing. The timber is mainly used in the major carpentry workshops indicated in section 3.1.3. No timber transits through Rwanda were reported. Based on observations made during this study and observations made in previous studies on timber trade in the GVL (Kujirakwinja and Matunguru, 2008; Brown and

Legal or Illegal Trade?

In this study Illegal trade has been defined so as to capture the key aspect of “contravention of laws and regulations”.

Illegal trade in timber, charcoal and wildlife, therefore, is trade that contravenes the laws and regulations of the countries where the items are traded (including transit and destination countries).

Makana, 2010; SPGS 2010; WWF 2012), it is clear that timber harvesting and trade for over a decade now has been undertaken in contravention of the legal regulatory framework in DRC and Uganda. The official permit and tracking system is not followed in DRC as provided for by the 2002 forest law while in Uganda harvesting is not done based on approved management plans either for trees on private land or in forest reserves as provided for by the 2003 forest law; and the capacity of the mandated institutions is very weak. The situation in Rwanda is however, quite different; the institutions are active and effective in implementing the law

and enforcing the regulatory framework save for some illegal timber trade across L. Kivu in the south.

3.1.3 Factors Fuelling Illegal Timber Trade

Poverty among the local people was reported by 18% of the respondents as a major factor fuelling timber trade from DRC followed by high demand for hardwood timber in Kenya, Uganda and Rwanda (Figure 7), as stocks for natural hardwood timber in Uganda Kenya and Rwanda are already too low to satisfy local needs. Other factors are weak institutional capacity, corruption, lack of alternative employment and weak policies. Natural hardwood timber also has high demand beyond East Africa and gets exported into the Arabian countries. In addition, civil strife in DRC has affected the governance systems. The armed groups operating from within the DRC forests have tremendously facilitated cutting and trading in timber for the markets in the region. Moreover, the vast forests in DRC make the inhabitants engage in an economic activity that has huge returns with hardly any formal regulation.

In Uganda, lack of financial and human resources to enforce relevant laws has hindered the Forest Sector Support Department (FSSD) from applying the regulatory framework in place. Because of limited finances, there is shortage of staff to implement the activities set out in the plans. All the districts visited (in Uganda) complained about meagre resource allocations (generally less than Uganda Shillings 10 million – equivalent to less than \$4,000). Many districts lack forest rangers, forest guards and patrol men. This poses a challenge in monitoring forest activities. Where offenders are apprehended and arraigned in courts of law, they are also released without deterrent penalties. Forestry and other environmental issues rank very low in most districts.

The LFRs lack clear boundaries and even where they exist there are no resources to plant or manage the existing crop. Many districts have already expressed interest to have LFRs degazetted. Some of the land tenure systems such as ‘customary’ equally pose challenges for proper management of natural resources, since the land is owned and used communally; such land is also sometimes described as public land. Lack of alternatives locally was also cited as a factor driving both illegal and legal timber trade. Figure 7 is a graphical illustration of factors fuelling the illegal timber trade.

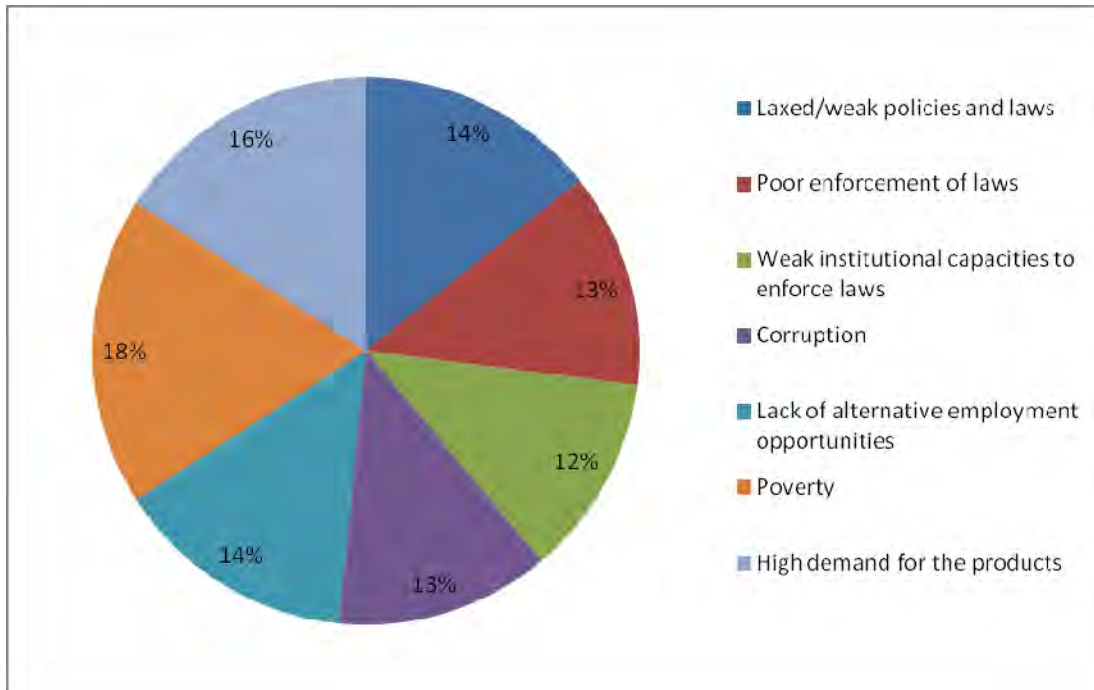


Figure 7: Factors Fuelling Illegal Timber Trade

3.1.4 Efforts to regulate the trade: timber tracking mechanisms

In Uganda, the FSSD is trying to setup a forest produce monitoring process. The study team witnessed a sample of the Forest Produce Declaration Form, used as a tracking mechanism for the local timber dealers. The form indicates among other things, the source of the timber i.e., if it is a forest reserve, former public land and /or private land and the exact location where the timbers are logged. The form assists in tracking the source of the timber and ensuring that the volumes extracted from the respective sources are tracked. The District Forestry Service (DFS) officials make regular visits to registered timber dealers and fill the forms. The forms are later taken to the FSSD Kampala office for data capture and further analysis. In addition to the declaration form the District Forest Officers marks the timber using the old hammer system before issuing a movement permit.

However there are many challenges in having the system in place. The legal framework is not helpful either. Despite the current ban on timber trade, the team was informed that the activity is ongoing including harvesting of other forest products e.g., charcoal and firewood. The ministerial ban harvesting forest products seems to have made the situation worse as many indicated that they have not had the forms since 2008.

To fill in the human resource gaps, some District Forest Officers (DFOs) currently use environmental focal points at sub county level, a system that was initiated by the District Environmental Officer (DEO). The effectiveness of this method is however lacking as there has not been any reports submitted to the DFO's office. As a result of this deficiency, many forest reserves have been largely encroached for charcoal, timber, poles as well as agricultural activities.

Rwanda has a forest produce tracking system covering local production, local trade, imports and exports. Timber production permits / license from woodlots are issued by the District Forest Officer. The license must show the owner of the tree, the village, sector and district of origin. Exportation permits are issued by Central Government in Kigali. Timber from outside Rwanda has to be bought from importers with import licenses issued by the Rwanda Development Board (RDB) Investment Division. The Director of Forestry and Nature Conservation, Rwanda Natural Resources Authority (RNRA) indicated that there were a number of mechanisms in place to address timber trade issues in Rwanda which included a FLEGT timber monitoring tool, GIS mapping of the national biomass and Government clearing house for trade operations that covers among others the timber trade.

There is a monitoring mechanism used at Customs which includes pinning/stamping/ marking the timber at the border post in Gisenyi/Goma before it is cleared to enter the country. However, marking and monitoring from the source in DRC is missing.

No timber is allowed to move from one district in Rwanda to another without a permit. Police checks are authorised to stop such movement. A permit is also required for imports, exports and movement and trade of forest products within the country. There are surprise checks for licenses and permits for charcoal. Law enforcement has been strengthened, local leaders mobilised and the army sensitised about fighting crime and illegal activities. However, due to poverty and a lucrative market for eucalyptus and other plantation timber species (e.g. cypress) in Eastern DRC needed for local house construction, people are tempted to smuggle timber across the border to Goma. During the study, the team encountered a case where a trader was attempting to smuggle timber across the border from Gisenyi to Goma and was apprehended by the authorities.

In DRC a pilot tracking system has only been started in Mahagi but governance problems are still a big challenge.



Figure 8: District Natural Resources Coordinator Kisoro displaying the marking hammer



Figure 9: A lorry of timber that was intercepted by the Forestry Authorities and Police trying to cross into Goma from Gisenyi at the time of the study.

Within the GVL, it is in Rwanda where the laws and regulations applicable to timber trade were reported to be strictly enforced, illegal trade on Lake Kivu notwithstanding. In Uganda and DRC, serious governance and institutional weaknesses were observed that hinder what should otherwise be legal and profitable timber trade. This, and previous studies, point to institutional weaknesses in Uganda and DRC that result in illegal trade and loss of revenue to respective governments.

3.1.5 Conclusions and Recommendations

Conclusion

There are quite large quantities (in excess of 60,000 m³ per year) of timber originating from the Democratic Republic of Congo moving into Uganda, Rwanda, Kenya and other countries. The bulk of timber trade between DRC and through Uganda and Rwanda is largely regarded as legal because it mainly passes through gazetted points. This is however misleading, as there are several procedural loopholes on the side of DRC, thus denying government revenue and reducing on the profit margins of timber producers and possibly traders. Despite certification and formal clearance of the timber at the border points it is difficult to establish the extent to which the timber trade from DRC to Uganda and Rwanda is legal owing to the governance challenges in DRC and capacity problems for the forestry regulatory body in Uganda. Political patronage, civil wars and corruption largely contribute to the challenge of effectively addressing illegal timber trade in the GVL.

Recommendations

- Considering that the bulk of natural forest species timber within the GVL originates from DRC, it is necessary for the three (3) governments to agree on a policy guideline for cross border timber

trade in the region. A joint tracking mechanism at the border points with a transparent tax regime is necessary.

- Inadequacies in staff and logistical capacity need to be addressed especially in DRC and Uganda. This should help improve on monitoring of timber harvesting operations so as to promote sustainable harvesting.
- Collaboration between the forestry and wildlife sector need to be strengthened since there is overlap in areas of jurisdiction, particularly in monitoring and enforcement of regulations concerning production and trade in timber.

3.2 Charcoal Trade

Charcoal is one of the most common sources of biomass energy (charcoal, firewood and crop residues). In most tropical African countries, biomass sources cater for over 90 percent of total energy used for cooking and water heating in rural and most urban households, institutions and commercial buildings².

In urban centres, nearly all households utilise charcoal but to varying degrees with the low income (80%) earning communities depending for the most part on charcoal for all cooking activities. The middle class (19%) tend to combine charcoal, gas and electricity and the affluent of the society depend on gas and electricity (1%) (Government of Uganda 2002). Today, in Uganda most of the rural biomass sources on public and private land are however depleted due to high population levels that depend on the same sources. As a result, those who have planted eucalyptus woodlots engage in firewood sales with now many rural areas purchasing firewood for household use. As a result, charcoal sales which used to be confined to urban centres have become a common occurrence in rural set ups and its trade crosses borders.

In the GVL, charcoal was reported to be mostly extracted from public or private lands; CFRs and LFRs on the Uganda side; from public or private lands, forest reserves and PNVi on the DRC side; and from private woodlots on the Rwandan side. Tables 1 - 3 indicate charcoal demand from various towns within the GVL and based on urban centres charcoal per capita consumption figure of 140kg (NBS 1992). Charcoal consumption in each town is estimated as a product of the population and 0.14 tonnes of charcoal per capita. The various areas where charcoal is produced and consumed in the various sections of the GVL are highlighted in Figure 10, for charcoal hotspots and trade routes. In addition, points of charcoal retail are many as observed at nearly every small trading centre and many roadside markets.

3.2.1 Charcoal production and trade in the GVL

Findings revealed a whole charcoal value chain showing the people involved in the trade³ (Box 1). Respondents reported that men engaged more in the charcoal business at all levels except the retail level which is mostly done by women. Women hardly participate in the producer category but are active in the transporter categories especially across the borders on foot. The team learnt that transporters and traders mostly come from urban centres, which are the end markets for most

²The Uganda Energy Policy (2002)

³Shively et al. (2010) categorises the charcoal value chain as consisting of the producer, agent, transporter, trader and retailer

charcoal. It was reported in consultations that most of the charcoal traded within the landscape is consumed in urban centres.

In DRC, the study team found that charcoal was a significant trade commodity across the DRC-Rwanda border in Gisenyi-Goma. The main source of the charcoal was reported to be the Southern Sector of PNVi, mainly in the area of Kilolirwe and Kibumba. The team found that the main market for charcoal from PNVi is Goma town the regional Capital of North Kivu province in DRC.

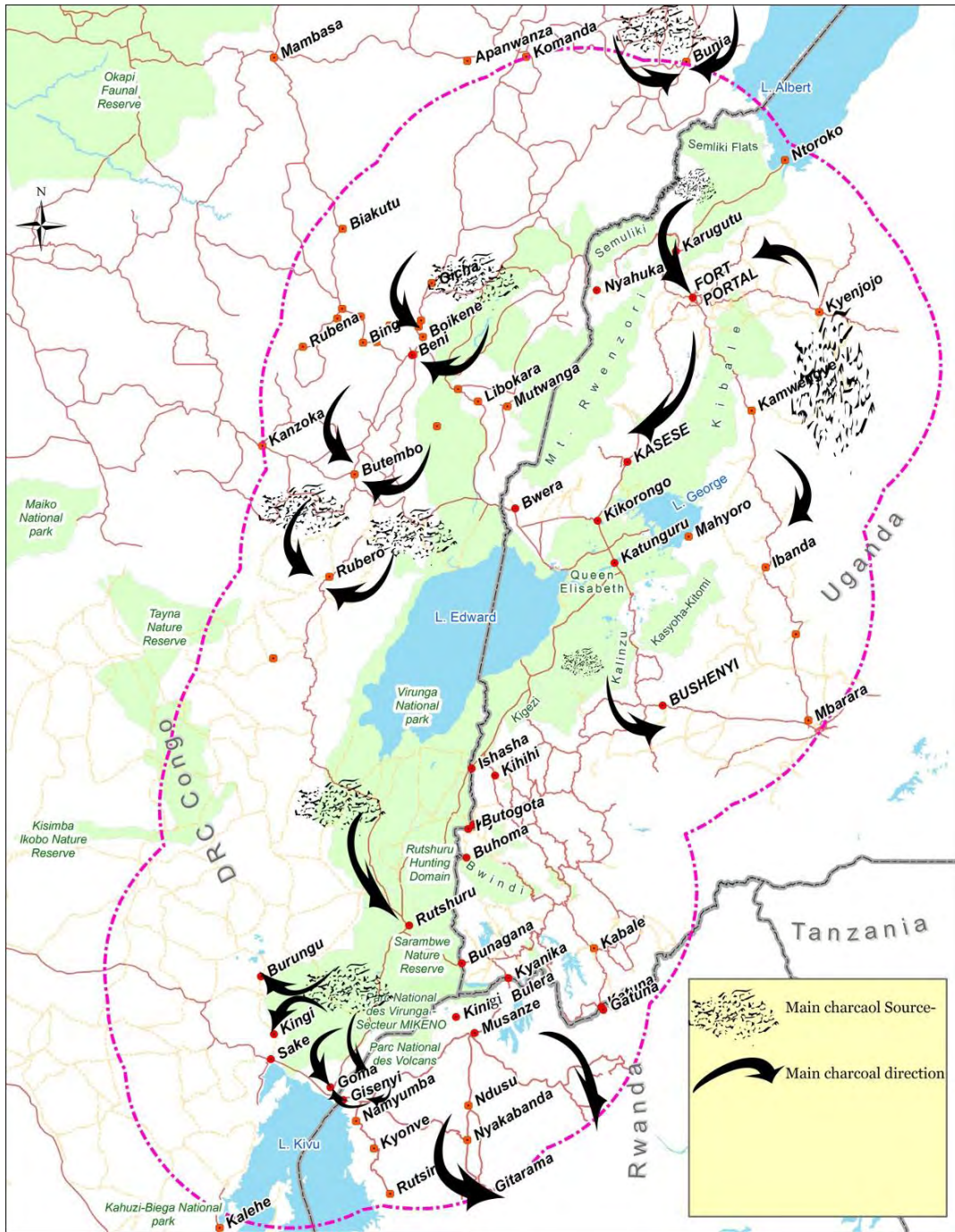


Figure 10: Charcoal Trade Routes and Hotspots

Table 1: Sites and estimates for charcoal consumption in GVL towns, DRC

Location	Last yr of reported population	Population (2004)	Population growth rate	No of yrs to date	Estimated 2013 pop	Per Char(kg)	Per Char(ton)	Estimate Charcoal demand (tons)
Beni	2004	81,286	4%	9	117,790	140	0.14	16,491
Bukavu	2004	471,789	9%	9	1,028,533	140	0.14	143,995
Bunia	2004	230,625	14%	9	770,862	141	0.14	107,921
Butembo	2004	165,333	6%	9	285,941	142	0.14	40,032
Goma	2004	249,862	11%	9	641,009	143	0.14	89,741
Lubero	2004	24,099	4%	9	34,300	144	0.14	4,802
Total Consumption								402,982

Table 2: Sites and estimates for charcoal consumption in GVL towns, Uganda

Location	Yr of reported population	Population (2011)	Population growth rate	No of yrs to date	Estimated 2013 pop	Per Char(kg)	Per Char (ton)	Estimate Charcoal demand (tons)
Bundibugyo	2011	21,600	6%	2	24,409	140	0.14	3,417
Bwera-Mpondwe	2011	16,700	4%	2	18,163	140	0.14	2,543
Fort Portal	2011	47,100	2%	2	48,672	141	0.14	6,814
Ibanda	2011	28,500	3%	2	30,131	142	0.14	4,218
Ishaka-Bushenyi	2011	26,800	2%	2	27,975	143	0.14	3,917
Kabale	2011	44,600	1%	2	45,384	144	0.14	6,354
Kamwenge	2011	16,300	2%	2	17,120	145	0.14	2,397
Kasese	2011	74,300	4%	2	80,677	146	0.14	11,295
Kihiihi	2011	19,200	2%	2	20,084	147	0.14	2,812
Kyenjojo	2011	20,900	4%	2	22,750	148	0.14	3,185
Rukungiri	2011	14,700	2%	2	15,199	149	0.14	2,128
Total Consumption								49,079

Table 3: Sites and estimates for charcoal consumption in GVL towns, Rwanda

Location	Year of reported Population	Population (2002)	Population growth rate	No of yrs to date	Estimated 2013 pop	Per Char(kg)	Per Char(ton)	Estimate Charcoal demand (tons)
Butare	2002	77,217	6%	11	146,581	140	0.14	20,521
Byumba	2002	66,268	6%	11	125,796	141	0.14	17,612
Kibuye (Cyangugu)	2002	59,070	6%	11	112,132	142	0.14	15,699
Gikongoro	2002	32,427	6%	11	61,556	143	0.14	8,618
Gisenyi	2002	67,766	6%	11	128,640	144	0.14	18,010
Gitarama	2002	87,065	6%	11	165,275	145	0.14	23,139
Kabuga	2002	51,693	6%	11	98,129	146	0.14	13,738
Kibungo	2002	44,216	6%	11	83,935	147	0.14	11,751
Kibuye	2002	46,640	6%	11	88,537	148	0.14	12,395
Kigali	2002	603,049	6%	11	1,144,767	149	0.14	160,267
Nyanza (Nyabisindu)	2002	60,117	6%	11	114,120	150	0.14	15,977
Ruhango	2002	50,930	6%	11	96,680	151	0.14	13,535
Ruhengeri	2002	71,511	6%	11	135,749	152	0.14	19,005
Rwamagana	2002	46,198	6%	11	87,698	153	0.14	12,278
Umutara (Nyagatare)	2002	8,437	6%	11	16,016	154	0.14	2,242
Total Consumption								364,786

It is estimated that 90% of the charcoal consumed in Goma comes from PNVi (interview with ICCN Staff, Jan 2013). The study found that there are two major routes for the charcoal trade into Goma; i) The route from Kilolirwe via Kibumba to Munigi and into Goma; ii) The route from PNVi to Rwanda through Ruhunda market in Kibumba to Busesemana, and Bugeshi sector border points then to Gisenyi and into Goma. Charcoal burning is a major law enforcement challenge. The illegal activity is mostly fuelled by the many armed militias operating within the national park.



Figure 11: Truck transporting charcoal from PNVi to Goma in DRC (source: GVTC, 2012)

Box 1: Charcoal Value Chain in the GVL

Tree harvesting and charcoal burning: individuals in local communities, whose work is to cut trees from public and private lands, burn and sell charcoal mostly illegally as they have no licenses/permits; individuals occasionally cut trees on their own land, burn and sell or sell the trees

Consumer/Buyers: there are three types of buyers, the middle men who buy and sell to businessmen; individuals who buy for selling “piecemeal” and are usually women in the market place or roadside; and business men who buy loads of sacks to sell in urban centres. These sometimes have licenses and engage in legal trade.

Consumers: households (urban dwellers, rural dwellers), institutions and small enterprises that depend on charcoal for their energy needs.

At the **producer stage**, local communities cut trees and burn charcoal from public and private lands; the buyers are the local consumers as well as those hailing from urban centres who act as agents; the transporters some of whom own vehicles while others hire them to ferry charcoal from the source to the different destinations; and retailers from whom the end users purchase the charcoal for final usage. At the production stage, the charcoal is packaged in bags of 40-50 kg and may be sold by the roadside where local consumers come to buy as well as traders from far off market destinations who transport it in trucks and Lorries. Occasionally, the agents will pick the charcoal from the areas where it is produced if the roads are motorable.

The whole value chain consists of both the educated and the uneducated people making charcoal production also a viable employment option especially for rural masses.

There are no restrictions on the charcoal trade across the DRC-Rwanda border. The local community in Bugeshi sector, Rwanda, revealed that local Rwandans and Congolese engage in charcoal trade from DRC to Rwanda and back to DRC as a source of income. The local Rwandan communities find it more profitable to sell charcoal in Goma as it is in high demand and they offer better prices.

The study team was informed that local people crossing from DRC with charcoal into Rwanda at the official border post do not need to have official clearance as it is carried on foot by individuals and each is considered to carry small quantities. This was reiterated by the Customs Official at Gisenyi who indicated that charcoal crossing from DRC to Rwanda and vice-versa is informal trade as it is among the same people who share cultural and socio-economic backgrounds. It was reported that charcoal crossing into Rwanda at the Bugeshi border post is sold in the sectors of Mudende, Kabatwa, Kyanzarwe and Busesamana and in Goma via Gisenyi.

The community indicated that in DRC there is no restriction to access the park for resource harvesting and charcoal burning as is the case in Rwanda and Uganda. According to them it is allowed to cut and burn charcoal or harvest products such as bamboo and others. ***It was said during the discussions that: ‘you only need to carry as much as you can, depending on your strength’***, ***Bugeshi local community discussions***. It is however illegal to extract any resources from the park without a permit from ICCN and certainly charcoal production from the park is an illegal activity that ICCN is struggling with.

ICCN estimates indicated that by 2008 about 8 trucks per day each with approximately 300 sacks of 55 kilograms of charcoal were passing through Munigi into Goma; that they were ‘registering’ about

300 people entering the park per day during peak seasons before the rebel attacks on Rwanda in 2008 and 2012.

There is a massive charcoal movement from Rwanda to Goma through Gisenyi which is considered to be informal trade. The study established from the Gisenyi Customs officials that every day over 1000 bags (1040) of 50-55kgs cross into DRC-Goma from Rwanda at the Gisenyi border, while on Mondays and Thursdays (market days) charcoal crosses from DRC into Rwanda at the Bugeshi border post. It must be understood that all this charcoal is produced in PNVi in DRC and the crossing points from either border point are only a matter of convenience in terms of access routes (see map, Figure 10). The volumes at Bugeshi border post could not be established because they are not recorded. The study team was also unable to establish the monetary value of the trade as they could not reach the charcoal markets in Goma due to insecurity and time constraints.



Figure 12: Women transporting Charcoal from Rwanda to Goma, DRC at the Gisenyi-Goma border

The militias and rebels operating in the park are at the core of the trade as it is the main source of finance for their activities. The linkage of the charcoal trade with the militias and rebel groups is a complex chain of networks involving local communities, DRC security forces and middle businessmen as illustrated below by an account from key informants.

Box 2: Operations of the Charcoal Trade Networks of Militias and Rebel Groups, Local Community and the DRC army around PNVi

“Those involved in the trade are militias, and rebel groups operating in PNVi, they cut and burn charcoal. The women and a few men carry the charcoal from the park to outlets in Kibumba and along the road to Goma. Others cross into Rwanda. This is when the local people bring supplies; water, food, airtime and information to the rebels in exchange for charcoal for sale. The business middlemen, dealers and agents of the militias and the FARDC army then come to pick the charcoal from the outlets and roadside points run by the women as their informal sources of livelihoods and transport the charcoal to Goma for sale. The DRC army, FARDC, provides protection and passage for the dealers to Goma. From Rwanda, the local women and men carry the charcoal from the park and cross into Rwanda and cross again via Gisenyi to sell in Goma where there is high demand and higher prices. After selling the charcoal the women take back the proceeds to the militias and rebel groups as they go back to the park to buy more charcoal to replenish the stocks and the cycle continues”

As described by key informants in Goma

3.2.2 Drivers of charcoal trade

The key driving factor in the charcoal trade is that it is the cheapest and most convenient of all the energy sources used in urban areas, other than firewood and crop residue which are more cumbersome to use because of the smoke. Secondly, charcoal contributes to the economy in terms of rural incomes, tax revenue and employment. A bag of charcoal of 40 – 50kg within the GVL on average costs

US\$10. In markets like Kampala and Kigali the same bag costs US\$30. A bag of charcoal can last for about a week in an average family of 4 members but when used in conjunction with other energy sources such as gas and electricity, may last about one month (*The use of gas and electricity for cooking is however only possible in middle income homes who are the minority*). Electricity and gas supplies are inadequate and irregular, making charcoal the most reliable energy for cooking in urban areas. For example in Goma, it was reported that the demand for electricity is about 40 mega watts and the supply is currently 4 mega watts. This scenario described above makes charcoal trade a lucrative business for communities neighbouring national parks and forest reserves given that they can illegally and therefore for free access the trees to convert to charcoal, hardly need any capital to start the trade and evade taxes (or in the case of DRC-Rwanda there are no taxes). On the DRC side in addition to the economic factors, the armed militias, rebel groups and even government soldiers operating within the PNVi participate in the illegal charcoal trade.

3.2.3 Management efforts to regulate charcoal trade

Ideally the charcoal trade is supposed to be strictly regulated through issuance of permits by the forestry agencies and production is restricted to private and public land excluding national parks and forest reserves. In exceptional cases charcoal production may be permitted in a forest reserve for ecological reasons as is the case in Kalinzu CFR (Box 3).

Regulatory frameworks are officially in place and the respective management agencies of forestry and wildlife are expected to undertake regular monitoring and law enforcement. And for a long time, efforts to manage charcoal trade have been characterized by reactionary law enforcement measures that include arrests, confiscations and fines in all the three (3) countries. In national parks and forest reserves in Uganda and Rwanda, this has greatly curtailed charcoal burning because of regular monitoring and law enforcement inside the parks and reserves. The same law enforcement effort has been attempted to regulate charcoal trade outside parks and forest reserves by mounting check points and arresting, fining and confiscating the charcoal with varying levels of success. In Rwanda, the law enforcement approach has been quite effective but possibly only because there is an active and productive national tree planting program/campaign since 1976 and there is a supply of charcoal from DRC. However, in Uganda and DRC, the law enforcement approach has often resulted in public outcry over harassment and subsequently degenerated into corruption or failed attempts to completely ban charcoal trade as illustrated by this finding from DRC.

“ICCN patrols and confiscation through road check points outside the park have not been effective. The challenge is that charcoal selling is perceived as a source of income for small households and women, and as a result in 2008 the Government banned confiscations and arrests from the road points by ICCN condemning the practice as harassment of local people. The government directed that ICCN should instead focus on patrols inside the park”

ICCN official in Goma, January 2013.

Patrols in DRC’s PNVi are curtailed by the presence of militias and rebels inside the park who are also actively involved in the charcoal trade. During this study, ICCN indicated that since 2011, they have lost 14 rangers during patrols and fire exchange with the rebels. Nellemann (2010) put the number of rangers killed in the last 10 years at more than 200. The rangers are simply no match for a

charcoal trade estimated at over US\$28 million annually, and another US\$4 million on road taxes on charcoal alone (Nellemann, 2010)

Box 3: Licensed charcoal burning in Kalinzu CFR, Uganda

Parinari excelsa species is a climax species. Climax species usually dominate the forest and over time suppress and kill off other species. Yet for biodiversity conservation purposes, a forest should ideally be diverse and able to support other tree and plant species as well as animal species. As a management intervention but also for purposes of timber production, mature climax species such as *Parinari excelsa* have to be harvested in a controlled manner. Before this is done, stock inventory is undertaken to determine what volumes should be sustainably harvested, with the objective of allowing other species to grow in the forest, while producing timber.

For controlled harvesting of *Parinari excelsa*, licenses are issued by the Uganda National Forestry Authority (NFA) through public bidding. The best bidder is offered the concession of harvesting with guidelines clearly stated including the procedures and volumes of harvesting. This requires monitoring which is the role of NFA to ensure that guidelines are adhered to.

Parinari excelsa also has large branches which would still pose a challenge to regeneration of other species. To address this problem, licenses are given to interested charcoal producers so that immediately the loggers have removed their logs, the charcoal licensees go in to burn the charcoal from the branches. People benefit from the branches but also the forest benefits from the charcoal ashes which are good for soil fertility and encourage regeneration and growth of plant biodiversity.

The controlled harvesting is a sustainable use of resources, it encourages forest biodiversity, timber production and charcoal production by utilising branches and off cuts all legally done, and stops indiscriminate cutting of trees for timber or charcoal. It is believed that sustainable utilisation of *Parinari excelsa* started in the 1960s and was ongoing in the 1970s with Nkombe sawmill cutting the timber and supplying it to Kilembe mines for props in the mines. Nkombe sawmill closed business after the Asians were expelled. The operations started again in 2004 together with licensed charcoal burning.

This kind of regulated sustainable management practice could be applied in many forested areas so as to supply timber and charcoal while maintaining biodiversity and building partnerships with the local communities and private sector. However, it requires improved recovery levels for timber and charcoal production based on active scientific research spearheaded through a coordinated effort between the forestry and energy sectors.

Discussed with NFA managers in Kalinzu CFR, Uganda

Rwanda took measures to control the charcoal trade on its porous border points because of the link the trade has with the FDLR rebel group, especially when the rebels attacked Rwanda in 2008 and 2012. They only allow passage through official border points but the action hardly addresses the problem of illegal charcoal production in PNVi.

In Uganda the regulatory body, Forest Services Department (FSD) at local government level (district) lack the manpower and financial support to manage the charcoal trade and are often overwhelmed by political and social pressure to let the trade go on uncontrolled.

There are parallel efforts by the departments of energy and non-governmental agencies to promote improved charcoal production, improved cook stoves and diversify biomass energy by making briquettes. These efforts are however, still in very early stages and are yet to offer any practical solutions to counter the increasing charcoal trade in the GVL.

3.2.4 Conclusions and Recommendations

Conclusion

Observations while in the field revealed extensive deforestation on public and private land. Where this is clearly the case in the DRC, evidence can also be seen on free remote sensing data (e.g. land sat images and Goggle Earth). There is also evidence that sustainable forest production can be achieved through strong community efforts to plant woodlots like in Rwanda.

Recommendations

- The market value of charcoal should reflect the true value of the raw materials and processing cycle so as to compare realistically with other energy sources. The current market value does not include the value of the trees since they are mostly cut illegally and taxes are hardly paid.
- In effect charcoal production and trade need to be legalized and formalized as opposed to the ineffective regulatory mechanism which is impractical because of the huge charcoal demand and lack of comparable alternatives.
- Expand collaborative management for communities adjacent to protected areas and public land to sustainably utilize tree resources.
- It is difficult for law enforcement by ICCN alone to control the trade given the structure and market dynamics of the trade. A regional effort is required to flush out the militias and rebel groups from the GVL; promote regional peace recovery through negotiations, so as to establish law and order in the Virunga National Park and the neighbourhood.

3.3 Wildlife trade

During this study, a number of animals hunted in the region both for trade and subsistence use were identified: Elephants, Hippopotamus, Parrots, Chimpanzees, Lions, Duikers, Buffaloes, Tortoises, Gorilla infants, Beetles and Chameleons (Table 4). Except for some licensing of birds and chameleons

Although there are provisions for legal wildlife trade in the Ugandan law and within the CITES framework, all the wildlife trade (live wildlife and wildlife products) across the borders within the GVL is largely illegal

on the Ugandan side, wildlife trade (live wildlife and wildlife products) across the borders within the GVL is illegal. Findings revealed that the most lucrative business in wildlife products within the GVL is trade in elephant ivory, followed by bush meat and then live animals like parrots and chameleons; and that all have markets outside Africa. Bush meat is also consumed locally particularly in DRC. Other uses include medicine and cultural functions at community level.

In Uganda, hunting occurs on public and/or private land outside PAs as well as inside protected areas. Public land hardly contains any wildlife as they have been hunted to near extinction. Animals are mostly trapped and killed inside protected areas or when they stray outside. Elephants are targeted for their ivory and their carcasses are occasionally processed as bush meat.

In DRC hunting for ivory and bush meat is largely in Virunga National Park (PNVi). Parrots and chameleons are also trapped in forest reserves and on private or public land for live trade transiting through Uganda. All kinds of monkeys, baboons, chimpanzees and gorillas are killed for bush meat in DRC. There were reports during field consultations of live baboons from Uganda being sold in DRC for bush meat. Seven cases of baby gorillas confiscated transiting through Rwanda were recorded between 2005 and 2011. These were suspected to be from DRC from the lowland gorillas in Kahuzi-Biega National Park. Six of them were repatriated to DRC to the Kasugho Rehabilitation Center in Lubero Territory. The seventh baby gorilla confiscated in Gisenyi in 2011 is still at the Kinigi Rehabilitation Centre in Volcanoes National Park in Rwanda waiting to be repatriated.

In Rwanda, trapping and/or poaching in PNV mainly duikers, buffaloes, bushbucks were reported, mainly for local consumption both in Rwanda and DRC due to high poverty levels. Hot spot areas for these illegal activities were Gataraga and Shingiro sectors bordering with DRC. Mountain gorilla poaching in PNV for the trade abroad was last observed (5) five years back. However, between 2005 and 2010, two (2) mountain gorillas were confiscated in Rwanda while in transit from the DRC. A DNA test showed that they were from DRC and they were repatriated to the Rumangabo Rehabilitation centre in PNV. The team was further informed by RDB staff in charge of conservation that in 2008, ten (10) parrots were confiscated transiting through Rwanda to Tanzania and possibly onward to the Middle East. Other cases have included 2 chimpanzees and one Debrazza monkey, all suspected to be from the DRC. The RDB official indicated that illegal wildlife trafficking in and across Rwanda borders was high in the early 2000s, but it has almost been stopped due to intensive and strict surveillance by police, the communities and wildlife crimes units at customs.

Consultations with the police (Kigali International Airport Police Commander) and the anti-smuggling unit at the airport indicated that there were no reports of illegal trafficking of live animals and/or wildlife products within the last 3-5 years. The airport police commander indicated that every month there is a joint briefing and information sharing among all the law enforcement departments (police, customs, anti-smuggling, and army) at the airport regarding smuggling and trafficking of contraband items. This arrangement boosts the efforts of police and sister agencies in monitoring and controlling of illegal trade through the airport. Customs officials and police at the border points of Gisenyi, and Cyanika as well as the airport indicated that the Directorate of Conservation and Tourism, Rwanda Development Board had trained and created awareness within the law enforcement agencies about the illegal wildlife trade, identification of specimens, method of concealments, targeted species and other relevant information.

Table 4: Wildlife Trafficking

Item (Ivory/ Trophies / Live animals/Bush meat)	From	To	Species	Estimated Quantities	Purpose	Notes	
	<i>Bush meat</i>	Kasyoha – Kitomi	Communities	Antelopes		Subsistence	Antelopes consumed locally
Ivory	Meat	Kasyoha – Kitomi	Asia	Elephants	10 per annum	Commercial	Ivory is the main reason for killing elephants. After removing ivory, locals take meat
Hippo teeth	Meat	Mpondwe / Bwera	DRC	Hippos	30 per annum	Commercial	Game meat on high demand in DRC
Hippo Teeth	Meat	Mpondwe / Bwera	Asia	Hippos	30 per annum	Commercial	Hippo Meat is main target, Hippo teeth are secondary
Ivory	Meat	Mpondwe / Bwera	Asia	Elephants	30 per annum	Commercial	Ivory is the main reason for killing elephants.
	Meat	TSWR		Antelopes; Hippos	Not established	Subsistence	Hunting is by local people for local consumption
	Meat	TSWR	Communities	Chimpanzees		Subsistence	Influx of Congolese refugees in the area has influenced the eating habits of the locals
Ivory		TSWR	Asia	Elephants	Not given	Commercial	
Hippo teeth	Meat	TSWR	Mainly meat to DRC	Hippos		Commercial	Hippo teeth taken to Asia
		TSWR	Communities	Lions		Mainly conflict with pastoralists	Lions now extinct; lion parts used as medicinal also killed by poisoning
Live animals		DRC	Dubai & Asia	Parrots	12 per annum	Commercial	Enter Uganda via Ntoroko, Bwera, R. Lamu, Ishasha, and Bunagana
Live animals		DRC	Asia	Chimpanzees	Nos. not given	Commercial	Transit through Goma, Kasindi, and Burundi through Uvira/Bukavu
Ivory		Ishasha sector, on DRC side	China	Elephants	10 per annum	Commercial	Militia and rebel groups at the forefront of killing elephants for ivory trade. Carcasses are processed as meat for sale in Bunia and Beni markets

Item (Ivory/ Trophies / Live animals/Bush meat	From	To	Species	Estimated Quantities	Purpose	Notes	
	Meat	QEPA	DRC	Hippos; Buffaloes		Commercial	Buffaloes are easy prey
Ivory		Goma-DRC	DRC	Elephants	10 pieces of Ivory	Commercial	Confiscated in Goma by ICCN in December 2012, suspected to have been in transit through Rwanda or to Bukavu to Burundi
Ivory		BINP	Abroad	Elephants	1 reported case	Commercial	A threat to the small population
	Meat	BINP	Local	Duikers	Not established	Subsistence	In course of trapping Duikers, snares also harm other animals such as gorillas which get ensnared
Live animals		Tanzania	DRC	Tortoises	One (1) case reported	Commercial	Found with tortoises and claimed from Tanzania to DRC
		BINP	Abroad	Beetles	Occasional	Commercial	Once in Bwindi
Live animals		BINP	Abroad	Chameleons		Commercial	Legal transactions in two neighbouring parishes around BINP
	Bush meat	PNV	Locally and across to DRC	Duikers, Bush bucks, buffaloes	Persistent	Both commercial and local consumption	Hotspot areas are Gataraga and Shingiro sectors of PNV where there is easy access to DRC markets. Meat is concealed in charcoal, firewood and other informal trade commodities like food flour, potatoes etc.

Source: extracted from field notes (January 2013)

3.3.1 Ivory

Over half of the respondents (51%) reported that the ivory trade involves well financed and well organised groups, whose killing techniques range from using guns to poisoning of the elephants before the tusks are removed. Poisoning of elephants occurs mostly in QENP in Uganda where the park rangers are very vigilant and are quickly alerted by gun shots.

The UWA annual reports 2000-2010 show reasonable increase in wildlife numbers attributable to improved patrol and enforcement efforts by the agency and partnership with sister agencies; the army

and police. However, occasional killing of elephants and other animals still occurs and of recent there have been reports of increasing poaching (Auditor General Report 2012), possibly fuelled by intensified clashes between the militias, rebels groups and DRC army which has sustained the ivory market. It is however claimed that some of the sister agencies partners as well as some UWA staff connive with the poachers in exchange for large sums of money frustrating the efforts of the organisation. It was further alleged that the poacher and dealer networks have connections with high ranking governmental officials such that even when they are apprehended, the cases simply fail, which frustrates conservation efforts.

The civil wars in the DRC, which involve over 40 different armed rebel groups of tribal militias, governmental rebels as well as government forces with bases in PNVi, have led to near annihilation of elephants for ivory trade. It was reported that in one incident in 2012, twelve elephants were shot for ivory in the DRC. According to ICCN staff, in 2008 the agency recorded loss of ten (10) elephants and by 2012 it was estimated that they were losing eight (8) elephants every three (3) months. The ICCN indicated that hunting (both elephants and hippos) is concentrated in the Central Sector of the PNVi around Lake Edward. There are three (3) major elephant populations affected and these include; Ishasha area south of the lake, Mabenga further south and Ishango north of the lake.

Many times elephants cross and die of gunshot wounds on the Ugandan side in Queen Elizabeth National Park; this is normally established by Ugandan rangers following the trail of blood up to the DRC. Ivory trade is suspected to be the reason an elephant was killed in Bwindi Impenetrable National Park in December 2012 as the tusks were found missing; this would be very disastrous given the population size of about only 50 forest elephants in the park.

The UN Peace keeping force, MONUC stationed in various towns of DRC (Beni, Bunia and Goma), is alleged to be involved in the illicit ivory trade (Nellemann, 2012). Some MONUC members are said to connive with middlemen or businessmen to sell them ivory that is usually obtained from armed groups (FDLR, Mai Mai and others). The increasing presence of Chinese contractors and workers working on various government infrastructure projects in Uganda such as roads, buildings and bridges are suspected to also fuel elephant killing for ivory.

The key informants and other consultations revealed several routes through which ivory is smuggled. The ivory that is transited through Entebbe airport, Uganda from DRC is received by agents in Ishasha and Kasindi, while hippo teeth are transited through Rutshuru and Ishasha to Uganda. The poachers cut the elephant tusks into small rings and conceal it in cassava pieces or potatoes and packaged in sacks and transported on motorcycles via porous points, and then loaded on lorries as well as buses to Kampala where contacts hand it over to Ugandan agents. Other concealment methods include charcoal and firewood. The entry points in Uganda include Katoke area along the Itungo River and Kyeshero area in Butogota. Worked hippo teeth and elephant ivory into jewelry go to Goma and are smuggled into Rwanda where it is sold as jewelry. Other suspected exit routes for ivory are Tanzania and Burundi.

Information received indicates that the majority of the ivory ends in Asia particularly China. It was also reported that the ivory is sometimes ground into powder for ease of transportation and that on arrival in the Asian markets it is reconstituted into solid form and put to various uses. This form of sophistication needs to be verified to be able to counteract the culprits.

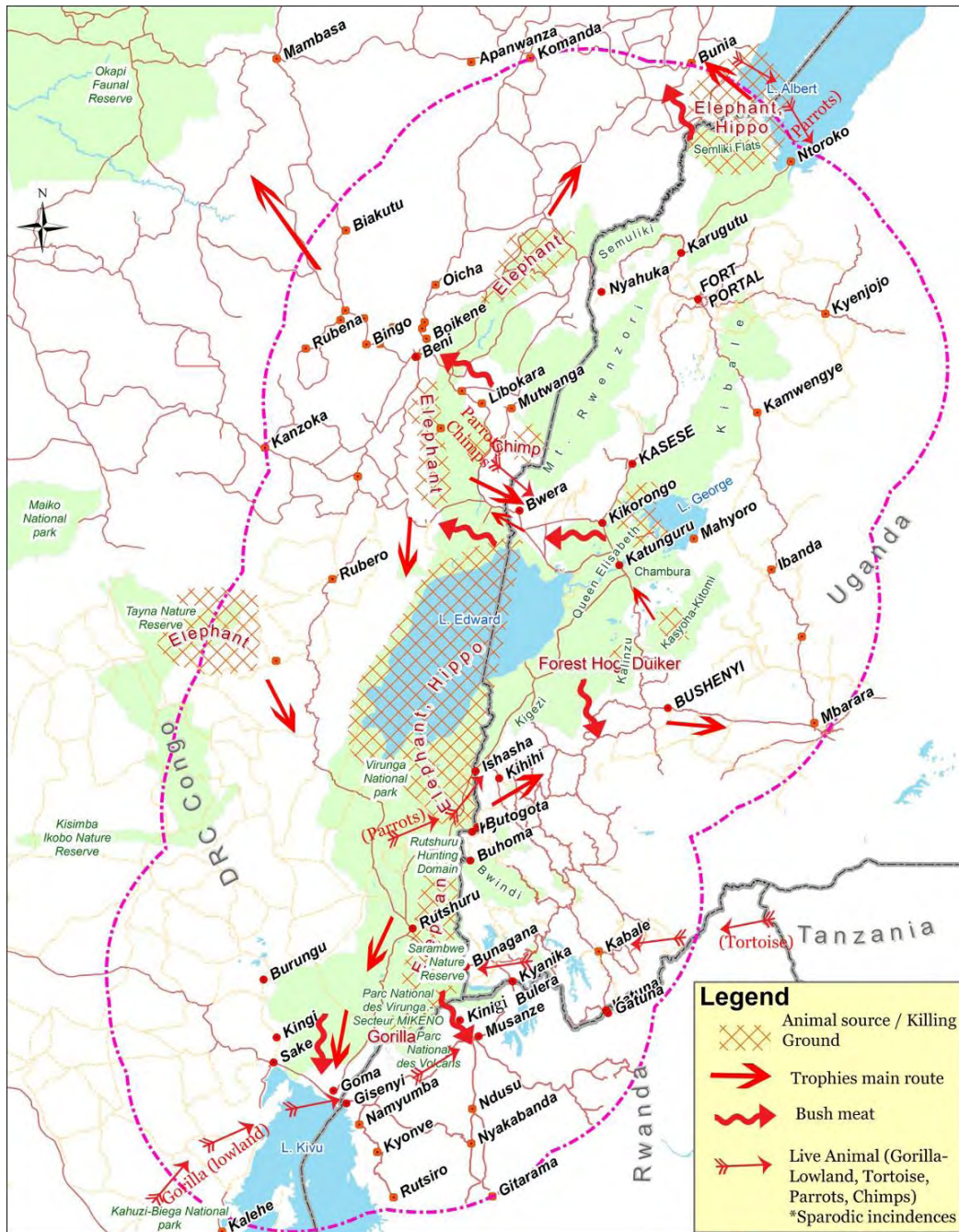


Figure 13: Wildlife Trade Route

In Uganda, most of the law enforcers act on tips by informers who work for the conservation agencies. For example, working on a tip off, UWA law enforcers intercepted and confiscated 6 ivory pieces on 29th August 2012. Informers require prepayment if they are to provide information but they have also been known to be counterproductive when they collaborate with the poachers who have access to large sums of money to divert the UWA officials. Another challenge is that some UWA staff are said to sometimes inform poachers and those carrying ivory to use routes that are not manned and/or patrolled by UWA law enforcement.

3.3.2 Bush meat

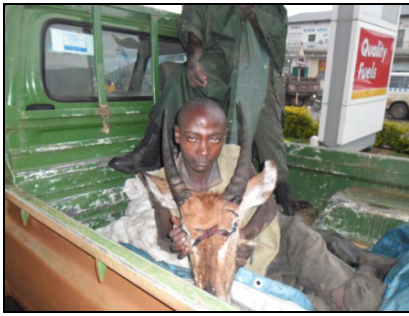


Figure 14: Suspect with an exhibit (head of a Waterbuck)

The study team established through community consultations and stakeholder interviews that animals hunted for bush meat in Uganda and DRC include the Uganda Kob, waterbucks, bush babies, reedbucks, topi, buffaloes, elephants, warthogs, baboons, hippopotamus, and monkeys. Bush meat is eaten as a source of protein locally. Other animals hunted were crocodiles, lions and snakes (pythons) for medicines and witchcraft using body parts.

The lion population in Toro Semliki Wildlife Reserve is believed to have been hunted to extinction. In Rwanda it is mainly the duikers, bushbucks and buffaloes that are hunted in PNV.

3.3.2.1 Routes and Hotspots

The study revealed that hippopotamus and elephants both in Uganda and DRC are the most hunted for commercial bush meat, followed by other species such as buffaloes and duikers, among others. Bodson *et al.*, (2009) noted that the population of hippos in four rivers⁴ and around Lake Edward, between 1950 (numbering roughly 26,530 in 1959) and 2005 (887 individuals), was reduced by 97% through poaching. Hotspots for Hippo poaching (and other wildlife species) are concentrated in areas along Kasenyi on L. George and Nyakakoma area around L. Edward in Uganda.

Respondents indicated that though elephant meat is traded, they noted that elephants are mainly killed for their tusks and meat sales are secondary to the poachers' interest. While Stiles (2011) concurs with this observation, he also notes that elephant meat may also be a primary driver of elephant deaths in certain localities, especially when elephants with small tusks are targeted. He further observed that in those instances where ivory volumes are low, the attraction to kill and possibly be more profitable will be to access elephant meat.

Buffaloes are hunted for their meat too, though it was intimated that they are less preferred because their meat is tough; otherwise, they are easier targets because they are known not to be sensitive and do not easily leave their ranging areas even in the face of danger, unlike elephants. In BINP, the team learnt that the most targeted species is the duiker also known as the forest antelope (*Cephalophus* spp.). In DRC, a decrease in duiker densities was detected and attributed to a change in hunting focus and methods (Ape Alliance 1998), signaling an interest in this species by poachers. Wire snares are mostly used for trapping duikers but this has also far reaching effects on other wildlife such as gorillas that may land in such traps. There is no evidence that mountain gorillas have been targeted for bush meat hunting, although they face injury or death in snares set for buffaloes and antelopes (*ibid*).

In Rwanda it was indicated that poaching in PNV for meat was still high in communities with high poverty and low agricultural production. Although gorilla poaching cases had reduced, the unhabituated gorillas were at risk of snares intended for other animals because they are not monitored as the habituated ones. For example, the team was informed that in 2012 PNV lost two (2) baby gorillas through snaring. The IGCP Conservation Incentive Officer, Musanze indicated that there were challenges of recording and monitoring how many animals are lost to poaching because poachers now carry everything out of the park once the animal is caught. According to the IGCP Conservation Incentive Officer, Ranger Based Monitoring (RBM) data shows increased

⁴Rivers Semuliki, Ishasha, Muzizi, Lamu

poaching/snaring in PNV since 2008 while poaching trends were reducing in MGNP and BINP. In 2009 there were many coordinated patrols with PNVi and MGNP along the borders and about 200 snares were recovered in PNV close to the DRC border.

In a bid to control poaching RDB settled the Batwa outside the park and also initiated an ex-poachers programme mobilizing them into associations for alternative livelihood activities, community policing and working with park rangers in intelligence work and patrols. The PNV staff and IGCP indicated that the approach is proving to be counterproductive as poaching is increasing. It is suspected that with better communication facilities like mobile telephones the ex-poachers are networking with the poachers to give them intelligence information on where to poach given the patrol programmes.

Further discussions with respondents around the parks revealed that there is very little if any wildlife still living on public land since most areas have been converted to agricultural activities. Most of the wildlife is confined in protected areas mainly in national parks and limited numbers in forest reserves.

3.3.2.2 Seasonality

During the consultations it was indicated that hunting for bush meat goes on throughout the year, particularly with shot guns, because the demand for the meat is constantly high. Elsewhere outside the GVL, however, Infield (1988) in Ape Alliance (1998) indicated that hunting using snares was more prevalent in the Korup area of Cameroon during the rainy season because it is possible to identify where to set snares in the thicker undergrowth that confines animals to defined paths.

Selective logging is a highly “mechanised process that requires substantial infrastructure and in many cases the importation of large numbers of external workers into an area that has not before supported large consumer populations”.

3.3.2.3 Factors fueling the illegal bush meat trade

Bush meat trade as an economic activity: While undertaking the study; all discussions revealed that the bush meat trade is a major economic activity for particular groups of people. As explained in the next section on markets for bush meat, it is a very lucrative business bringing in a lot of money into the pockets of those involved. In the Semliki and Bundibugyo areas as well as along the Ishasha River, hippos are targeted for their meat and the teeth eventually are also sold as ivory. A 2006 study by Ape Alliance identified a number of factors fueling bush meat trade (Box 4) that this study found relevant in the GVL.

Box 4: Factors fuelling bush meat trade

- Increasing human population and rising demand
- Uncontrolled access to forest wildlife facilitated by logging, mining and hydroelectric or fossil fuel transport companies
- War and civil strife
- Weak governance, institutional deficiency and civil disobedience
- Sophistication of hunting techniques
- Lack of capital or infrastructure for domestic meat production
- Changes in the cultural environment and discarding of social taboos and traditional hunting embargoes
- Structural adjustment plans imposed by international financial institutions resulting in civil service job losses
- Unemployment, poverty and dysfunctional economies, with lack of alternative monetary opportunities

High human population densities: The GVL has some of the highest population densities⁵ in the region. As such, the protected areas have become effectively islands in a ‘sea of agriculture’. In Toro Semliki Wildlife Reserve (TSWR), lions have been decimated to extinction because of the many pastoralists with large numbers of cattle. Around many PAs, conflicts between communities and wildlife abound, resulting from wildlife crop/livestock raiding; which leads to increased poaching for bush meat or trophies in the case of lions and leopards.

Uncontrolled access to forest wildlife facilitated by economic activities within PAs: While this study did not reveal the link between the flourishing timber trade and bush meat trade in the DRC region, the Ape Alliance bush meat review in 1998 and 2006 denoted that the flourishing timber markets in Europe and Asia have accelerated the bush meat trade. WCS (1996) in Ape Alliance 1998 reported that only selective logging is permitted in Congo basin countries. Selective logging is a highly mechanised process that requires substantial infrastructure and in many cases the importation of large numbers of external workers into an area that has not before supported large consumer populations. In addition to the forestry workers who provide a ready market, the commercial hunters sell the meat to consumers outside the region.

The construction of infrastructure in terms of roads, and camps to facilitate the logging operations; as well as vehicles for transportation of timber enable hunters to gain access to hunting areas and to export bush meat from the forest to different markets. It is reported that logging trucks are used to ferry meat to different destinations. The rampant bush meat trade in eastern DRC will probably spread, when repairs on the dilapidated rail and road systems throughout DRC are carried out as access to the hinterland will be increased. Very recently in the Albertine Rift, oil prospecting has already increased infrastructure in terms of roads, camps and transport; a precursor to poaching and transporting wildlife.

Thibault and Blaney (2003) in Ape Alliance (2006) reported that the oil industry has a significant impact on the bush meat problem and recruits more people into the forest than logging. Already there is oil prospecting in Uganda and DRC areas of the GVL.



War and civil strife: Access to guns and ammunition by the different rebel groups (FDLR, Mai Mai, CDN, as well as government forces), has proliferated the killing of animals for bush meat because of their quick action compared to traditional methods of hunting using spears, bows and arrows. This is especially so for hunting big game such as elephants and buffaloes. In DRC where there is a breakdown of law and order and the presence of many militias who require guns to protect their enclaves, the guns have been turned on the animals for commercial purposes.

Figure 15: Hunters arrested with hunting nets

⁵<http://www.albertinerift.org/WildPlaces/GreaterVirunga.aspx>

Weak governance, institutional deficiency and civil disobedience: Discussions with all PA managers alluded to the fact that protection of wildlife resources is greatly hampered by insufficient financial support and weak governance systems. In Uganda for example, the NFA has insufficient staff on the ground. Lack of resources to carry out effective patrols was mentioned as a constraint by NFA. Encroachers are aware that the organisation is not well facilitated e.g., has very limited fuel reserves and illegal activities are therefore high in the second and fourth weeks of the month when fuel reserves run out. The NFA legal department is rarely involved at protected area level. It is more concerned with the general corporate body at the headquarters. As a result, poaching of animals to extinction has become the norm in most of the Central Forest Reserves and Local Forest Reserves. Despite being aware that it is illegal to carry out hunting activities in the forest reserves, people still do it because they know the deficiencies of NFA enforcement.

On the other hand, the Uganda Wildlife Authority (UWA) is fairly well facilitated. The organisation has taken a more pragmatic approach towards apprehending culprits and prosecuting them. UWA now has a full time prosecutor at the park management level who knows how to handle offenders' exhibits. This is a very important factor in law enforcement because poor handling of exhibits in the past led to UWA losing cases due to lack of evidence. This intervention will certainly strengthen UWA's law enforcement capacity and ultimately control poaching and other illegal activities. Aware of the consequences, poachers will have to meticulously plan before venturing in the protected wildlife estates.

There are also weaknesses in the legal framework. The penalties do not match the offenses and thus do not deter offenders from repeating their actions once they are released. For example, in Uganda proven cases of hippo or buffalo poaching often end up with a caution, or 3 to 6 months prison term, or a fine equivalent to US\$15 (Uganda Wildlife Act 2000). In DRC, years of anarchy have rendered the law enforcement by protected area managers ineffective. The park rangers avoid clashes with the militia groups and find it difficult to distinguish poachers from the militia groups.

Sophistication of hunting techniques: Traditionally, hunters used simple tools for hunting: *spears, bows as well as arrows and traps*. These tools did not have adverse effects on animal populations except in instances of snares which caught animals indiscriminately and sometimes maimed them. As hunting became commercialized, the use of dogs and nets to catch game came into play but with the burgeoning bush meat trade; there was introduction of guns for quick action as well as poisoning of target animals especially when the product sought was for purposes of trophies.

Some studies have however shown that there is no difference in harvests between traditional hunters using bows and those using shotguns, except that that the shotgun is four times more effective (Alvard, 1995 in Ape Alliance, 2006). Other studies suggested that demand, rather than modern technologies, is driving the hunting to crisis state (Bowen-Jones and Pendry, 1999 in Ape Alliance, 2004).

Lack of capital or infrastructure for domestic meat production: The GVL is surrounded by high densities of subsistence farmers who depend on forest products to supplement their livelihood systems, and lack capital and infrastructure to engage in the alternatives of domestic meat production. The livestock industry requires capital and land which is not in the reach of the subsistence farmers. As such, they continue to depend on the forests for their meat and cash needs by engaging in bush meat trade. Sometimes, the patrons facilitate them with different types of hunting tools: shot guns, poison, and snares, among others to carry out this activity.

Changes in cultural environments and discarding of social taboos and traditional hunting embargoes: Largely in Africa, there were designated hunting seasons when all the able bodied men would go hunting and the women would stay to look after the homes. With commercialization of hunting, hunting is no longer restricted to seasons but is a response to market demands. In addition, due to social taboos, there were particular species that would not be eaten but today, all meat is eaten indiscriminately. Women who were not permitted to eat particular meats now enjoy the delicacies men had for long enjoyed alone. This breakdown in cultural beliefs has also increased demands on the wildlife resources and consequently on the rate at which wildlife killings are done.

Culturally, even today, the Bakonjo in Uganda and related tribes in DRC must eat meat nearly every day and preferably wild meat. Meat is such an important food item that a marriage will not work if a man cannot provide meat for the wife and family (Community Consultations, Kasese, January 2013). As a result, the study team learnt that people eat almost any animal including house rats, dogs, and cats. In the Ishango area neighboring Queen Elizabeth National Park (QENP), Kasese district, discussions with the Resource Use Group (RUG) indicated that hunting of antelopes, mongoose, wild cats, squirrels, and bush rats in the national park goes on in spite of the high level of surveillance by UWA. Moreover, the communities are too poor to afford purchase of domestic meat (cow or goat) every day.

Structural adjustment plans imposed by international financial institutions resulting in civil service job losses: While this study team did not come across cases of former civil servants who were laid off due to restructuring programs and therefore engage in commercial hunting as an alternative employment, Ape Alliance (2006) reported some instances where these cases have happened. It was however, reported that former employees of wildlife agencies often laid off due to indiscipline have turned into lethal poachers as they know the systems well and still maintain contact with their former colleagues.

Unemployment, poverty and dysfunctional economies, with lack of alternative monetary opportunities: The bush meat commodity chain includes a network of people: the rural poor, commercial poachers, traders, vendors (including restaurant managers), logging companies, vehicle drivers (who ferry meat to urban centres) and local administrations, as well as (internationally) foreign businesses that consume tropical timber, government and non-governmental organizations. The rural poor hunting groups often lack means of production to be able to engage in other economic activities and have only the option of hunting, for example the pygmy people found in parks and forests both in Uganda (Semiliki) and DRC. These groups of people depend on wildlife meat for their source of protein and also as a source of income to support their other household needs.

3.3.2.4 Bush Meat Markets

The findings point to urban dwellers as the main consumers who provide a steady market for bush meat. The supply links between rural areas to larger towns and cities is evidenced by various seizures that have occurred over time. In Uganda, bush meat is usually impounded on buses coming from the country and destined for Kampala city. Respondents reported that hippo and elephant meat are smoked and taken to DRC through Bwera, Fort Portal and Bundibugyo towns; with the bush meat concealed in the undercarriage of vehicles (especially the Toyota IPSUM). Table 5 below shows markets for bush meat trade in the Virunga Landscape in 2008 and 2012

Table 5: Bush meat trade in the Virunga Landscape [Goma, Kiwanja (Rutshuru) and Ishasha]

Bush meat species	Unit	Unit Price(\$)	Primary destinations	Unit Price (\$)
		2008		2012
Elephant (<i>Laxodonta Africana</i>)	Pile (1kg)	1	Kiwanja, Goma markets	3.3
Hippopotamus (<i>Hippopotamus amphibious</i>)	Pile (1kg)	1	Ishasha, Goma, Bukavu markets	3.3
Uganda Kob (<i>Kobus kob thomasi</i>)	Whole (1)	20	Kiwanja, Goma markets	55
Baboon			Kasindi, Beni	38

Source for 2008 prices: Bodson, *et al.* (2009); 2012 prices: this study.

There is a flourishing bush meat market in the DRC for Uganda communities. Information gathered during the study indicated that a full grown hippo fetches about Uganda shillings six million (UgShs 6,000,000/=) approximately USD 2,000⁶; while the price for baboons ranges between Uganda shillings sixty thousand to one hundred thousand (UgShs 60,000 - 100,000) (US\$23 – US\$38). A suitcase of bush meat can have a street value of £1000 in London (Ape Alliance 2006). In DRC, baboons and monkeys are a delicacy and so are hunted to supply mainly the urban centres. Baboons are considered vermin in Uganda and so are free and ready sources of income. Local markets in Uganda are restricted due to tough surveillance by the Ugandan conservation agency but also due to cultural taboos and preferences of particular species for bush meat by Ugandan tribes. The Ugandan communities therefore hunt and smoke primate meat to sell in DRC. These findings point to the lucrative nature of the business and perhaps explain some of the factors that inspire the bush meat trade. The findings are collaborated by the 1998 Ape Alliance report, in which it is stated that the main centres of commercial consumption in DRC are Goma, Bukavu, Kisangani and Kinshasa, plus cities east of the Congo/Lualaba river system.

3.3.3 The conservation status of traded species in relation to CITES and the IUCN red list

Mountain Gorilla (*Gorilla beringei beringei*): One of the key species of the GVL is the mountain gorilla (*Gorilla beringei beringei*) which is restricted to the GVL in the region of the DRC-Rwanda-Uganda border. The mountain gorilla is listed as Critically Endangered by the World Conservation Union (IUCN) (IUCN, 2012). The population of the mountain gorilla has been steadily increasing over the past decade, despite some poaching pressure mainly from the DRC side for bush meat and for infants to supply private collectors. The gorillas' habitat declined greatly prior to the 1980s due to human encroachment, mostly for agriculture, however this has largely ceased and the habitat is relatively secure.

⁶ Exchange rate: 1USD = 2,600 UG. SHS

Elephants: Elephants in GVL are killed mainly for ivory and then for bush meat. Elephants are on CITES Appendix 2 and for a long time there has been a debate as to whether because of the ivory trade they should be moved to CITES Appendix 1. Although the elephant population has been generally on the increase on the Ugandan side, there are serious concerns about elephant poaching in DRC. Around QEPA, outposts have been put up in suspected hotspot areas around water bodies. There are coordinated patrols along respective boundaries; and informers are facilitated to avail information on poachers' positions. Around BINP, there have been increased patrols in the elephant range.

Other animal species (including birds): There are other animal species traded in that are not considered rare, threatened or endangered globally but there is cause for concern because of the largely illegal trade. Hippo, Hartebeest and Topi populations have particularly declined because of continuous poaching pressure from both Uganda and DRC.

3.4 Effects of Trade in Forest Products on the Potential for REDD+ Financing

3.4.1 Introduction to REDD+

REDD stands for "Reducing Emissions from Deforestation and Forest Degradation" While "REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

REDD/REDD+, is an approach aimed at rewarding avoided deforestation and forest degradation by availing funds to governments and stakeholders who commit to stop or regulate any activities that lead to forest loss e.g., logging, charcoal trade, and agricultural expansion. It is a comprehensive approach to mitigate climate change occasioned by global warming as a result of carbon dioxide emissions. In other words, REDD+ is about policies and incentives aimed at reducing emissions from deforestation and forest degradation in developing countries and enhancing biodiversity conservation. It therefore calls for sustainable management of forests and enhancement of forest carbon stocks (Bali Action Plan, 2007).

3.4.2 Potential for REDD+ in GVL

Uganda has prepared a REDD+ Readiness Plan Proposal (RPP) in which it outlines the existing positive and supportive 2002 National Forestry Policy provisions in terms of maintaining a Permanent Forest Estate (PFE) and commitment to addressing activities that lead to deforestation. However, based on the findings of this study and other studies (WWF, 2012) in relation to timber and charcoal trade, particularly the impact on LFRs, which have almost been wiped out; and the weak public forest administration despite the institutional reforms of 2003 that created the FSSD and DFS, the potential for REDD+ financing could be in jeopardy. The FSSD is understaffed and underfunded which makes it impossible for it to undertake the regulatory functions in its present form, while creation of so many new districts has made the DFS very ineffective, thus exacerbating forest degradation.

In DRC, there is still substantial forest cover within the GVL despite the illegal logging and charcoal production. The aspect of illegality is however contentious. Brown and Makana (2010), describe

logging in eastern DRC as “artisanal” where loggers harvest big trees in small areas by arrangement with local chiefs and land owners and therefore do not follow official government procedures making it illegal. WWF (2012) pointed out that in eastern DRC, the laws and regulations are not clear and therefore impossible to follow, and that by following local procedures it makes the logging legitimate in the absence of formal procedures therefore the terminology “informal” rather than illegal. The two arguments in actual fact provide a good basis for potential for REDD+ in addition to the substantial existing forest cover. The only drawback is the rampant and seemingly out of control charcoal production and trade.

Rwanda has been largely effective in its regulatory framework and commitment to addressing deforestation and forest degradation save for its indifference on the charcoal trade fuelled from Virunga in DRC.

REDD+ was designed as one of the principal vehicles for catalyzing positive environmental change and sustainable development. One of the cardinal principals for REDD+ is long term sustainability of forest management based on all partners agreeing to regulate their operations, and to ensure that they meet the highest standards of rigor and that efforts to reduce deforestation in one location are not offset by an increase elsewhere. It would then appear that a regional approach to REDD+ would be of a far higher potential as it would catalyze positive environmental change and sustainable development in the GVL by helping address the interrelated and cross border timber and charcoal trade.

The warning by Nellemann (2012) to heed though would be that if REDD+ is to succeed in the GVL, payments to communities in GVL for their conservation efforts would have to be higher than the returns from illegal timber and charcoal trade that lead to environmental degradation.

3.5 Existing Litigation Provisions for Illegal Trade in Timber, Charcoal and Wildlife

3.5.1 International Legal Framework

Since the 1970s, there has been serious concern about exploitation of natural resources. In 1973, the Convention on International Trade in Endangered Species (CITES) was negotiated and drawn up as an international agreement between governments. Its aim was to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The concept of “sustainable development” was coined in 1980 by the World Commission of the Environment and Development (WCED). From 1990, there was increasing international concern specifically about the extent and impact of illegal logging and trade in timber and other forest produce on natural ecosystems. Subsequently a Ministerial Conference on African Forest Law Enforcement and Governance (AFLEG) was called and held in Yaounde, Cameroon in 2003. The outcome, the Yaounde Declaration, emphasized the fundamental role of governments to provide effective governance, including laws, policies and institutional capacity to enforce those laws in order to eliminate illegal logging, and the associated trade and corruption in the forest sector.

3.5.2 National Legal Framework

All the three countries, Uganda, Rwanda and DRC, are parties to the above international efforts for a regulatory framework in the management of forestry and wildlife resources and in addition have

national legislation to govern these sectors. The policies and laws have provisions for litigation in the event of non-compliance and attract various penalties in the respective countries.

For instance in the DRC, the national Forestry Code (*Law n° 011/2002 of 29 August 2002*) governs how forest natural resources may be managed and utilized. There are also Ministerial Standing Orders for management of timber trade. The law requires that anybody involved in harvesting and trading in timber must:

- (i) apply for a felling permit from the office of the Provincial Coordinator for Environment
- (ii) pay a local tax to the Local Chief (Administrator) in the location of the proposed harvesting
- (iii) visit the site of harvesting with a forest technician and mark the trees for harvesting
- (iv) Pay a tax to the office of the Provincial Coordinator after the assessment report of the technician
- (v) If area is less than 10 hectares, permit is signed by Provincial Governor (in Goma or Bukavu), if more than 10 hectares, permit is signed by Minister of Environment (in Kinshasa)
- (vi) A reforestation tax is applicable, and
- (vii) Export taxes are also applicable.

Wildlife in DRC is governed by *Law no. 82-002 of 28 May 1982* and *Decree No. 014/CAB/MIN/ENV/2004 of 29 April 2004*. For example the law states that all subspecies of African elephant fall within Class I, which are totally protected species. Of relevance to wildlife trade and trade in wildlife products in the 1982 law are the following articles:

Article 4 – No person may hunt without authorization from the competent authority.

Article 7 – A hunting license does not dispense with the need to obtain a gun permit.

Article 11 – Officers with authority to enforce hunting laws [this includes ICCN] are responsible for protected areas, hunting zones and a zone extending 50 km around each.

Article 13 – In faunal reserves, people are forbidden to introduce domestic animals, firearms or other type of hunting equipment, nor to carry out any live or dead wild animal or any product from one.

Article 14 – In faunal reserves, it is prohibited to introduce any type of human activity that was not present at the time of entry into force of this present law [i.e. 1982].

Article 21 – Hunting is prohibited with any type of weapon used by the Congolese armed forces or police [which includes AK-47s]. Anyone desiring to exploit wild animals or their products commercially must obtain a license and pay a tax. These persons must meet certain criteria of good conduct.

Article 41 – The permit to import, export or re-export any wild animal is issued by the CITES management authority.

Article 43 – The import, export or re-export of any wild animal is subject to CITES regulations

It is important to note that the legal provisions and official requirements specified in the forestry and wildlife laws in DRC are difficult to implement and enforce. Firstly there are logistical problems. In the eastern DRC timber harvesting is by small scale loggers (artisanal loggers) who log selectively over a wide area unlike industrial mechanized logging where the Ministerial permit in areas of over 10 hectares becomes applicable as is the case in western DRC. The road and transport difficulties

make it practically impossible for the officials and loggers alike to follow the laid down procedure. Secondly the security and governance structures obtaining in the region make litigation impractical as security personnel and administrators are all linked or involved in the illegal trade. The wildlife law specifically prohibits the Congolese armed forces and police to use their weapons for hunting, but in practice they are involved in illegal hunting or supply of ammunitions.

Legal provisions for charcoal production and trade are quite vague. Licenses are provided for in respect to trade but not for production. Cutting trees for charcoal production in the forest reserves and national parks is definitely prohibited but the challenge always is ability to prove that the charcoal on the market originates from forest reserves/national parks or public/private land. In DRC charcoal production has for long taken place in PNVi with impunity. Attempts by ICCN to enforce the law have been hampered by public outcry; and political and military backing for the illegal charcoal production.

Rwanda and Uganda have similar legislation and policies regarding management and use of forestry and wildlife resources to those of DRC described above. The respective laws have prescriptions for access to forestry and wildlife resources and spell out penalties in case of breach. In Uganda, the Uganda Wildlife Authority and the National Forest Authority have been fairly successful in enforcing the law for accessing resources within National Parks and Central Forest Reserves. The District Forest Services has however met challenges in enforcing the law for resources in local forest reserves and on private/public land. Rwanda has been quite successful in enforcing its laws both for forestry and wildlife resources within its boundaries.

3.5.3 Adequacy of Existing Litigation Provisions

Overall, in the respective countries of DRC, Rwanda and Uganda; the gazettement and management of national parks, forest reserves and management and use of trees and wildlife outside protected areas with prescriptions for permitted and forbidden activities, procedures for access and punishments for offences are to a great extent sufficiently provided for in the various laws. The main challenges rest in the implementation of these policies and laws. Among the factors limiting implementation at respective national level are political meddling, limited institutional capacity, lack of practical knowledge of environmental laws within law enforcement agencies, and poor detection of offences (Kamugisha, 2007; Giessen, 2008; Stiles, 2011; Kiteka and Kimanuka, 2012).

In this study, discussions with forestry and wildlife staff and other stakeholders qualified the observation that existing legislation is largely sufficient but that the challenge is with implementation. More importantly, the field staff revealed that there is hardly any cooperation in combating illegal trade across borders within the GVL as illegal timber, charcoal wildlife and other forestry products from neighbouring countries are “officially welcome” to recipient countries who even go ahead to certify the products as legal. Further discussions with field staff attributed challenges in enforcement of the laws to the following:

- i. **Lack of awareness about what is illegal and not by local traders:** In areas where regulatory implementation is a challenge, some communities are engaged in illegal trade because they are not aware or are not intercepted by any authority and they assume that the products can be traded freely.
- ii. **Amounts involved:** small quantities involving informal trade collected after borders and traded as legal items. For example small quantities of bush meat, charcoal or timber attract

- sympathy from authorities in country and are left to proceed freely at the borders but cumulatively these make up large quantities over time.
- iii. **Evading tax to maximize profits:** Informal trade across borders involving homogenous communities (same ethnic grouping) is sometimes used to evade taxes. This includes transit through legally designated routes (customs) and porous boundaries. For example, charcoal crossing from one country to the other carried in small quantities that are allowable by authorities. This charcoal may be considered to be locally consumed by the same communities across borders while the traders use it to congregate the charcoal on the other side of the border for larger scale trade.
 - iv. **Source:** Some products such as charcoal and timber is falsely declared to originate from private land or farms when in actual fact it came from a national park or forest reserve possibly even abetted by authorities (corruption) from the area of origin.
 - v. **Weak enforcement due to insecurity:** Areas of rebel activity have limited monitoring and enforcement and sometimes the militia are involved in the illegal trade of charcoal, hippo and elephant poaching.
 - vi. **Weak enforcement due to corruption:** Licensing products from restricted areas e.g., protected areas or licensing products out of regulation or guidelines such as the tree cutting regulations and guidelines in Rwanda. This applies also to illegal products like timber from one country being stamped by a local authority in another country.
 - vii. **Lack of capacity to monitor:** Limited capacity in investigative and prosecution skills, equipment, finance and staff numbers to monitor and identify smuggled products.

3.5.4 Incentives for Reduction of Illegal Trade

In the past two decades there has been debate on management approaches towards forestry and wildlife resources. The debate has centred on law enforcement (defining illegal trade and combating it) and promoting sustainable development (providing incentives for sustainable use and development). Indeed all the national legislations have provisions for sustainability and sustainable use of forestry and wildlife resources. The wildlife laws of DRC and Uganda provide for consumptive utilisation of wildlife including hunting while the Rwanda wildlife law is under review to allow for wildlife use rights. The generally accepted approach is that law enforcement is still relevant but should happen alongside sustainable use and therefore the aspect of illegality must be understood within the sustainable use context. The Ugandan illustrative example, Box 5, provides a practical and positive experience in using the sustainable use approach with communities as a mechanism to effectively check illegal harvesting and trade on one hand and motivating staff to get their job done – both are incentives that are not necessarily law enforcement.

Box 5: Bushenyi All Pitsawyers and Wood Users Association Takes Part in Monitoring Illegal Activities

From around 1999 to 2002, Bushenyi All Pitsawyers and Wood Users Association (BAPWA) in Bushenyi District had a membership of over 200 people engaged in different forest-related activities like pitsawing, charcoal burning, carpentry, firewood sellers, among others. Under the collaborative management approach, the Forest Department licensed BAPWA to sustainably harvest designated areas of Kalinzu CFR. In turn, BAPWA was responsible for checking illegal practices within the reserve.

The members of BAPWA were very vigilant in tracking down illegal timber dealers and reporting them to the local FD staff. Because its membership came from all over the district, the whole forest could be monitored more effectively than when the FD was depending on its own staff alone. This resulted in drastic reduction in the level of illegal activities and hence volume of timber and charcoal on the market, leading to increased prices. A bag of charcoal in Bushenyi and Ishaka Towns nearby rose from UgShs. 3000 (US\$1.2) to UgShs. 8,000 (US\$3), within one month and the price of timber doubled – 1999 prices. Therefore BAPWA members were motivated by the increase in timber and charcoal prices and could now sell more legally harvested timber and charcoal (from lop and top remaining after timber harvesting) at better prices.

However, they were prepared to track down illegal operators as long as anybody who wanted to harvest forest products from the forest for commercial purposes belonged to BAPWA. When NFA came into being, the monopoly was broken because it had to sell forest products through competitive methods. Since BAPWA now was required to bid with the rest, it stopped participating in the control of illegal activities since it could not be sure that it would always win in the competitive bidding processes. In fact, some of its members started to engage in illegal activities themselves.

On the other hand, NFA came with the policies of zero tolerance to corruption and motivating staff through better salaries and decentralized decision-making. Thus, most of the illegal activities, which were abetted by staff, were eliminated. It could be argued that the gap left by BAPWA in controlling illegalities was sealed through vigilant and committed staff. However, elimination of the local communities in forest management resulted in strained relationship and open hostilities between the people and NFA staff.

Source: Kamugisha (2007).

On the international scene, a number of certification schemes and programs have evolved aimed at reducing illegal logging and illegal timber trade. The schemes include voluntary trade agreements such as the EU Forest Law Enforcement, Governance and Trade (FLEGT), Voluntary Partnership Agreements (VPAs) and the Forest Stewardship Council (FSC) certification. These have been successful in bringing stakeholders together and generating incentives for legal exports and more sustainable forestry. The private sector players then engage in self regulating practices, which then enhance cooperation with law enforcement agencies. CITES is increasingly being used by states to ensure that trade in listed timber and animal species is legal, sustainable and traceable. CITES is also working with the International Tropical Timber Organization (ITTO) to promote sustainable forest management and to build the capacity of developing states to effectively implement the Convention as it relates to listed tree species.

The main aim of the above mechanisms that are legally binding and are already embraced in national legislations in the GVL countries are to promote sustainable international trade.

3.5.5 Conclusion and recommendation

Whereas there has been a lot of talk and several recommendations about harmonization of laws relating to management and use of forestry and wildlife resources, this study found that what is actually required is a legally binding cooperative framework for the relevant agencies in the GVL to undertake an international investigative and operational effort in collaboration with domestic police in each country. Such a cooperative framework would have to take into account aspects of source, sustainability, taxation and monitoring mechanisms devoid of corruption.

3.6 Effects of Illegal timber, charcoal and wildlife trade on the habitats and species of the protected areas and forest areas in the GVL

3.6.1 Introduction

Illegal trade in timber, charcoal and wildlife threatens the integrity of the habitats and species in the GVL. The causes and drivers of illegal trade in these products are numerous which include increased human population, increased demand of these products, high profit margins and gaps in protection (WWF, 2012). For example, the pressures on biodiversity and ecosystem services are expected to increase over the coming years as projected global population will increase to more than 10 billion people by 2050⁷. Despite these impacts, protected areas are one of the most effective tools for conserving species and natural habitats besides contributing to the livelihoods and well-being of local communities and society at large (WWF, 2006). Therefore, there is need to be aware and plan to address effects of timber, charcoal and wildlife trade on habitats and species regardless of its legality to achieve sustainable development.

Charcoal burning has been identified as one of the activities with a huge impact on habitat and species in the GVL and particularly in PNVi in DRC. For example, computation by this study of volumes of charcoal crossing the border from Gisenyi to Goma show that the town of Goma alone is receiving over 47,000 tonnes of charcoal (over 250,000 tonnes of wood) annually along the Gisenyi to Goma route alone with almost 100 tonnes of the wood originating from the PNVi (Giessen, 2008).

In terms of impacts to species, the hippopotamus is a good illustration. As a result of consistent poaching and illegal trade in hippo meat and trophies, the hippo population in PNVi in DRC declined sharply from 22,875 in 1989 to 1,309 individuals in 2003, and less than 600 in 2006 (CARPE 2007). In summary, the key direct threats in the GVL are habitat conversion (agriculture, mining, illegal settlements), poaching for bush meat, harvesting non forest timber products, farming, livestock grazing, timber logging, rebel incursions, mining and charcoal production (CARPE, 2007).

The Millennium Ecosystem Analysis (MEA) concluded that almost 60% (15 out of 24) of the ecosystems services that support life on earth and underpin human well-being are being degraded or used unsustainably as a direct result of human activities (MEA 2005). Overall, species have declined by 30% between 1970 and 2003, with the number of crucially endangered species increasing by 7% between 2004 and 2006 (WWF, 2006). The MA further asserts that the major direct causes of

⁷ www.un.org/esa/population/

biodiversity loss are habitat destruction, the spread of invasive species, pollution, climate change and overharvesting, some of which is attributed to trade in the three products that are the subject of this study: timber, charcoal, and wildlife.

3.6.2 Loss of forest cover (habitat loss) over the last 20 years as a result of trade

To appreciate the impact of the trade on habitat loss it is important to understand the population dynamics of the area since it is one of the drivers of these activities. The population of north Kivu was estimated to have grown at a rate of 3.2 per annum from 2,086,200 in 1980 to 3,325,000 in 1998⁸. Even with the civil unrest that has characterised the area in recent years it is still likely that the population has continued to steadily grow at 3% per annum since 1998 and could therefore be estimated at 5.5 million people today. The population in eastern DRC is concentrated in towns and along main routes linking the towns. The area has thus seen very high growth rates in urban centres. Goma, the capital of North Kivu grew at an average rate of 11% per annum from 77,908 in 1984 to 249,862 in 2004⁹. At this rate the population of Goma may well be currently about 570,000 persons. In Butembo, located in the centre of North Kivu province the population grew by 6% (from 73,312 to 165,333 in 1984 to 2004 respectively). Bunia in Ituri (Oreintale province) recorded the highest population growth of 14% with population increasing from 59,598 in 1984 to 230,625 in 2004. Since charcoal is the predominant fuel used in urban centres, the high rates of population growth impact heavily on the forests in the surrounding areas.

The Virunga Landscape is also characterized by high population densities and high poverty levels. The 2002 population census in Uganda for example indicates that densities are over 300 persons per km² in Kisoro (Uganda Bureau of Statistics, Uganda Housing and Population Census, 2002). In 2002 the population densities in Musanze and Gisenyi in Rwanda was reported to be 537.1 people/ km² and 423.8 people/ km² respectively (IGCP 2007) and these numbers have continued to increase over the years. This study revealed cases of habitat loss attributed to timber and charcoal as follows:

1) Charcoal

Charcoal burning is mainly driven by domestic cooking energy needs in the growing GVL town centres. There was ample evidence that the charcoal used in Goma is sourced from PNVi (as reported by key informant and community consultations). Using an average per capita charcoal consumption of 140kg¹⁰ (NBS 1992), Goma's population of about 570,000 people is expected to consume about 79,800 tones.

Several studies on charcoal trade show that being a higher density form of energy than firewood; charcoal can be transported over long distances of up to 150km from the consumption centres (ESD, 1995). Price hikes make it attractive to transport charcoal for even longer distances. For example in mid 2011 charcoal prices in Kampala went over US\$0.4 per kilogram making it attractive to transport charcoal for longer distances. This implies that most urban centres of Rwanda can import charcoal from DRC. Goma can receive charcoal supplies from as far north as Lubero.

The community in Bugeshi sector at the border between Rwanda and DRC indicated that one particular tree species (*Olea* ssp) has become very scarce in Southern PNVi which borders with

⁸<http://www.citypopulation.de/CongoDemRep.html>

⁹<http://www.citypopulation.de/CongoDemRep.html>

¹⁰ In 1992, NBS estimated average per capita of several African cities to be 140 kg

Rwanda due to charcoal burning. The surviving trees of this species are young (small) and can only be used to make walking sticks. It is believed that the continued cutting of trees will lead to further loss of forest cover and changes in the hydrological cycle. The Bugeshi area has more rain than the Muhabura area and loss of forest cover could change the rainfall pattern and intensity. Already the area experienced reduced rains and flooding and forest fires in PNVi have increased due to charcoal burning.

A combination of charcoal trade and agricultural encroachment has almost wiped out Sarambwe Forest Reserve in DRC that had hitherto formed a natural connection between PNVi and BINP and served as additional habitat for mountain gorillas.

Almost all the charcoal produced within the GVL is by use of the earth kiln with conversion of about 11%. This implies that for every tone of charcoal produced, 9 tonnes of wood are cut. The most preferred areas for charcoal production are savannah woodlands with high density species like *Combretum*, *Terminalia*, *Grewia*, *Teclea* and *Acacia* spp. Table 6 below shows deforestation attributable to charcoal consumption in eastern DRC, Rwanda and Uganda.

Table 6: Deforestation estimates due to charcoal (derived from population estimates and per capita consumption of charcoal, tables 1,2,3)

DRC: Towns	Estimate Charcoal demand (tons)	Wood lost	**Ha Required	Ha due to charcoal
Beni	16,491	149,914	2,998	1,499
Bukavu	143,995	1,309,042	26,181	13,090
Bunia	107,921	981,097	19,622	9,811
Butembo	40,032	363,924	7,278	3,639
Goma	89,741	815,830	16,317	8,158
Lubero	4,802	43,655	873	437
Bulungu	5,200	47,277	946	473
*Rwanda	182,393	1,658,117	33,162	16,581
Total	590,574	5,368,856	107,377	53,689
Uganda: Towns				
Bundibugyo	3,417	31,066	621	311
Bwera-Mpondwe	2,543	23,116	462	231
Fort Portal	6,814	61,946	1,239	619
Ibanda	4,218	38,349	767	383
Ishaka-Bushenyi	3,917	35,605	712	356
Kabale	6,354	57,761	1,155	578
Kamwenge	2,397	21,789	436	218
Kasese	11,295	102,680	2,054	1,027

Kihiihi	2,812	25,562	511	256
Kyenjojo	3,185	28,954	579	290
Rukungiri	2,128	19,345	387	193
				4,462

*It is assumed that about half of charcoal consumed in Rwanda is from eastern DRC.

**A conservative figure of 50 tonnes (air dry) per hectare has been assumed- these savannah woodlands rarely exceeds 50 tonnes biomass

In Uganda, the clearance of tree cover on public land has led to habitat destruction and destabilisation of ecosystems. In TSWR, it was reported that private land, such as at Kacwankumu are completely deforested. The Nyaburogo valley which connects the public lands to the TSWR has been cleared of vegetation. This valley is a habitat for dry savanna chimpanzees which are now threatened. The chimpanzees now crop raid a lot more often destroying sugarcane and cocoa on farmers' lands in the neighborhood. Farmers are sometimes forced to hunt and kill the chimpanzees.

Deforestation attributable to charcoal production in Uganda is shown in Table 6. The largest population centres in the GVL area in Uganda are Kasese, Kabale and Fort Portal with population levels of about 50,000 persons each. Total annual average consumption of each town is 8,154 tonnes. Most of the charcoal consumed in western Uganda is from Kamwengye, Kibale and Kyenjojo districts.

2) Timber

Globally the damage caused by illegal logging to forest ecosystems has been recognized (Jaramillo, *et al.*, 2008). Logging for wood products is responsible for about one third of total global deforestation; and possibly more than half of all the logging activities in the most vulnerable regions are conducted illegally (Brack, 2003).

In eastern DRC, deforestation along the major roads can be attributed to logging which is mainly by small logging operators or artisanal loggers (WWF 2012)¹¹. Unlike the big companies with industrial logging concessions, the small artisanal loggers lack equipment that can haul timber and logs over long distances and therefore they limit their operations very close to the roads. Brown and Makana (2010) observe that in artisanal logging, timber is transported by head load and the harvesting operations are confined to areas within reasonable walking distance of roads.

Artisanal loggers, among other things, have been described as opportunistic, unprofessional and illegal (Brown and Makana 2010). They are very selective and will cut only Mahoganies (*Khaya anthotheca* and *Entandophrama* spp) and a few other hardwood species like *Chrysophyllum albidum*, *Cordia mellini*, *Albizia* spp, *Anigeria*. *Melicia excelsa* (Mvule) is also a preferred species except that is found in areas further west in Rubero and Walikali.

Calculation of the volumes harvested, indicates that for every 100m³ of timber harvested, artisanal logging needs to saw about 400m³ of sawn logs which is obtained by cutting down 1,200m³ of standing trees. This is because the sawn log is about a third of the whole tree and the efficiency of

¹¹Only one mechanized logging company ENRA is known to operate in East DRC (WWF 2012)

converting a sawn log to timber by artisanal loggers is about 25%. In addition, mahoganies and other preferred trees constitute only 10% of the standing tree stock. This implies that to get 1,200m³ of mahogany trees one requires 12,000 m³ of forest stand or 40 hectares of forest (assuming an average stock level of 300m³ per hectare).

Table 7: Calculation of Loss due to Timber (See text above)

Sawn Timber (CUM)	Log Vol (M ³)	Volume Trees Cut (CUM)	Degraded Stand (CUM)	Area (Ha)
100	400	1,200	12,000	40

Based on the above calculation (Table 7), annual timber exports of 60,000 m³ out of eastern DRC may lead to destruction of 24,000 hectares of forest annually. It should be noted that in many instances other trees are cut just to create access routes to the needed trees. This is close to previous estimates that indicate that loss of 20,000 hectares per annum is attributable to timber extraction (WWF, 2012) in Orientale province and North and South provinces in DRC.

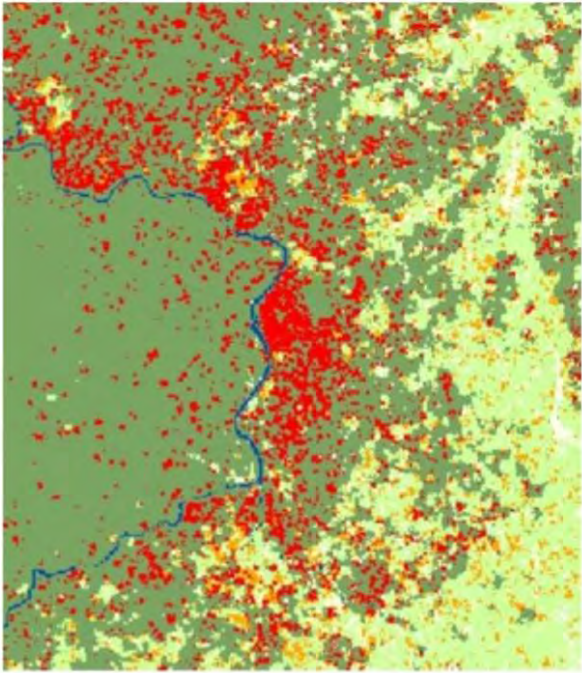
3.6.3 Results of GIS and Remote Sensing to asses forest loss

The results of the GIS and remote sensing analysis indicate that about 400,000 ha out of 800,000 ha of forest cover was seriously degraded or converted into other land use types over a period of 25 years (from 1984 -87 to 2008-10), Figure 16. This degradation and deforestation translates to an average rate of 2% per annum. A comparison of 1987 to 1995 using image differencing and image classification technique shows similar results.

Major forest changes were observed east of Butebo in the areas of Kansonka and Lubena. Significant changes were also observed east of Beni at the fringes of PNVi and areas north of Libokara and Mutwanga along the major route to Mambasa, Apanwanza, Komanda, Bunia, Beikutu, Rubena, Bengo, Beni, Libokora, Mutwanga and Mpondwe (Figure 16). To a large extent, this compares well with the 2005- 2010 east DRC deforestation study by WRI (WWF, 2012).



1995 - 2008 deforestation assessment



WRI 2000- 2010 deforestation assessment

Figure 16: Red denotes deforestation

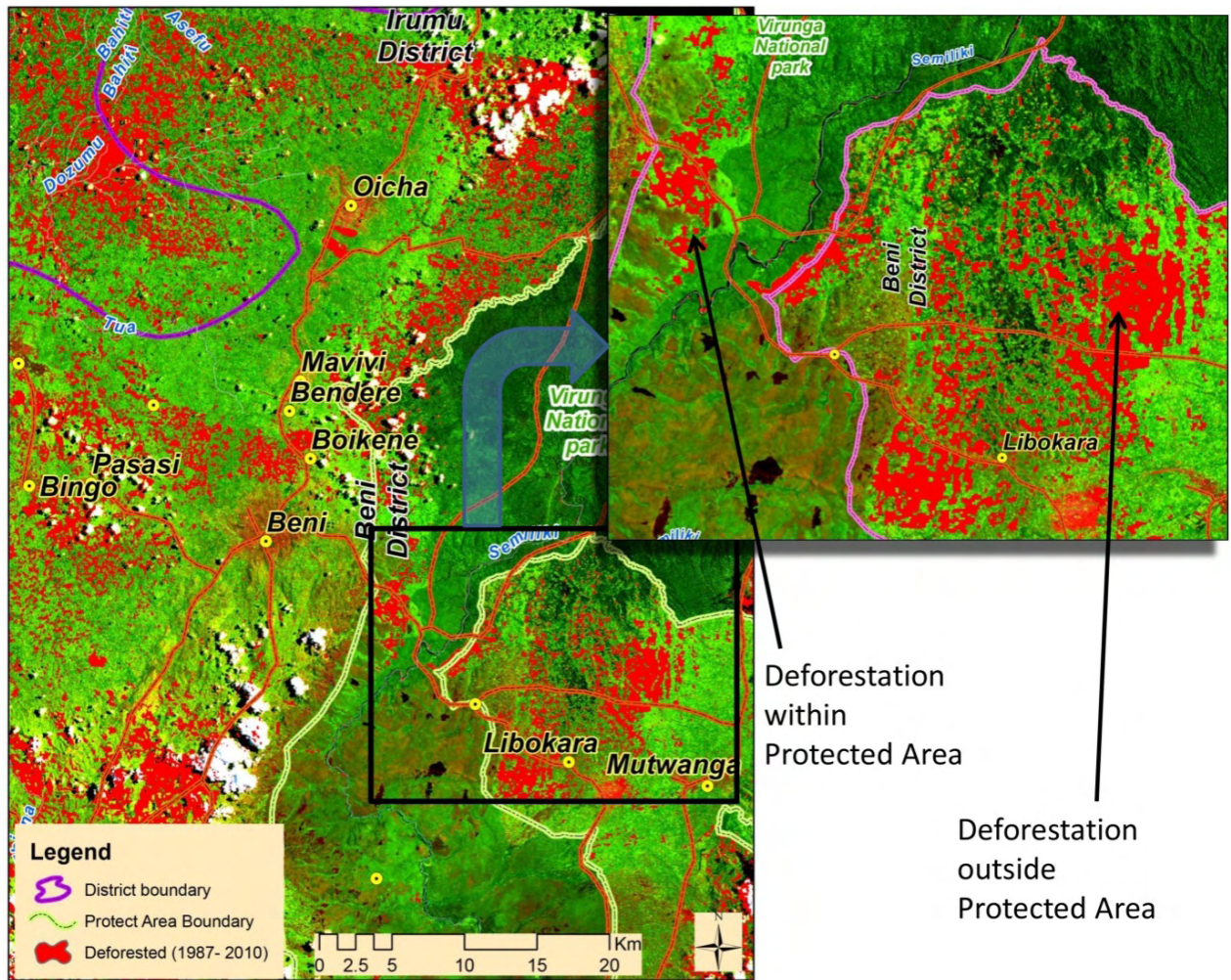


Figure17: a) above and b) Overview of 25 years Deforestation in Eastern DRC



Figure18: Deforestation in Eastern DRC. Evidence of deforestation (light green and yellowish areas) is along the major timber supply routes of Mambasa, Apanwanza and Komanda in Irumu district-Oriente province.

A loss of about 400,000 ha of forest over a period of 25 years is an average of 16,000 ha per year in an area that is about 20% the total eastern DRC Virunga landscape. This implies that total annual deforestation is anything up to 5 times the deforestation in the sample area. It is also well known that in addition to extraction of forest products, slash and burn agriculture may greatly be contributing to deforestation and forest degradation. It is also important to note that artisanal logging accelerates agricultural expansion as logging routes and tracks opened by the loggers become starting points for clearance for agriculture in forested areas (Brown and Makana, 2010).

3.6.4 Biomass extraction versus biomass supply

A big part of the GVL in eastern DRC is within north Kivu province which covers an area of 5,948,200ha with Goma as the capital city. Within the sample area used in the analysis above, over 30% of the area was considered as under primary forest (Table 8).

Table 8: Estimation of biomass stock and annual increment in disturbed primary forests of DRC

Land use / Cover	Area (ha)	Total Biomass (Tons)	Annual Increment (Tons)
Forest	420,727	168,290,604	8,414,530
Farm and others	823,272	24,698,164	2,469,816
	1,243,999	192,988,768	10,884,347

5 tons per ha per annum adopted based on IPCC default values and NBS 1995

Some studies within the Congo basin indicated that primary forests of this region have a biomass stock of about 400 tons per hectare (Maniatis, 2010). Thus a forest of 420,000 hectares would have a biomass stock of over 160 million tons and an annual increment of above 8 million tons (Table 8). Given that most of the farmlands in this area is a mosaic of forest remnants, crops and fallow land, the biomass stock has been estimated to be over 30 tons per hectare i.e., comparable to highly stocked farmlands in Uganda.

Theoretically, eastern DRC has capacity to sustainably support all the current rate of forest products extraction (Table 9). In fact, the forest estate from only 20% of GVL has capacity to support all charcoal and timber that is currently being extracted from eastern DRC. The reality is, however, that there is continued forest degradation due to a number of reasons with two being very important:

1. The mode of extraction does not allow the forest to recover.
2. Once the area has been opened up for logging, slash and burn agriculture follows. A lot of biomass is burnt to ashes and is never utilised as charcoal or timber

Table 9: Comparing annual increment from 20% of area to total demand

Forest Product	Estimated Demand (Tons)	Wood cut in charcoal production or forest degraded in search of timber (Tons)
Charcoal extraction	590,574	5,368,856
Timber (60,000m ³)	42,857	5,142,857
Total	633,431	10,511,713
Annual increment 20% of DRC GVL		10,884,347

Major drivers of deforestation are known to be a combination of timber extraction and agriculture expansion. As would be expected, the highest rates of change in forest cover were observed close to agricultural areas of Kanzoka and Biambe, North West of Butembo. High loss of forest cover can be seen along the major roads going north from Rubena, Mununzi and continuing to Mambasa via Biakutu and from Beni Komanda via Mavivi and Oicha. Also significant forest loss can be observed along the road due east from Mambasa to Bunia via Apanwaza and Komanda (Figure 16 and 17).

Habitat Loss in Uganda

Within the East African region, Uganda has fairly detailed spatial land use cover information albeit becoming out-of-date (no updates have been made since 2005). Biomass dynamics indicate that by 1995, demand for forest products was already outstripping supply in many places. In fact most forest products are sourced from the plantations rather than natural woody formations. In such a situation trees or forests are seen as a crop rather than naturally given gifts by nature. The positive aspect is that there is a higher level of acceptance and adoption to tree planting programmes, for example what is happening in many parts of western Uganda.

The 1992 National Biomass Study indicated that over 60% of biomass in western Uganda was from private plantations (Forest Department, 1992). Government supported programmes like Farm Income Enhancement and Forest Conservation (FIEFOC) show that propensity to plant trees in biomass deficient areas of western Uganda has increased. Unlike in Eastern DRC, trees are looked at as a crop and this helped the biomass demand on farmlands to be kept in balance with local demand for timber, firewood and charcoal. Biomass dynamics in 1995 to 2003 indicated that biomass supply on many farmlands of western Uganda was more or less stable and even increasing in some areas (1995-2002 NBS biomass inventory and spatial database). This was in agreement with many studies where it has been found that when farmers start valuing trees as crops, the negative trend in biomass ceases and in many instances starts to increase. In many parts of western Uganda trees are already regarded as crop and what is lacking is the technical assistance from the DFS – such as development of forest plantation management plans. Even more important is the need for change of mind set. Though the climatic and agro systems are very much similar as in neighbouring Rwanda, people in Uganda have not yet adopted or accepted use of charcoal made from Eucalyptus trees. It is important to note that Eucalyptus and a variety of other local species are already being used for furniture and construction wood. Uganda and western Uganda in particular no longer enjoy the luxury of harvesting mahoganies locally. The few that can afford the ever increasing price of mahogany furniture rely on timber imported from eastern DRC.

Habitat loss in Rwanda

Like other east African countries energy from firewood and charcoal plays a crucial role in Rwanda's energy balance. Most important is that Rwanda has taken significant steps towards obtaining a sustainable wood supply for its local wood fuel demands. A substantial portion of firewood, charcoal, and pole wood in the country come from private and individual farmers' plantations.

It is estimated that about 241,000 ha of forest plantations in Rwanda are owned by the State or Districts (Best 2009). The contribution from private smallholder is not well known and thus could well be underestimated. In fact Rwanda is the only country in the region where significant amounts of charcoal are produced from planted trees (mainly Eucalyptus) on private as well as community land (Best, 2009). In addition to charcoal production from planted forests, Rwanda imports charcoal mainly in an informal trade across the porous border with DRC in the west. The volumes of this import commodity are thus not well documented. Nevertheless, Rwanda provides a good showcase and evidence private forest plantations can contribute substantially to the country's biomass energy requirements.

In many places in East Africa climate and soils are suited for vigorous tree growth such that the possibility of supporting biomass energy needs from dedicated plantations is highly feasible.

However, like Uganda, the furniture industry heavily depends on DRC for its Mahogany timber needs.

Figure 19 below shows establishment of tree woodlots (mainly eucalyptus) in Rwanda's Landscape.

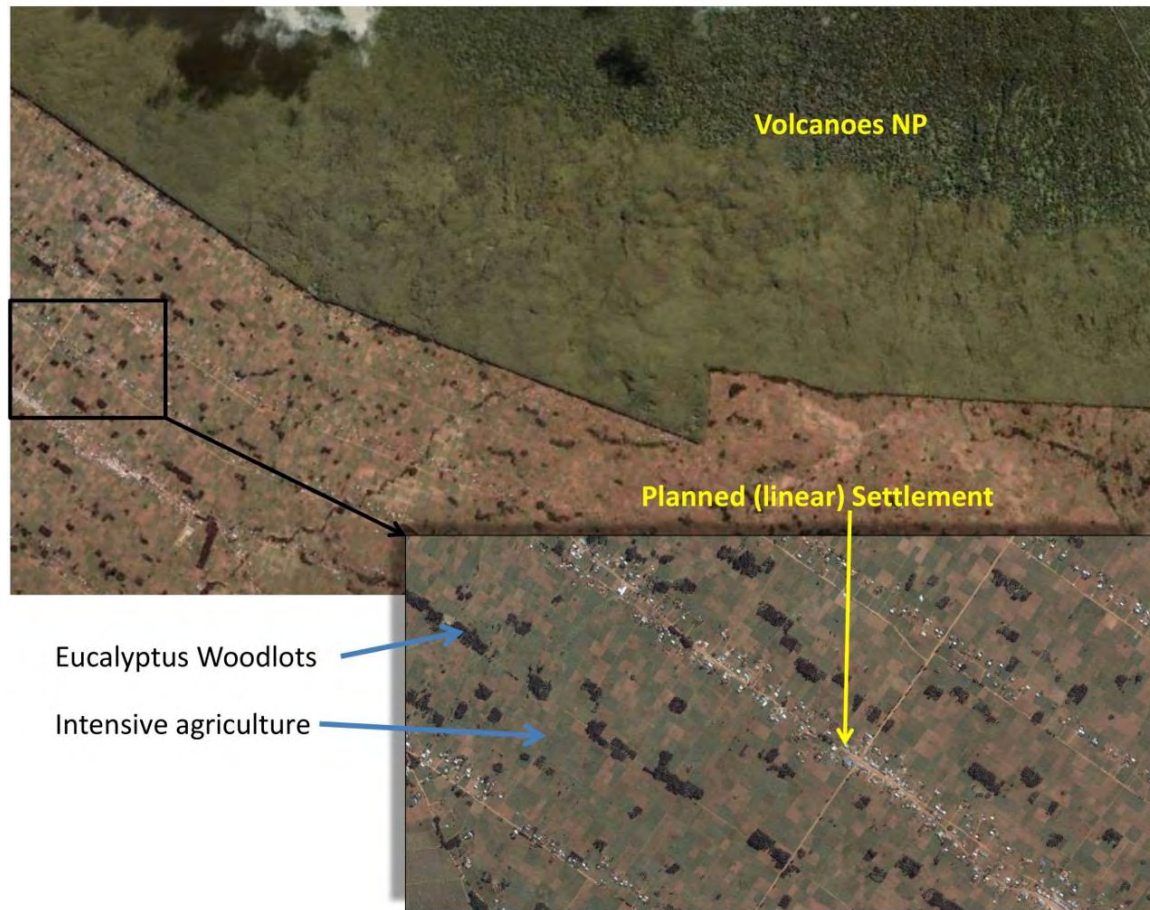


Figure 19: Rwanda intensive agriculture combined with tree planting, an example of attempts to achieve sustainable forest product supply

Conclusion

The current trends of deforestation cannot be solely explained only by the demand for charcoal, firewood and timber. Much of this loss may also be attributed to the need to produce more food supplies for an ever-increasing population (Leibel, 2012). However, deforestation in DRC along the main routes to Uganda and further south to Goma and eventually Rwanda and Burundi can be attributed to high demand for Mahogany timber. The lucrative “illegal” timber trade is known to be the main driving force to deforestation in eastern DRC as its responsible for both directly cutting down of trees and indirectly by opening up new areas for agriculture expansion.

Continued biomass loss at the indicated rate will have significant economic and social implications. The loss or degradation of ecosystem services has significant economic implications since business and ecosystem services are inextricably linked (Leibel, 2012). In addition, degradation of ecosystems generates significant social impacts such as famine, displacement and diseases. Individuals, especially those directly dependent on ecosystems to provide food, shelter and water, may experience shortages of supply that will directly affect or even jeopardize their existence.

3.6.5 Current and future available alternatives (forest resources) within the 50km radius from each of the protected areas in the Greater Virunga

This section presents alternatives that may help relieve pressure on traded protected area resources within the GVL. The various Governments and partners realize the important role these alternatives can play. For example, Rwanda recognises that there is a lot of pressure on natural resources and protected areas for firewood and other products. People around PAs do not have any other sources of energy. The Director General Rwanda Environment Management indicated that although there is support for alternatives through revenue sharing, it is not enough compared to the demand. If there are no alternative sources of livelihoods, people will continue to go to the parks. According to the REMA official Ministry of Energy, Environment and Natural Resources Policy targets to have energy saving stove for each household by 2025 as per the 2025 Rwanda Vision.

1) Alternatives to Charcoal

In areas around PNV such as Kinigi Sector in Rwanda, briquettes made of saw dust are alternatives to charcoal. There is a project being promoted through women groups and historically marginalised groups, the Batwa. However, this is still a new innovation and has not yet been adopted. Munigi Energy Centre in Goma aims at providing more efficient alternative energy sources such as charcoal briquettes and energy saving cook stoves. However, its overall contribution to alternatives and improving energy efficiency is limited as charcoal is the main energy source for Goma, there is no gas, and there is a huge gap of electricity supply against the demand.

Communities in Bugeshi sector, Ruvabu District in Rwanda recommended promotion of biogas and efficient cook stoves. Currently there is a government supported project to promote biogas in Bugeshi and other rural areas in the country. However, the challenges include services after the project, there is no access to the biogas accessories and the process for installation does not guarantee quality services as sector leaders are not involved in monitoring of service providers who are accountable to financial institutions appointed by the government to co-finance the project. Biogas is also expensive to set up for poor-low income households. For example communities in Bugeshi reported that there are 5 plants in the sector but only 1 is functional. Cook stoves are also few due to lack of clay soils in the area. Solar for Batwa is being promoted for lighting only.

Between Mt. Rwenzori – Ihandiro Sub County and Bwera Town in Uganda and Rusese in DRC, energy saving cook stoves are being promoted at household level, but the challenge is maintenance as the stoves need regular repairs. Saw dust is another alternative for cooking; a bag of saw dust costs US\$0.8 and lasts for at least 2 weeks for a family of 4 people when using improved cooking stoves (Lorena stoves).

Regarding alternatives for energy from forest resources, the questionnaire interview results show that there is considerable support from different sources (local and international NGOs and others) for efficient energy cooking stoves (25%), followed by briquettes from charcoal and other wastes. Solar and biogas was mainly being promoted through the private sector and government (Figure 20).

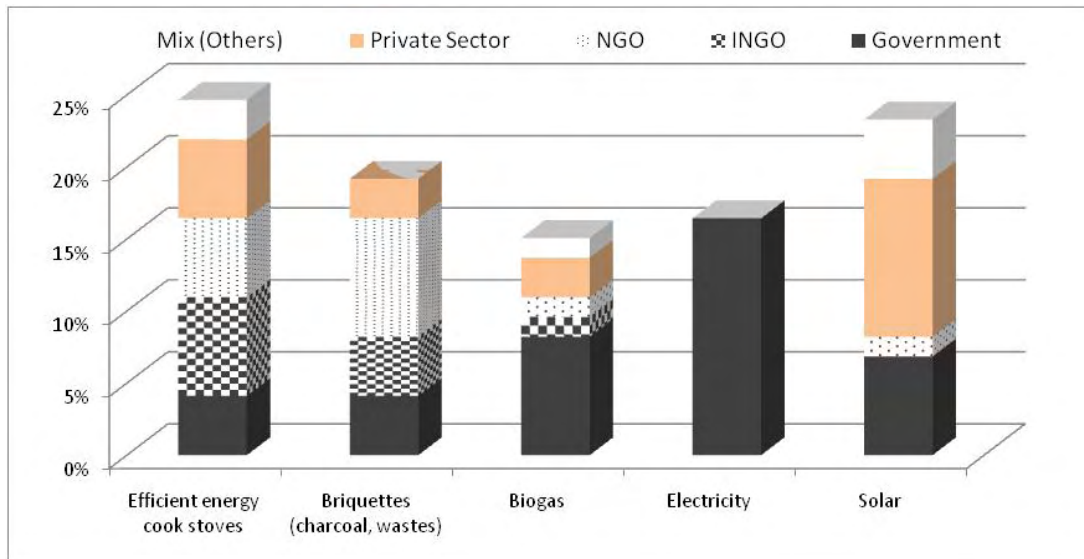


Figure 20: Alternative renewable and efficient energy sources being promoted

It is important to note that apart from solar, the involvement of the private sector in alternative fuels is still minimal. There is need to support the private sector to play an important role. One way would be through governments and international NGOs subsidizing the high upfront cost of renewable and efficient energy projects.

There is also need to promote use of alternatives such as bio-gas in institutions such as schools, prisons police, etc. For example in Rwanda the team was informed that the prisons have started using biogas and peat from wetlands for heating requirements.

2) Alternatives to timber

Rwanda has excelled in institutionalising tree planting on private and farmland. Established in 1976, a National Tree Planting day is observed annually and this year the country celebrated the 37th year of tree planting institutionalisation. The day is between 30th October and 15th November depending on the first day of the rains. This provides alternative sources of timber, charcoal and firewood. The challenge is limited land for tree planting and food production.

Following the legislation in Rwanda prohibiting use of timber/poles in house construction, the construction industry has devised metal as the alternative for scaffolding.

The yield from managed forest plantations is over 10 times that of natural forests. Well managed forest plantations in East Africa have Mean Annual Increments (MAI) of up to 30m³ at a rotational age of 12-15 compared to natural forests (that have taken 100 years to mature) that have annual allowable harvests of only 1-2m³. Therefore, establishing forest plantations for natural forest timber alternatives would enhance sustainable timber production in the GVL.

3) Alternatives to Poaching/ Bush Meat

PNV supports alternatives to bush meat through revenue sharing, and supporting former poachers' cooperatives such as Ibyiwacu Cultural village performances for alternative incomes, as well as doing community policing of those still involved in illegal activities (RDB, 2012). The poachers cooperatives are also supported to rear livestock such as goats, sheep and heifers.

Alternative livelihoods around QEPA in Uganda include rearing of chickens, pigs, and goats for cash and as a source of animal protein.

3.7 Cost-benefit analysis of feasible conservation-based enterprises for economic development in the communities adjacent protected areas in the Greater Virunga Landscape

3.7.1 Introduction

Many of the protected areas, in the Greater Virunga Landscape including the World Heritage Sites, are threatened because of high and increasing populations in the villages around them, conflicts between the local people and protected area authorities, civil strife fuelling illegal activities and illegal trade, and unsustainable harvesting of products, all leading to habitat and species loss. Some of the direct threats to PAs in GVL ranked highest are access for commercial charcoal and poaching followed by agriculture encroachment together with settlements, access for timber and non forest tree products (NFTPs) respectively (GVTC 2009).

Protected Areas Authorities in partnership with Conservation Partners such as GVTC, WWF, IGCP, BMCT, AWF, STAR, WCS and many others have sought ways of developing and promoting incentives/projects for communities to participate and sustainably manage natural resources with the aim of reducing pressure on the PA resources. The incentives include among others conservation-based enterprises such as community eco-tourism, forest product enterprises (bee keeping, tree nurseries, and bamboo propagation), Irish potato multiplication, and community eco-lodges.

3.7.2 Cost-Benefit Analysis of Conservation-Based Enterprises in the GVL

In recent years, several projects have been implemented or supported by development partners and NGOs in the GVL with the aim of promoting economic benefits for community development and improved conservation. One of the factors is that there must be a linkage between the enterprise and biodiversity conservation (GVTC, 2012). One of the hypotheses is that if communities receive sufficient benefits from a viable enterprise that depends on a defined biodiversity asset, they will act to counter internal and external threats to that biodiversity. However, the benefits should outweigh the costs and opportunities forgone (Biodiversity Conservation Network (BCN), Salafsky *et al.*, 1999¹²)

It is therefore important for organizations to undertake cost benefit analyses (CBA) of planned conservation-based enterprises to be able to determine the effectiveness of the enterprises in generating benefits to the community that will engender the desired outcomes of addressing economic development of the local community and biodiversity conservation.

¹²In FAO, 2006, Forestry Policy and Institutions Working Paper 17

Cost benefit analysis tests the economic viability of an existing or proposed activity, and/or compares two or more ways of doing the activity or if another project or enterprise should be pursued¹³. The analysis involves evaluating all of the potential costs and revenues that may be generated if the project/enterprise is undertaken. The costs and benefits may include economic, social, cultural and environmental (intangible items) as well as opportunity costs. In calculating the CBA, because the costs and benefits are received over time they are discounted and / or the payback period worked out. The intangible items are also computed into monetary terms using proxy or estimated values¹⁴.

This study has adopted a simple and more general approach for cost-benefit analysis based on the FAO framework for the development of community based commercial enterprises for conservation of biodiversity in two World Heritage Sites; Mount Emei, Sichuan, China and Bwindi Impenetrable National Park, (FAO, 2006) and techniques designed by Conservation International (CI) for Community Tourism Project Assessment Process (Gutierrez *et al.*, 2005). Only operational costs and gross incomes have been considered in approximation of economic costs and benefits in this study due to insufficient financial data of the existing enterprises.

3.7.3 Criteria for Selection of Enterprises for CBA

Based on literature review, three categories of conservation based enterprises were considered for selection based on the GVTC and IGCP subsector categorization (GVTC, 2012; IGCP, 2011). The three (3) subsectors considered are community –ecotourism, forest products enterprises and private-community partnerships. The enterprises identified include those from the GVTC 5 year implementation plan (GVTC, 2012), IGCP supported Community enterprises programme (IGCP, 2011) and the USAID STAR community eco-tourism programme (USAID STAR, 2011) (Table 10).

Table 10: Selected Enterprises for Cost Benefit Analysis

Community Based-Ecotourism	Forest Products Enterprises	Private Partnerships - Eco-lodges
Batwa Trail in MGNP Buhoma Nyundo Community Trails next to BINP Katwe Tourism Information Center (KATIC) -QENP Kikorongo Women Group-QENP	Tree nurseries around BINP Bee keeping- BINP and PNV Bamboo propagation-PNV	SACOLA Eco-lodge in Kinigi-PNV Clouds Lodge- for NCCDF-Nkuringo-BINP

3.7.3.1 Overview of the enterprises

Although enterprises were identified in each of the considered subsectors/categories the CBA for only two enterprises namely; Katwe Tourism Information Centre and Kikorongo Women Group both in Queen Elizabeth National Park was done. These were the enterprises where the team was able to

¹³Silva Ecosystem Consultants Ltd, [http:// www.silvafor.org/assets/silva/PDF/Methodology/CostBenefit.pdf](http://www.silvafor.org/assets/silva/PDF/Methodology/CostBenefit.pdf)

¹⁴Cost Benefit Analysis; http://www.mindtools.com/pages/article/newTED_08.htm

obtain consistent data to carry out a simple and illustrative economic analysis of the costs and benefits.

Katwe-Kabatoro Tourism Information Centre (KATIC): The Katwe Tourism Information Center (KATIC) is located in Katwe-Kabatoro Town Council (KKTC) in Queen Elizabeth National Park. The enterprise consists of 27 members of which about 80% are women. KATIC is a CBO that organizes and offers tourism experiences including community walking tours, tours of the traditional Katwe salt lake mines, guided bird watching around Lake Munyanyange, cultural dances and plays and handcraft demonstrations by the Kanyiginya Women’s Group. With support from USAID STAR, KATIC entered into a MoU with KKTC to manage Lake Munyanyange the only habitat of flamingos in Uganda for eco-tourism activities. The lake is under threat from livestock overgrazing and poaching. The Katwe-Kabatoro community is an enclave within QENP and is a major poaching threat to the park.

The enterprise received training from USAID-STAR, in financial management, tourism skills as well as support towards marketing, and construction of facilities to improve their product offer.

The enterprise offers group excursions for schools (primary, secondary and tertiary) as well as individual tours to the Katwe Salt Lake operations, birding and nature walks. In 2011 the organization received 829 school/student groups comprising of 49,637 student visitors, foreign visitors were 536¹⁵. Table 11 shows the revenue generated and expenditures for 2011.

Table 11: Revenue Generated and expenditures for 2011 for KATIC

Month	Revenue (Ugshs)	Expenditures (Ugshs)
January	447,000	355,000
February	657,250	477,125
March	821,000	566,000
April	1,215,000	764,300
May	775,000	936,500
June	7,060,250	5,727,040
July	10,072,000	8,370,012
August	6,982,500	5,465,368
September	4,182,000	3,196,028
October	3,054,000	4,395,163
November	1,429,000	3,014,108
December	1,486,000	5,515,400
Total	38,181,000	38,782,044

Source: KATIC Monthly Financial Records, 2011

¹⁵KATIC Financial Records, 2011

Kikorongo Women Group

The Kikorongo Women's Group is a community-based organization (CBO) in Katwe sub-county in QENP. The enterprise' activities are focused on cultural tourism, including an African crafts demonstration workshop, craft merchandising, cultural music, dance, and drama performances. The group was supported by USAID-STAR to develop a business plan, and received training for construction of a Cultural Information centre. The centre serves as a venue for the group's African crafts making shows, craft sales, cultural performances, as opposed to previously renting venues for their tourism offerings.

The group launched its tourism enterprise, and started receiving visitors in September 2010. In the following 9-months (through June 2011) the enterprise received 243 paying visitors generating Uganda shillings. Ughs 4,220,000 (\$1,850) from its tourism activities. This is equivalent to 4,262 days of mean household income or household incomes for about 12 households (USAID-STAR Project Report, 2011). Total revenues generated and expenditures for 2011 are shown in table 12 below.

Table 12: Total Revenue and Expenditures for Kikorongo Women Group for 2011

Activity	Revenue (Ugshs)	Costs	Amount (Ugshs)
Cash B/F	276,300		
Cultural Performance	450,000	Wages	4,000,800
Crafts workshop	4,690,000	Commission	150,000
Craft sales	791,000	Lunch	28,000
Honey sales	57,500	Secretarial	343,000
Total	6,264,800	Room Hire	692,000
		Conservation	116,100
		Transport	173,000
		Stationary	109,800
		Administration	93,000
		Total	5,705,700

Source: Kikorongo Women Group Reports, 2011

3.7.4 Results of the Cost-Benefits Analysis

3.7.4.1 Economic costs & benefits

The costs and benefits in Table 13 refer only to running costs of the enterprises and gross revenues and do not include the investment outlays and fixed costs. This is because information on these costs was or is not readily available with the enterprises as the investments in infrastructure, marketing etc, were managed by the donors/partners who supported the development of the enterprise. The economic analysis did not involve discounting and calculating payback time as only one year was

considered and data is not available. Results of the economic costs-benefit analysis for the two enterprises are presented in Table 13.

Where the cost benefit ratio is:

- Greater than 1: benefits are greater than costs; the enterprise is recommended or feasible;
- Equal to 1: benefits are equal to costs; enterprise could be given lower priority;
- Less than 1: costs are greater than benefits; enterprise not recommended but may be implemented or promoted on compelling, and non-financial grounds.

Table 13: Economic Costs- Benefits Analysis

Enterprise	Benefits	Costs	Profits (Ugshs)	Benefit/Cost Ratio
Katwe Kabatoro Information Centre	Revenue Sources <ul style="list-style-type: none"> • Cultural dances • Bird Watching • Craft sales • Salt lake tour • Community walk • Nature walk • School groups Total Revenue= Ugshs 38,181,000	<ul style="list-style-type: none"> • Wages • Crafts materials • Transport • Stationary • Tour guides • Costumes • Administration Total costs = Ugshs 38,782,044	(601,044)	0.98
Kikorongo Women Group	Revenue sources: <ul style="list-style-type: none"> • Cultural performances • Craft sales • Craft workshop/shows • Honey sales Total Revenue= Ugshs 6,264,800	<ul style="list-style-type: none"> • Wages • Commission payments • Lunch • Secretarial services • Room hire • Transport • Conservation • Stationary • Administration • Crafts materials Total costs= Ugshs 5,705,700	559,100	1.09

It is also important to note that although KATIC is considered not viable and the Kikorongo Women Group is barely making profits, the enterprises do have potential for economic viability if issues such as pricing, packaging of product offering and marketing strategies are addressed (USAID STAR, 2011).

3.7.4.2 Socio-economic and Environmental costs and benefits

This analysis helps to assess some of the tradeoffs that occurred or are likely to occur in terms of the socio-economic, cultural, and environmental and biodiversity costs and benefits as a result of the enterprises. These factors may not have a monetary value on them but they enhance or diminish the positive impacts on the local economy in terms of quality of life or natural resource use (Gutierrez *et al.*, 2005). For example, the opportunity for environmental education through the enterprises could be seen as a greater benefit than the costs of developing new products in the park. Such tradeoffs are referred to as un-measurable benefits and costs.

The assessment for the un-measurable benefits and costs used in CI and George Washington University CBA technique involves ranking using plus (+) and minus (-) to demonstrate the potential of the costs or benefits. This process may be done in a workshop with stakeholders. At the end of the ranking process an overall rating of all costs and benefits is done by determining whether the (+)s outweigh the (-)s or vice versa or they balance each other out, i.e.= 0. The study team modified this technique by listing the un-measurable costs and benefits and assigning a weight or rating of (3 for high, 2 for medium and 1 for low) to demonstrate the potential. The ratings were added up to give a total rating for all the costs and benefits and benefit/cost ratio of the total ratings calculated. The results of the assessment of socio-economic, cultural, environmental and biodiversity benefits and costs for KATIC and Kikorongo Women Group community based eco-tourism are presented in Table 14.

Table 14: Cost Benefit Analysis of the Socio-economic, Cultural, Environmental Conservation costs and benefits for KATIC and Kikorongo

Type	Benefits	Major community groups impacted & criteria for rating	Benefits Rating High=3 Medium=2 Low=1	Costs	Major community groups impacted & criteria for rating	Costs Rating High=3 Medium=2 Low=1
Socio-economic	Improved livelihoods Employment opportunities	Youth, Adults, and households welfare	3	Dependency syndrome on tourism	Youth, & young adults	2
	Better access to markets and local economic diversification	The new opportunities will need marketing, improved standards	1	Increased prices and speculation	Whole population affected	3
	Opportunity for poverty alleviation, opportunities for new enterprises & local economic diversification	Youth, women. The potential enterprises may need support from external funding	2	Theft and crime	Insecurity	2
	Development of new skills and capacity building	Youth, women, young adults	2	Prostitution	Spread of sexually transmitted diseases, all segments of population affected	3
	Improved communication and accessibility	All	3	Overpopulation/ Overcrowding, and unwanted developments	More people attracted into the area for trade and other businesses	3
	Women empowerment (80% of members are women)	Women, children and improved family welfare	3	Land tenure and access issues		2
	Reduced deaths due to poaching in the park	Less risks involved in tourism activities	2	Reduce time for agricultural production		1
	Improved education for children	More children are able to go to school	2			
	Improved relations with park authorities	Dialogue and communication	2			
		Total Rating	20		Total Rating	15
Social-cultural	Cultural Exchange	Adults and youth	2	Loss of culture in some cases	Youth, young adults and children	2
				Disruption of	Families and	2

Type	Benefits	Major community groups impacted & criteria for rating	Benefits Rating High=3 Medium=2 Low=1	Costs	Major community groups impacted & criteria for rating	Costs Rating High=3 Medium=2 Low=1
				social & family structures	households	
		Total Rating	2		Total rating	4
Environmental & Biodiversity	Reduced illegal activities	Reduced in a few portions/small % of the park	1	Loss of products from the park	Traditional resources which	1
	Improved habitats and conservation	Alternatives to destructive livelihoods, habitats able to regenerate	3	Pollution	Poor/ or no proper waste management, little/ no enforcement, potential for pollution is high	3
	Reduced poaching of endangered species e.g. hippos, elephants etc	Improved biodiversity conservation	3	Increased human-wildlife conflicts	Strained relations with PA authorities-negative attitudes	3
	Greater environmental awareness and education	Some degree of appreciation of the park	2	Increased demand for natural resources	Increased in-coming of people who need resources e.g. fuel wood	3
	Improved protection of natural resources	Community policing and collaboration with the park authorities	2			
		Total rating	11		Total rating	10
Overall Rating of Un-measurable Benefits and Costs						
Type	Benefits		Costs		Benefit/cost ratio	
Socio-economic	20		15		1.33	
Cultural	2		4		0.5	
Environmental & Biodiversity	8		7		1.14	
Overall	30		26		1.15	

3.7.4.3 Assessing Overall Results of the Cost Benefit Analysis

In order for the enterprise to be viable the net economic benefits should be positive. In the above analysis KATIC enterprise is considered unviable as its benefit/costs ratio is less than 1. However, given that the socio-economic, cultural and environmental benefits are positive, the enterprise may be promoted even if it is not earning profits, provided that it is meeting the objectives of protected areas management, community development, biodiversity conservation, poverty alleviation and improved natural resources management.

In the case where the social and environment benefits are negative but the enterprise is economically viable, the enterprise should be rejected but other overriding factors could be considered for its implementation, for example the out growers Tea Production in Rubuguri around BINP that is still under government consideration for implementation. The enterprise is believed to be economically beneficial to the community, but was found to have negative impacts on the park and the mountain gorillas ranging habitat because of the road that would require passing through the park.

The cost benefit analysis of the two enterprises is not conclusive enough to show that the conservation-based enterprises being promoted for alternative income generation are economically viable to enlist reduced illegal activities and dependency on protected areas resources for livelihoods and biodiversity conservation. The study team was not able to compare enterprises in the different categories due to insufficient data as all data inputs and assessment processes could not be done within the time period allocated for the study. In addition most of the enterprises did not have data especially on financial records, investment costs, and all revenue streams, and where such data exist it has a lot of gaps and therefore is insufficient to make meaningful analyses.

The study team therefore recommends a detailed survey for establishing cost benefit analysis of the existing alternative enterprises (bee keeping, agroforestry and tree nurseries operation, eco-lodge private partnerships etc) as well as potential ones that could be based on the current resources that are extracted from the PAs such as sustainable charcoal production, charcoal and other wastes briquettes.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The following conclusions are drawn based on data collected during this study and earlier reports:

1. Illegal trade in timber, charcoal and wildlife products in the GVL has been and continues to be abetted by the various armed groups operating in DRC within the GVL coupled by inadequacies in institutional capacity on the part of the Forest Department Services in DRC and Uganda and the high demand for hard wood timber species and charcoal in the East African region.
2. Alternative energy to charcoal for domestic cooking within the GVL and beyond is not yet practically possible with a majority of people dependent on charcoal and firewood. Electricity and gas supplies are unreliable and inadequate and not affordable for the majority of the population.
3. Cooperation amongst the respective forestry and wildlife agencies in country and regionally is inadequate. Each of the agencies operates independently of the other even when it is evident and inevitable that they should work together for example in joint law enforcement operations. Although at regional level there has been an attempt for the wildlife agencies to work together, and the arrangement does allow for the other relevant agencies including police and customs to join in, in practice it has not happened yet.
4. There is a lot of data and information already existing on extent and impact of illegal trade, who is involved and possible solutions, but the challenge is in finding a competent, acceptable and legally established institution(s) to take the lead in implementation of the recommendations given the transboundary nature of the issues involved and the trade.
5. Uganda and Rwanda “happily” receive and welcome timber and charcoal from DRC even when they are aware that it is harvested illegally or unsustainably while DRC “happily” receives bush meat from Uganda. Uganda and Rwanda has been strict on wildlife and wildlife products entering the respective countries and made confiscations and arrests several times. It is therefore possible to exercise similar vigilance at the entry and exit points in respect to timber and charcoal rather than formalise the trade in the respective countries as the case is today.
6. The newly established International Consortium on Combating Wildlife Crime (ICWC), chaired by the CITES Secretariat and comprised of INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank and the World Customs Organization (WCO), provides an opportunity to help combat wildlife crime, including illegal logging. ICWC represents the entire enforcement chain – customs, police and justice. It also addresses anti-money laundering and serves as a model at the international level for the sort of cooperation that is required amongst enforcement agencies at the national level to more effectively combat illegal international trade in forestry and wildlife products.
7. The policy and legislative framework in DRC, Rwanda and Uganda, the challenges faced in addressing illegal trade in forestry products and the impact to date on the forestry biomass in GVL make a good case for a regional REDD+ funding consideration and a REDD+ regional project.
8. In designing and developing conservation based enterprises, a complete cost benefit analysis (model) must take into account environmental costs and have these integrated in the overall result. Of even greater importance for sustainability purposes is the approach to enterprise

development and selection criteria for project champions/promoters and community members. A lot of enterprises have been developed and implemented in the hope that they will be economically self-sustaining and reduce dependency on forestry and wildlife resources from protected areas which has been far from reality as communities have continued to depend on PA resources or the enterprises have crumbled once external funding stopped.

4.2 Recommendations

Based on the findings, the study proposes the following recommendations:

1. Support peace building efforts with the GVL

Peace is a key issue within the GVL. The Virunga National Park is host to several Congolese armed militia groups, Rwandese rebel groups and Ugandan rebel groups. The natural resources within the area are directly negatively impacted by the presence of all these illegitimate groups. The presence of the armed groups has compromised governance systems in DRC rendering any efforts to address poaching, illegal wildlife trade, illegal extraction of timber and charcoal ineffective within the whole GVL

It is therefore critical that the conservation agencies at international and national level become more directly involved in the peace building efforts as one of the steps to address governance problems for natural resource management in the GVL ultimately creating a suitable working environment for management systems to become applicable. Whereas UNESCO has in the past made attempts at influencing high level decision makers and other stakeholders in the peace efforts in DR Congo such as MONUC to get directly involved in addressing illegal activities without much success (Guy, pers. comm. 2013), it is essential that the direct involvement of conservation agencies in peace building efforts at regional and international level does happen.

The role of the Congolese army and the MONUC soldiers stationed in the GVL needs to be expanded formally so as to play an active and supportive role with the guidance of ICCN to stop and check illegal activities within the Virunga National Park and other forested and protected areas. Errant soldiers and commanders should be subjected to disciplinary measures and criminal proceedings. Only then will their accomplices wherever they may be will realize the need to follow established procedure.

2. Expand role/mandate of security and law enforcement organs to support law enforcement operations in the DRC and at the border crossings to address Forestry and Wildlife crime.

The Army: At a strategic level, the army is concerned not only with the military operations but also the political, social and economic well being of the community it is protecting. Therefore, the military should ideally be concerned with the illicit trade, potential loss of revenue and turmoil that may result from uncontrolled poaching within individual countries but also in the GVL region. There are practical examples where the army has been enlisted in combating wildlife crime in Africa. At the height of poaching of elephants for ivory by poachers from Zambia and Angola (Angolan rebel groups) in Botswana, the Botswana army was in the 1990s enlisted to help stop the poacher gangs and illegal ivory trade in the Chobe National Park area that borders Zambia, Angola and Namibia. To-date

the collaboration between the Botswana wildlife department and the army still exists and the two institutions work together for continued monitoring. In South Africa, when poacher gangs working with Mozambican rebels threatened the wildlife population (elephants and rhinos) in the Kruger National Park which is contiguous with the wildlife reserve on the Mozambican side, the two governments (South Africa and Mozambique) agreed on a “hot pursuit” policy into Mozambique to stop the poachers. This arrangement involving the army yielded positive results for conservation and security for the two countries. In Uganda once the UWA agreed to work with Uganda People’s Defence Forces (UPDF) to stop all forms of insecurity in the national parks including poaching in 2005, all remnants of rebel groups were either crushed or forced to flee and relocate and there has since been joint regular monitoring to check any illegal activities. Rwanda has its army strategically deployed close or within the protected areas and they do work very closely with the protected area staff.

The Police: The police have the broad mandate of enforcing law and order, with a section for international police (INTERPOL). INTERPOL has for a long time had a very close working relationship with CITES at the international level. On an annual basis, INTERPOL-CITES meets to review wildlife crime challenges globally and devise strategies to fight the crime. At regional level however, this opportunity has not be utilised. Although there could be cooperation among the police agencies of the three countries, wildlife crime is not considered a priority under this arrangement. In Kenya and Tanzania the police force has often been drawn on to support the wildlife agencies break organised wildlife crime perpetuated by foreign gangs of different origin (mainly from Somalia) who have sometimes crossed through northern and central Kenya to poach in the Masai-Mara – Serengeti transboundary protected area system. Uganda has already started a process to formalise cooperation with the police on wildlife and environmental crime although the effort is disjointed. The Rwandan police are already active and working with the forestry and wildlife agencies to address illegal trade and under regular monitoring countrywide.



(a)



(b)

Figure 21: Interviews with police officers (a) in Rwanda, DPC Rubavu District; and b) in Uganda, DPC Kisoro District

3. Cooperation and coordination among the relevant government agencies for combating illegal trade in forestry and wildlife products including police, customs and the judiciary need to be strengthened

The newly established International Consortium on Combating Wildlife Crime (ICWC), chaired by the CITES Secretariat and comprised of INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank and the World Customs organization (WCO), provides an opportunity to help combat wildlife crime, including illegal logging. ICWC represents the entire enforcement chain – customs, police and justice. The GVTC Secretariat established to primarily foster cooperation and coordination to meet natural resource conservation and community development objectives in the GVL should take advantage of this international effort to address the illegal trade in timber, charcoal and wildlife in the GVL. Already the GVTC has set up has structures to enhance this kind of cooperation. Technical support and possibly some funding in the initial stages can be sourced from the ICWC or directly from CITES who should ideally be interested in a regional approach and effort considering the transboundary nature of the trade. Such an arrangement would greatly enhance long-term monitoring, documentation and tracking while in the short run would be quite effective in checking illegal trade. All the three countries are signatories to CITES and parties to INTERPOL.

4. Information sharing among the technical agencies for forestry and wildlife as well as the relevant non-governmental agencies operating within the region should be enhanced and trust and confidence built since all are pursuing common conservation and development objectives

There is a lot of information and data already available that is either held by respective technical or NGO agencies, or is shared selectively but sometimes treated with contempt and suspicion especially by government departments. Some of the information is accusatory and critical of government functionaries and politicians making it either unacceptable or embarrassing and therefore the natural tendency is for denial and sometimes anger. Treating information with contempt, suspicion or outright anger only serves to scare the informants and those collecting the information including the forestry and wildlife field staff but most importantly exacerbates the illegal trade.

Information and data should where there is doubt be cross checked by technically competent officers within the agencies and used to address loopholes in the systems but not used by public relations machinery for denials and contradictions, in that way trust and confidence will be built among the agencies which in turn will foster cooperation and joint or collaborative efforts to address illegal trade.

Addressing illegal trade based on information shared especially on tax evasion, concealment and corruption will result in increased government revenues and ideally sustainable development as market distortions will too be eliminated.

The GVTC as a neutral body should play a pivotal role of bringing together the relevant policy, technical and private sector players together for effective coordination and collaboration.

5. A regional REDD+ funding project should be developed and implemented within the GVL to help catalyse positive environmental change and sustainable development

As a response to climate change occasioned by green house emissions, the United Nations Framework Convention on Climate Change (UNFCCC) approved a management approach, REDD, aimed at encouraging developing countries, through financial incentives, to curb deforestation and thereby reduce the greenhouse gas emissions that result from deforestation. REDD+ includes the added components of conservation and enhancement of forest carbon stocks and sustainable management of forests, particularly by the local communities and loggers. Countries with large forested areas and low rates of deforestation, such as those of the Congo Basin and other African countries where forest carbon stocks are considerable and increasing are expected to participate in and benefit from the mechanism. Already some pilot REDD+ program has been implemented in DRC while in Uganda a REDD+ preparedness proposal has been approved by government. Such regional projects will require a regional cooperation mechanism of the forestry agencies and other relevant technical agencies such as wildlife and environment or climate change agencies. A practical approach would be to build on the current GVTC initiative for development and ultimately implementation of a REDD+ regional project.

6. Approach to conservation related enterprises should guarantee PA agency buy-in and sustainability, based on both economic and environmental considerations

Conservation related enterprises have for long been designed with the key objective of addressing poverty identified as a key factor fuelling illegal and unsustainable use of resources. Other conservation related enterprises have aimed at provision of alternatives to resources ordinarily accessed from PAs such as timber and charcoal. It must be noted though that even if poverty levels were substantially reduced, the demand for natural resources will always be there since the human population is increasing and the much hyped alternatives can hardly substitute for energy and timber requirements or even food for forest dwelling communities and those adjacent to PAs as indeed illustrated by a statement from a forest dwelling community member:

“We’re not like the people in towns, who have money and can buy things. If we lose all the things the forest gives us, we will die.”

But even the people in towns with money to buy things, the things to buy must be availed that is why there is illegal trade and corruption (strict law enforcement has in practice not worked and instead the preferred approach is sustainable use and development). So sustainable timber trade, sustainable charcoal trade and sustainable wildlife trade has inevitably to be considered among the conservation related enterprises. The PAs and other agencies as well as NGO players need to re-think the attitude and practices for sustainable enterprise development.

7. Revise public procurement policies and procedures so as to exclude the supply and use of illegal timber

Procurement policies and procedures do not specifically exclude supply and use of illegal timber, the emphasis is on quality and price. The misleading assumption is that timber on the market is legally obtained and if it is not, the duty of verifying and taking action lie with the national forestry regulatory agencies in the respective countries. Procurement policies and procedures for timber should equally emphasize legality of timber supplies including supplies from another country. For example it

is contradictory for governments to ban use of chain saws for sawing timber and yet government entities e.g. schools buy chain sawn timber for construction or furniture. Public procurement policies and procedures for government and donors therefore, need to be revised to include the aspect of the legality of timber supplies, which should be verified by the national regulatory agencies.

4.3 Illustrative Models for Implementing Recommendations on the Study on Illegal Trade in Timber, Charcoal and Wildlife Products

Illustrative models are articulated below as a guide to implementation of the recommendations in practical terms. For each model a rationale is included, methodical implementation steps are listed with suggestions on lead and key collaborating institutions as well as expected outcomes and an indication on staffing and budgetary requirements. Five models are suggested in priority order.

Model 1: Support to Regional Peace Building Efforts by Conservation Agencies

Model 2: Improve on Law Enforcement Operations in DRC and at the Border Crossings to address Forestry and Wildlife Crime

Model 3: Apply for a Regional REDD+ Financing and Implement Sustainable Forest Management

Model 4: Promote Sustainable Charcoal Production as an Enterprise

Model 5: Review public procurement policies and procedures to exclude supply and use of illegal timber

The highest priority described in **Model 1** is to help achieve peace and stability in the region. It is impractical to curb illegal activities and trade in a situation of armed conflict prevailing in the eastern DRC where the conflicting groups are involved in the trade. The rebel armed groups need to be stopped from operating within the protected areas and forest reserves. The peace keeping forces need to be disciplined and have their mandate expanded to help stop illegal trade. And the national armies need to be disciplined and stopped from getting involved in illegal trade. The model highlights steps to be taken by conservation agencies at international and regional level to help build peace in the GVL. This is an over-arching model that if implemented would ease the operating environment for all other programs including law enforcement, sustainable resource use and enterprise development.

Model 2 then follows in order of priority. All law enforcement agencies need to support, collaborate and most importantly cooperate with the forestry and wildlife agencies in addressing illegal activities and trade. The International Consortium on Combating Wildlife Crime (ICWC), provides an opportunity to help combat wildlife crime, including illegal logging. This model highlights steps to be taken to foster cooperation in law enforcement so as to check illegal trade of timber, charcoal and wildlife particularly at border crossings.

Model 3 on REDD+ is aimed at accessing financing for conservation while enhancing capacity building for monitoring and tracking trade as well as sustainable forest management. The model

proposes a regional project on REDD+ within the GVL that would support Forest/PA protection, Sustainable Forest Management and explore other Conservation Finance mechanisms. This model would go a long way in helping address illegal logging and timber trade.

As an illustration **Model 4** describes an approach to a conservation related enterprise that should guarantee sustainability based on both economic and environmental considerations. Conservation related enterprises have for long been designed with the key objective of addressing poverty and provision of alternatives accessed from the protected areas. It must be noted that even if poverty levels were substantially reduced, the demand for natural resources will always be there since the human population is increasing and the available alternatives such as gas, electricity, kerosene and biomass can hardly substitute for charcoal as an energy source for cooking. Model 4, therefore is about promotion of a sustainable charcoal enterprise and regulation of the trade.

Model 5 is a proactive approach by the consumers of timber and timber products to help stop illegal trade in timber by clearly insisting on and verifying the legality of the timber at the procurement stage. Since government and donor funded projects utilize large quantities of timber, improving on the procurement policies and laws so as to exclude supply and use of illegal timber would substantially help create order among the traders. Suppliers of illegal timber would be blacklisted and possibly forced out of the trade through market forces. Such an approach would go hand in hand with consumer awareness as it has been noted that even government and donor agencies have continued to purchase illegally sawn timber on the market.

Model 1: Support to Regional Peace Building Efforts by Conservation Agencies

Rationale

The Greater Virunga Landscape is one of the richest ecosystems in the world in terms of species diversity and endemism and has been described as one of the biodiversity hotspots on the African continent. The natural endowments in the GVL draw a lot of interest at international, national and local levels and three of the national parks within the landscape are internationally recognized under UNESCO as World Heritage Sites (Virunga, Bwindi and Rwenzori National Parks). Virunga National Park in DRC is listed as a World Heritage Site in Danger alongside five other national parks in DRC largely because of the armed rebel activities. Parts of Queen Elizabeth and Rwenzori National Parks are internationally recognized as Ramsar Sites – important wetland areas conserved especially for water fowl. Queen Elizabeth is also internationally recognized as a Man and Biosphere Reserve. The GVL is home to the only remaining critically endangered population of mountain gorillas that also attract thousands of international tourists annually. Tourism is a strong economic industry that is compatible with conservation but heavily dependent on peace and the existence of the attractive resource.

Peace is a key issue within the GVL. The Virunga National Park is host to several armed militia and rebel groups from DRC, Rwanda, and Uganda. The natural resources within the area are directly negatively impacted by the presence of all these illegitimate groups. There is also high population density and high poverty levels within the region. The population in this region is over 90 percent

dependent on natural resources for its livelihood. The presence of the armed groups has compromised governance systems in DRC rendering any efforts to address poaching, illegal wildlife trade, illegal extraction of timber and charcoal ineffective within the whole GVL.

At a joint Protected Areas staff (ICCN, UWA and RDB) meeting held in December 2012 facilitated by the GVTC, a critical question was raised: “Conservation and Rebel Groups, how do we operate in areas dominated by rebel groups and how do park authorities engage these rebel groups?” Unfortunately, no answers were forthcoming (Minutes of the Joint meeting, GVTC, 2012). Earlier, at the same meeting the staff from the respective countries (DRC, Rwanda, and Uganda) had taken turns to blame each other for transboundary illegal activities before finally agreeing that the biggest obstacle to their law enforcement efforts was the presence of the very many armed groups in the PNVi.

It is therefore critical that the conservation agencies at an international and national level become more directly involved in the peace building efforts as one of the steps to address governance problems for natural resource management in GVL, ultimately creating a suitable working environment for management systems to become applicable. Whereas UNESCO has in the past made attempts at influencing high level decision makers and other stakeholders in the peace efforts in DRC such as MONUC to get directly involved addressing illegal activities without much success (Guy, per. comm. 2013), it is essential that the direct involvement of conservation agencies in peace building efforts at regional and international level takes place.

Model: 1		Support to Regional Peace Building Effort by Conservation Agencies	
<u>Indicators</u>	<u>Outcome:</u>	<u>Output:</u>	
<ul style="list-style-type: none"> Official recognition of conservation agencies as key stakeholders in peace building efforts in the GVL Ammended agreements that allow for direct and active involvement of conservation agencies as key stakeholders in peace building efforts. Preparations for high level meetings, through regular forums including input from Civil Society Organisations. 	<ul style="list-style-type: none"> Attainment of a peaceful working environment Illegitimate armed groups stopped from operating within the national parks and forest reserves Enforcement to address illegal trade in timber, charcoal and wildlife within the GVL and beyond Improved Law 	<ol style="list-style-type: none"> High level international meeting/forum on poaching, illegal extraction of timber, charcoal and wildlife within the GVL and illegal trade Expanded mandate of the MONUC to address illegal logging, charcoal production and poaching. Revised code of conduct for MONUC soldiers to cater for non-involvement in illegal trade in timber, charcoal and wildlife with stern punitive measures. Mechanisms for monitoring and reporting errant MONUC commanders and soldiers Removal of all illegitimate armed groups from protected areas and forest reserves 	
Management responsibility	GVTC		
Key activities	<ul style="list-style-type: none"> Approach and engage UNESCO and IUCN to help organize a high level international meeting on illegal activities and trade in timber, charcoal and wildlife in GVL, either as a meeting in its own right or a side event for an 		

	<p>already scheduled high level meeting.</p> <ul style="list-style-type: none"> • Engage international NGOs within the region such as WWF, WCS, IGCP, ARCOS to support the initiative of a high level meeting and participate in the organisation and in the meeting itself. • Engage civil society organisations within the region to support and provide input for the meeting. • Lobby for support and active participation of the three governments of DRC, Rwanda and Uganda as well as their key development partners such as Britain, USA, Belgium, Norway and Netherlands. • Raise the necessary funds for holding the meeting. • Prepare working documents including information updates on illegal activities, illegal trade and impact of these on conservation, tourism industry and community well being in GVL • Prepare awareness materials for the national and local governments on the economic and conservation losses as a result of illegal trade in timber, charcoal and wildlife in GVL and disseminate these to leaders and enforcement agencies at local and national level. • Review mandate and composition of MONUC and recommend to UN practical amendments to mandate and composition so as to achieve the peace objective. Rwanda and Uganda who neighbour DRC and suffer from rebel incursions into their own territories have a common objective with DRC to eliminate all rebel activities and would have a much stronger incentive to deal with this problem with finality.
Budget needed	Budget includes contracted staff inputs to help organise the high level meeting, travel costs for consultation and lobbying, and meeting costs. Indicative costs would be within the range of US\$200,000.
Staff needed	<p>Short term consultancy for high level diplomatic missions. UNESCO or IUCN may provide this input in kind by assigning a high level staff.</p> <p>The Executive Secretary GVTC.</p>

Objective and Scope

A high level international meeting/forum on poaching, illegal extraction of timber and charcoal and illegal trade in GVL is proposed. The meeting will bring together high level decision makers, including politicians, development partners, technocrats and NGOs in the DRC, Rwanda and Uganda and GVL to specifically address natural resource management in the GVL and the role of the MONUC, the Army, the Police and Customs in addressing illegal trade in timber, charcoal and wildlife.

The GVL is already internationally recognized as a biodiversity hotspot. There are three World Heritage Sites (Virunga, Rwenzori and Bwindi) within the GVL. Mountain gorillas listed by IUCN as critically endangered are only found in the GVL. The GVL is the only remaining supply area for the highly coveted mahogany timber species for Eastern Africa. Virunga National Park has been listed as a World Heritage Site in Danger since 1996.

Implementation

Based on the considerations above it is recommended that GVTC takes the lead in organising a high level conservation forum in support of peace building efforts already on-going. GVTC should benefit from the support of UNESCO, IUCN and other international development partners and NGOs but this will require active lobbying and diplomacy. Either UNESCO or IUCN could assign a senior level staff to help out with this task or a Technical Assistance may be procured for the purpose. A development partner could also take it up and help with organising and convening the meeting, working with either UNESCO or IUCN. UNEP and CITES should also be helpful in this task.

Model 2: Improve on Law Enforcement Operations in DRC and at the Border Crossings to address Forestry and Wildlife Crime

Rationale

Overall, in the respective countries of DRC, Rwanda and Uganda; the gazettement and management of national parks, forest reserves and management and use of trees and wildlife outside protected areas with prescriptions for permitted and forbidden activities, procedures for access and punishments for offences are to a great extent sufficiently provided for in the various laws. The main challenge lies in the enforcement of these policies and laws. Among the factors limiting implementation at respective national level are political meddling, limited institutional capacity, lack of practical knowledge of environmental laws within law enforcement agencies, and poor detection of offences (Kamugisha, 2007; Giessen, 2008; Stiles, 2011; Kiteka and Kimanuka, 2012).

In this study, discussions with forestry and wildlife staff and other stakeholders qualified the observation that existing legislation is largely sufficient but that the challenge is enforcement. More importantly, the field staff revealed that there is hardly any cooperation in combating illegal trade across borders within the GVL as illegal timber, charcoal, wildlife and other forestry products from neighbouring countries are “officially welcome” to recipient countries who even go ahead to certify the products as legal. Challenges to enforcement are attributed to the following:

- i. **Lack of awareness about what is illegal and not by local traders:** In areas where regulatory implementation is a challenge, some communities are engaged in illegal trade because they are not aware or are not intercepted by any authority and they assume that the products can be traded freely
- ii. **Amounts involved:** small quantities involving informal trade are collected after borders and traded as legal items. For example small quantities of bush meat, charcoal or timber attract sympathy from authorities in country or at the borders and are left to proceed but cumulatively these make up large quantities within relatively short time frames.
- iii. **Evading Tax to maximize profits:** Informal trade across borders involving homogenous communities (same ethnic grouping) is sometimes used to avoid taxes. This includes transit through legally designated routes (customs) and porous boundaries. For example, charcoal crossing from one country to the other is carried in small quantities that are allowable by authorities. This charcoal may be considered to be locally consumed by the same communities across borders while the traders use it to congregate the charcoal on the other side of the border for larger scale trade.

- iv. **Source:** Some products such as charcoal and timber is falsely declared to originate from private land or farms when in actual fact it came from a national park or forest reserve possibly even abetted by authorities (corruption) from the district of origin.
- v. **Weak enforcement due to insecurity:** Areas of rebel activity have limited monitoring and enforcement and sometimes the militia are involved in the illegal trade of charcoal, hippo and elephant poaching.
- vi. **Weak enforcement due to corruption: Licensing products from restricted areas** e.g., protected areas or licensing products out of regulation or guidelines such as the tree cutting regulations and guidelines in Rwanda. This applies also to illegal products like timber from one country being stamped by a local authority in another country
- vii. **Lack of capacity to monitor:** limited capacity in investigative and prosecution skills, equipment, finance and staff numbers to monitor and identify smuggled products.

It is therefore imperative that cooperation and coordination among the relevant government agencies for combating illegal trade in forestry and wildlife products including police, customs and the judiciary need to be strengthened. The GVTC Secretariat should take advantage of the ICCWC international efforts to address illegal trade in timber, charcoal and wildlife in the GVL as the Secretariat already has structures to enhance this kind of cooperation. Technical support and possibly some funding in the initial stages can be sourced from the ICCWC or directly from CITES who should ideally be interested in a regional approach and effort considering the transboundary nature of the trade. Such an arrangement would greatly enhance long-term monitoring, documentation and tracking while in the short run would be quite effective in checking illegal trade. All the 3 countries are signatories to CITES and parties to INTERPOL.

On the other hand information sharing on illegal activities and trade among the technical agencies for forestry and wildlife as well as with the law enforcement agencies in the 3 countries is largely lacking. There is a lot of information and data already available that is either held by respective technical or NGO agencies or is shared selectively but sometimes treated with contempt and suspicion especially by government departments. Some of the information is accusatory and critical of government functionaries and politicians making it either unacceptable or embarrassing and therefore the natural tendency for denial. Treating information with contempt, suspicion or outright anger only serves to scare the informants and those collecting the information including the forestry and wildlife field staff but most importantly exacerbates the illegal trade. Information and data should where there is doubt be cross checked by technically competent officers within the agencies and used to address loopholes in the systems but not used by public relations machinery for denials and contradictions, in that way trust and confidence will be built among the agencies which in turn will foster cooperation and joint or collaborative efforts to address illegal trade. Using shared information on tax evasion, concealment and corruption will positively contribute towards increased government revenues, sustainable development and eliminating market distortions.

Model 2		Improve on Law Enforcement Operations in DRC and at the Border Crossings to address Forestry and Wildlife Crime	
<u>Indicators</u>	<u>Outcome:</u>	<u>Output:</u>	
<ul style="list-style-type: none"> • Approved transboundary law 	<ul style="list-style-type: none"> • Improved law enforcement, efficient and effective law enforcement 	<ol style="list-style-type: none"> 1. Establishment of a transboundary law enforcement strategy and MoU. 	

<p>enforcement strategy and signed MoU to address illegal forestry and wildlife crime.</p> <ul style="list-style-type: none"> Record of coordination meetings Information/data shared among agencies 	<p>operations in country and at border points.</p> <ul style="list-style-type: none"> Improved coordination and cooperation among law enforcement agencies with GVL to address forestry and wildlife crime Increased awareness on forestry and wildlife policies, laws and regulations/procedures Enhanced staff morale and motivation 	<ol style="list-style-type: none"> Regular coordination meetings for the relevant law enforcement agencies including customs, police, judiciary, forestry and wildlife. Reduction in volume of illegal trade in timber, charcoal and wildlife. Increase in revenue collection in respect to legal trade in timber, charcoal and wildlife
<p>Management responsibility</p>	<p>GVTC for Coordination purposes</p> <p>Technical agencies responsible for Forestry and Wildlife in the respective countries</p> <p>CITES and WCS could be approached for technical support</p> <p>International Consortium on Combating Wildlife Crime (ICWC) should too be approached for technical support</p>	
<p>Key activities</p>	<ul style="list-style-type: none"> Develop and prepare a regional law enforcement strategy in line with the International Consortium on Combating Wildlife Crime and illegal logging. Clearly define and agree on what the legal and illegal products are which may also be traded in. Revise procedural requirements, based on realistic parameters for example accessibility and supervisory capacity in terms of logistics, for extraction of timber, charcoal and wildlife in all 3 countries incorporating local structures as may be applicable. Plan and implement training in crime detection, legal procedures, investigations, prosecution and sentencing for relevant law enforcement staff in the relevant agencies to address illegal trade in timber, charcoal and wildlife as well as tax evasion and concealment. Arrange for and hold regular meetings to share information and allow for joint planning at national and regional level with amongst key law enforcement agencies (police, customs, army). Negotiate and sign an MoU to enhance cooperation and joint action in addressing forestry and wildlife crime Undertake joint law enforcement operations at border points and across borders Share information and data on regular basis through established communication channels such as e-mail, radio systems and telephone. Acquire and maintain communications equipment to enhance information sharing on regular basis. At national level foster cooperation between the forestry and wildlife agencies and the national armies and police. 	

Budget needed	Budgetary costs will include: Training; Acquisition of Communication Equipment; Regular Coordination meeting costs; Travel for Consultations with CITES Secretariat and attending international law enforcement meetings. Salary for a full time Law Enforcement Coordinator at the GVTC.
Staff needed	A new staff to help coordinate law enforcement at the GVTC may be required.

Objective and Scope

The GVTC was established as a coordination mechanism to enhance cooperation among the wildlife agencies given the transboundary nature of the wildlife resources. The GVTC already provides for a law enforcement structure within the GVL which only needs to be affected. Taking the example of the MoU on gorilla tourism revenue sharing (GVTC 2012), it should be possible to negotiate a similar framework for law enforcement to enable law enforcement rangers cross borders and pursue poachers and illegal traffickers. The field staff are quite keen to work together as one team and in practice do so quite often.

Implementation

The GVTC law enforcement structure already recognizes the need for working with wildlife, forestry, customs and police. What perhaps is required is a point person at the GVTC Secretariat to coordinate the law enforcement activities. It is proposed that a law enforcement coordinator with requisite training be hired who would also double as a trainer. Alternatively a Technical Advisor could be hired pending a decision to hire a full time law enforcement coordinator. WCS or some of the partner organisations may be willing to support such a position under a partnership arrangement. WCS has been active in supporting the regional law enforcement front and the possibility of such a partnership with a seconded staff by the three wildlife agencies to GVTC should be explored.

At the national level the conservation agencies need to utilize and improve on the existing collaboration with security agencies (army and police) but ensure field working conditions and supplies, including allowances and medical support, are uniform for the units working together. This has been the source of reported involvement of the security personnel working within or close to the Protected Areas in illegal activities and trade. The command structure would also have to be streamlined to ensure proper flow of supplies and discipline. Even implementing this step alone on the DRC side would go a long way in helping curb much of the illegal extraction of resources from Virunga National Park as has been demonstrated on the Rwandan side and to some extent the Ugandan side.

The Army: At a strategic level, the army is concerned not only with the military operations but also the political, social and economic well being of the community it is protecting. The military, therefore, should ideally be concerned with the illicit trade, potential loss of revenue and turmoil that may result from uncontrolled poaching within individual countries but also in the GVL region. There are practical examples where the army has been enlisted in combating wildlife crime in Africa. At the height of poaching of elephants for ivory by poachers from Zambia and Angola (Angolan rebel groups) in Botswana, the Botswana army was in the 1990s enlisted to help stop the poacher gangs and

illegal ivory trade in the Chobe National Park area that borders Zambia, Angola and Namibia. To-date the collaboration between the Botswana wildlife department and the army still exists and the two institutions work together for continued monitoring. In South Africa, when poacher gangs working with Mozambican rebels threatened the wildlife population (elephants and rhinos) in the Kruger National Park which is contiguous with the wildlife reserve on the Mozambican side, the two governments (South Africa and Mozambique) agreed on a “hot pursuit” policy into Mozambique to stop the poachers. This arrangement involving the army yielded positive results for conservation and security for the 2 countries. In Uganda once the UWA agreed to work with UPDF to stop all forms of insecurity in the national parks including poaching in 2005, all remnants of rebel groups were either crushed or forced to flee and relocate and there has since been joint regular monitoring to check any illegal activities. Rwanda has its army strategically deployed close or within the protected areas and they do work very closely with the protected area staff.

The role of the Congolese army and the MONUC soldiers stationed in the GVL needs to be expanded formally so as to play an active and supportive role with the guidance of ICCN to stop and check illegal activities within the Virunga National Park and other forested and protected areas. Errant soldiers and commanders should be the subject of stiff disciplinary measures and criminal proceedings. Only then will their accomplices wherever they may be realize the need to follow established procedure.

The Police: The police have the broad mandate of enforcing law and order, with a section for international police (INTERPOL). INTERPOL has for a long time had a very close working relationship with CITES at international level. On a regular basis (annually) INTERPOL-CITES meets to review wildlife crime challenges globally and devise strategies to fight the crime. At regional level however, this opportunity has not be utilised. Although there could be cooperation among the police agencies of the 3 countries, wildlife crime s not considered a priority under this arrangement. In Kenya and Tanzania the police force has often been drawn in to support the wildlife agencies burst organised wildlife crime perpetuated by foreign gangs of different origin but mainly from Somalia who have sometimes crossed through northern and central Kenya to poach in the Masai-Mara – Serengeti transboundary protected area system. Uganda has already started a process to formalise cooperation with the police on wildlife and environmental crime although the effort is disjointed. The Rwandan police is already active and working with the forestry and wildlife agencies to address illegal trade and undertake regular monitoring countrywide.

Model 3: Apply for a Regional REDD+ Financing and Implement Sustainable Forest Management

Rationale

Among the key factors named as to why illegal trade in timber and charcoal continues to happen unchecked is inadequate capacity for forestry staff and financing. REDD+ is a mechanism for financing conservation while enhancing capacity building for monitoring and tracking trade as well as sustainable forest management. A regional project on REDD+ would therefore be able to support Forest/ PA protection, sustainable forest management and possibly help identify other conservation finance mechanisms and foster responsible trade.

Timber and charcoal are basic necessities in the GVL for construction and energy. Even though some of the timber is exported to Southern Sudan and Kenya about 50% is utilized within the region. As for

charcoal, it is 100% utilized within the region. There are as yet no practical alternatives, at a large scale, to use of timber (poles) and charcoal. The continued demand for timber and charcoal require that some forests are used for production.

Within the GVL are national parks and forest reserves that fit in with the category of protection and where extraction of timber and charcoal may not be permissible. These include Semiliki, Rwenzori, Queen Elizabeth, Bwindi, Mgahinga, Volcanoes and Virunga. But there are forested areas in-between these protected areas or areas that can be re-afforested where sustainable forest management can be promoted. Sustainable forest management can have significant carbon benefits, as well as community and biodiversity benefits. FAO defines Sustainable Forest Management (SFM) as the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.

Numerous methods of promoting sustainable forest management are already in use, including: community forest management, reduced impact logging, agroforestry and alternative income generation. These only need to be strengthened. It is recommended that GVTC takes the lead in preparing a regional proposal for REDD+ financing at a landscape level with the secretariat working with the forestry and protected area agencies.

Model 3		Apply for a Regional REDD+ Financing and Implement Sustainable Forest Management	
<p>Indicators</p> <ul style="list-style-type: none"> Steps in REDD+ project proposal development i.e., Project Concept Note, Project Design Document. Approved REDD+ proposal for funding. Rate of habitat degradation 	<p>Outcome:</p> <ul style="list-style-type: none"> Sustainable Forest Management where consumptive use for timber and charcoal is in balance with natural ecological processes. Reduced habitat loss/degradation Effective monitoring and tracking of forest products such as timber, poles and charcoal 	<p>Output:</p> <ol style="list-style-type: none"> Project Proposal for REDD+ Results of implementation of REDD+ project: Forest Protection, Monitoring, Fire Prevention, Incentive Agreements, Community Benefits Increased conservation financing Enhanced capacity for sustainable forest management 	
Management responsibility	<p>GVTC</p> <p>Forestry and Wildlife agencies in the respective countries</p> <p>Local Governments</p>		
Key activities	<ul style="list-style-type: none"> Define scope of REDD+ project to include protection (avoided deforestation in the case of all the national parks in GVL), sustainable forest management (in the case of gazetted forests and forests on private land) and reforestation – where forests have been degraded. Identify the respective sites to include in project and describe them clearly. Review institutional setup at national and local level for eligibility and implementation of REDD+ Raise awareness among stakeholders and consult particularly with beneficiary 		

	<p>communities and agencies.</p> <ul style="list-style-type: none"> • Prioritise sites – possibly illegal activity hotspots • Define activities and interventions to address illegal timber harvesting and charcoal burning. Determine role of other stakeholders e.g., community members. • Determine expected emission reductions. • Consult with resource users e.g timber dealers, charcoal burners. • Analyse financial costs and legal issues • Undertake third party project audit as part of project validation phase. • Implement project activities
Budget needed	<p>Estimate of 2 million US Dollars.</p> <p>Budgetary costs will include: Awareness raising among stakeholders. Capacity building in REDD+ project preparation. Project concept note preparation and design. Implementation costs once project is approved.</p>
Staff needed	<p>Existing staff with GVTC working with Forestry and PA agencies.</p>

Implementation

Below is a step wise description on the development of a REDD+ project

A) Project Idea Phase

1. Define scope possibly to include protection (avoided deforestation), sustainable forest management, and reforestation.
2. Review Institutional setup. All the three (3) countries have already embraced the REDD+ strategy at a national level. It will however, require that focus and buy in is obtained for a REDD+ project in the GVL through a collaborative approach. Given the diversity of institutions that may be relevant in this kind of effort it would be prudent from the outset to select the agencies to work with. For example in Uganda there is the District Forest Services, the FSSD and NFA; given the technical nature of particularly monitoring and measuring the REDD+ impact NFA would be the most suited even though legally/officially it is FSSD and DFS that are responsible for timber and charcoal trade.
3. Raise awareness among stakeholders and consult. Even though the REDD+ approach is no different from the typical forest management practices and objectives it is in actual fact a conservation funding mechanism that requires commitments and guarantees from governments, communities and other stakeholders to act responsibly. The awareness would have to focus on the REDD+ components and the required benchmarks.
4. Select sites. The GVL is a large area geographically; some areas would have to be prioritized. Possibly the “illegal activity hotspots” for timber and charcoal production.

B) Project Design Phase

1. Define activities and interventions – particularly activities to address illegal timber harvesting and charcoal burning. Determine the role of the respective forestry and wildlife agencies given the overlap in mandate in a number of areas. Determine role of other stakeholders.
2. Determine expected emissions reductions - How will the project calculate GHG benefits? What carbon pools will be measured? How often?

3. Consult with local communities and stakeholders - What are the social and environmental impacts? How will the project respond to stakeholder concerns?
4. Analyze the financial costs and legal issues - What are the upfront costs and what are the expected financial flows over the life of the project? What agreements must be signed?

C) Project Design Validation and Registration

1. Undertake a third party audit.
2. Ensure the project used an appropriate methodology.
3. Check if the appropriate steps have been followed – Have stakeholders been consulted? Does the project fit in with the policy and legal framework?
4. Check considerations for calculating its expected emissions reductions correctly. Ensure the baseline is correctly determined.

D) Project Implementation

1. Sign and implement all landowner and partner agreements - Lease land, negotiate site protection or maintenance contracts, government and community agreements, benefit sharing arrangements.
2. Implement project activities
 - a. Implement forest protection activities: patrolling/monitoring, fire prevention, conservation, incentive agreements, etc. - Design alternative livelihood and community benefit activities
3. Monitor project impacts - Monitor deforestation rates in project site - Monitor and mitigate leakage - Monitor Social and ecological impacts
4. Community Engagement and Education - Capacity building (project basics and activity specific) - Project partners, community groups, and local government.

Model 4: Promote Sustainable Charcoal Production as an Enterprise

Rationale

According to estimates computed in this study, the demand for charcoal within the GVL was estimated to be approximately over 800,000 tons in 2012. (i.e. Eastern DRC; 408,181 tones, Western Uganda 49,079; and Rwanda 364,686 tons respectively). With an average annual population growth rate of 3-4% coupled with an already high population, the demand for resources from the protected areas will continue to be high given that there are few alternative sources for energy. Alternative sources of energy such as electricity, gas, solar are relatively expensive and/or not available or accessible to the majority of the population, thus charcoal remains the major energy source that is readily available and affordable by the majority of people in urban areas in the GVL region.

Despite efforts by the PAAs (e.g. ICCN), forest agencies and local governments in Uganda to control or stop the charcoal trade, charcoal production continues to be illegally done within and outside protected areas further exacerbating forest destruction, habitat and species loss in the region.

The study therefore recommends that future strategies for improved livelihoods and conservation around protected areas should consider promoting sustainable charcoal production as an enterprise that supports community economic development and conservation. The study considers the aspects listed in Box 6 as the basis for the recommendation.

Box 6: Considerations for Charcoal Production

1. Charcoal production and trade is already a source of livelihood for the majority of the local people, impacting on all the categories of the community, i.e. the youth and adult males involved in charcoal production and trading, the women in transportation and retailing in markets and local outlets assisted by children.
2. The demand for charcoal is inelastic and prices continue to rise while the supply is dwindling due to reduced forest and tree cover.
3. Continued illegal production and unsustainable harvest from forests thus leading to forest degradation.
4. Inefficient charcoal production using traditional charcoal kilns that have a lot of wood waste and low productivity. Efficient charcoal kilns will reduce on waste and maximize production, thus reducing pressure on the forests.
5. Charcoal as a commodity product is undervalued and yet it has an extensive supply and value chain through which it contributes or can considerably contribute to the local and national economy.
6. Promoting charcoal production as an economically viable enterprise will enable local people to earn considerably higher revenue, and thus motivate them to protect and sustainably manage the forests as a resource base for the enterprise.
7. Potential for improving community livelihoods, contributing to national economy and conservation.

Enabling Policy

Currently charcoal related legislation is scattered between the forestry and energy sectors and local governments. There is no institutional structure for charcoal production, trade and regulation. Current policy guidance emphasizes law enforcement with no incentives for proper production and trade. A clear policy framework with an institutional home for all three countries is therefore required and regulations harmonised at local, national and regional level given the magnitude of the cross-border trade in charcoal.

Model 4	Promote Sustainable Charcoal Production as an Enterprise	
<p>Indicators</p> <ul style="list-style-type: none"> • No of Charcoal production licenses issued out. • Registered charcoal production statistics. • Rate of habitat degradation in charcoal producing areas • Trends in illegal charcoal production and trade. • Income returns to the charcoal producers • Revenue returns for local/national governments 	<p>Outcome:</p> <ul style="list-style-type: none"> • Positive contribution to livelihoods of communities involved in charcoal production and trade. • Improvements in sustainable charcoal production methods. • Investment in tree planting for charcoal production at individual and institutional level. • Effective monitoring and tracking of charcoal production and trade. 	<p>Output:</p> <ol style="list-style-type: none"> 1. Charcoal production and trade recognized as a Sustainable Forest Enterprise. 2. Revised guidelines for charcoal production and trade. 3. Technical guidance and dissemination of improved charcoal production methods

from charcoal trade	
Management responsibility	GVTC Technical agencies responsible for Forestry and Energy in the respective countries
Key activities	<ul style="list-style-type: none"> • Negotiate for buy-in by forestry and conservation agencies to recognize charcoal as an enterprise that in actual fact could promote conservation. • Review and revise forestry and energy policies regarding charcoal production and trade as an economic enterprise. • Formulate a new policy guideline for charcoal production and trade including licensing procedures and fees. • Provide technical guidance on appropriate charcoal production tree species, charcoal kilns and conversion rates. • Provide guidance on investment in tree planting for charcoal production. Integrate timber and charcoal production. • Work with beneficiary groups to enhance monitoring and tracking to check illegal production and trade to avoid market distortions. • Undertake market research for demand and supply and advise on price setting in relation to other energy sources. Package and brand appropriately including mass labels i.e kilograms • Identify and work with local champions and communities that are already engaged in the charcoal production and trade. • Awareness raising among general public on actual value of charcoal and the need to switch to other energy sources or use charcoal in combination to gas and electricity.
Budget needed	An estimate of 1,000,000 US \$ for phase 1. Budgetary costs will include: Awareness raising among stakeholders. New policy formulation. Investment in applied research on charcoal production techniques including species, kilns etc. Investment in market reasearch for fees and price setting. Start up capital as loans or grants to selected individuals/communities based on approved criterion.
Staff needed	Existing staff with GVTC working with Forestry and Energy departments.

Methodology for development and implementation of the Charcoal Production Enterprise

To implement this module a lead agency must be identified and an institutional structure put in place. This study recommends the respective Forestry Agencies in each country become the lead agencies with the Protected Area agencies as key collaborators. Although there is a shared responsibility with the Energy Departments, these take on a broader energy outlook including solar, gas, oil, electricity and charcoal gets overlooked. Nonetheless the Energy department remains a key stakeholder to

provide technical support. While within the Forestry agencies the economic and livelihood value of charcoal is not fully taken into account instead the law enforcement aspect is the key concern.

In promoting the charcoal production enterprise the study recommends two approaches for implementing the enterprise:

1. Working with interested community members organized in groups or associations of common interest and objectives.
2. Working with champions from within the community as private entrepreneurs who are willing to invest in the enterprise and create employment.

The following preliminary steps will be critical for the enterprise to be initiated:

1. Negotiations and buy in-by protected area authorities and other relevant agencies in natural resources management
2. Feasibility analysis involving but not limited to cost-benefit analysis, market and chain supply analysis and development, environmental, social and technological analysis.
3. Environmental Impact Assessment (EIA)
4. Selection of sites for implementation of the enterprise outside protected areas.
5. Identification of potential community members and champions to work with
6. Participatory planning and development

Box 7: Criteria for Identification of Champions and community members

Identification Criteria for Champions

1. Those already involved in the activity and are from within the respective community
2. Commitment to the business by willingness to cost share
3. Capable leaders who are respected by the identified interested groups
4. Groups with startup resources

Model 5: Revise public procurement policies and procedures to exclude illegal timber

Procurement policies and procedures do not specifically exclude supply and use of illegal timber, the emphasis is on quality and price. The misleading assumption is that timber on the market is legally obtained and if it is not, the duty of verifying and taking action lie with the national forestry regulatory agencies in the respective countries. Procurement policies and procedures for timber should equally emphasize legality of timber supplies including supplies from another country. For example it is contradictory for governments to ban use of chain saws for sawing timber and yet government entities e.g schools buy chain sawn timber for construction or furniture. Public procurement policies and procedures for government and donors therefore, need to be revised to include the aspect of legality of timber supplies, which should be verified by the national regulatory agencies

Model 5: Revise public procurement policies and procedures to exclude illegal timber	
Justification	
<ul style="list-style-type: none"> • Procurement processes emphasizes quality and price not on the legality • Government contradicts itself - bans use of chain saw buys chain-sawn timber • Contracts involving use of timber do not emphasize legality • Would discourage illegal timber from another country 	
<u>Activities</u>	<u>Outcome:</u>
<ul style="list-style-type: none"> - Review public procurement laws and policies - Ministries design specific guidelines for procurement of timber - Definition for legal timber must be agreed across the board - Timber traders associations established, registered and awareness about legality requirements raised and can be accessed by markets that require legality. - Prequalification of timber suppliers by ministries - Timber traders harmonise prices and include costs of legality sourcing for their products 	<ul style="list-style-type: none"> - Public procurement contracts cease to be a driver of illegal logging and trade - Procurement contracts become an incentive for compliance with forestry regulations and laws - Other big consumers and donors such as construction companies , education and works are inspired to develop their own internal guidelines to support legal sources of timber - Timber traders associations are motivated by demand for legal timber from public / government procurements - Improved compliance with laws on timber trade - Self-regulation by timber traders
Management responsibility	Ministry of Environment, and National agencies for Procurement at all levels

Implementation

The GVTC should draw the attention of the respective Ministries of Environment through its partners of the need to revise the public procurement policies and regulations as regards procurement of timber. The respective Environment Ministries would then take the lead to propose changes working with the Public Procurement Agencies and donor institutions. There will be need to engage the timber traders and construction firms from the outset.

5. Illustration of Combined Routes and Hotspots of Illegal Activities in the GVL

The map below (Figure 22) shows routes and hotspots of timber, charcoal and wildlife illegal activities

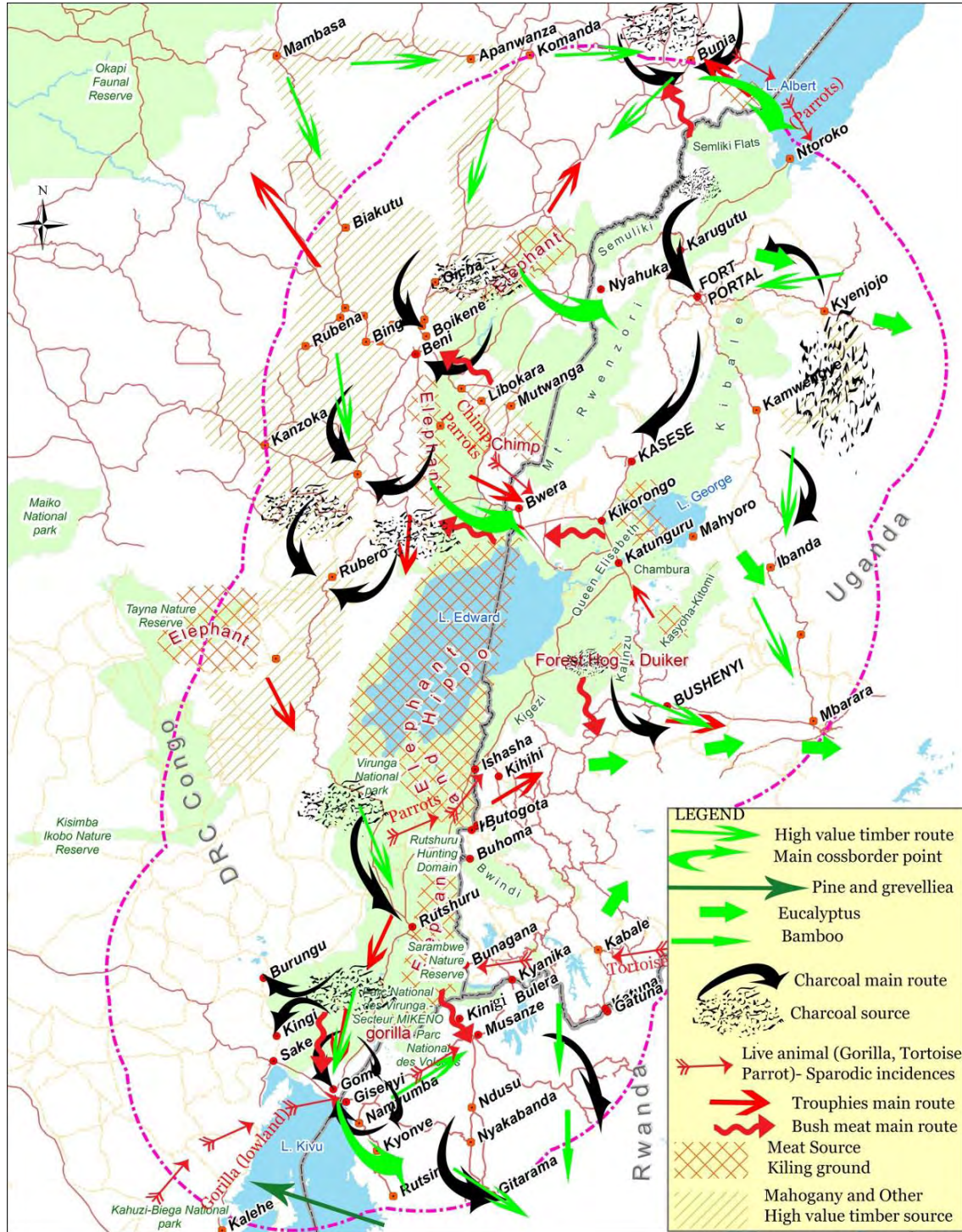


Figure 22: Map showing timber, charcoal and wildlife trade routes and harvesting hotspots

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7. APPENDICES

Appendix 1: Proposed Methodology and Data Collection

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
Specific Objective 1: To undertake research on timber, charcoal, and wildlife trade and market dynamics in the Greater Virunga Landscape (GVL)			
1.1	Mapping the routes and illegal activity hot spots	<p>What exactly is illegal timber, charcoal and wildlife trade?</p> <p>Which are the respective sources of illegal timber, charcoal and wildlife products?</p> <p>What wildlife and wildlife products are traded in?</p> <p>What other forest products are traded in?</p> <p>Which are the illegal activity hotspots in the respective PAs?</p> <p>What specific products are extracted from the different PAs?</p> <p>What routes (legal and illegal) are used for transiting the timber, charcoal and wildlife and wildlife products?</p>	<p>Examine protected area law enforcement reports and monitoring data (RBM in PNV and PNVi and MIST data in UWA) including reports from forestry agencies (NFA, Forest Departments of Rwanda and DRC based in Goma)</p> <p>Literature review on regional timber and wildlife trade include reports from government agencies and independent studies.</p> <p>Key informant interviews and discussions with protected areas and forest reserves managers (UWA, ICCN, PNV), rangers, informants within communities, police, customs, immigration officers and security operatives e.g. UN.</p> <p>GPS readings of key illegal activities and hotspot areas and mapping them. This will also include overlaying and validating any existing mapping of trade routes.</p>
1.2	Document markets fuelling illegal trade and direct consumption of forest and wildlife resources	<p>Who is involved in the trade of the different products – at the source, in transit, at the point of sale? <i>community members (men, women, youth)?, local authorities?, middlemen?, dealers?, governmental officials & politicians?, security personnel (police, army)?, PAA staff, other), how are they involved?</i></p> <p>Which are the different destinations for the illegal products from the GVL? <i>Markets and end users</i></p> <p>Who are the end users?</p> <p>Are there alternatives to the products?</p> <p>What hampers legal trade? <i>Procedural requirements, licensing, the</i></p>	<p>Investigative interviews with informants identified with collaboration of the protected areas and forest managers.</p> <p>Key informants will be identified within the local authorities, community members, law enforcement & security agencies such as police, the army,, protected areas and forestry staff, customs and immigration staff</p> <p>Consultations with selected media (both international and local), staff in the region.</p>

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
		<i>law, international treaties?</i>	<p>Interviews and discussions with relevant conservation agencies in the region these include; WWF, IGCP, Green Watch, ARCOS, WCS, and others working in the region</p> <p>Collaboration with LATF and CITES agencies</p> <p>Review of media reports/publications on illegal forest products and wildlife trade in the region.</p> <p>Examine/review relevant customs reports and data at border customs exist & entry points. Literature review of reports and documents of organisations and CSOs working on conservation and illegal trade issues in the region these include; WWF-UCO & DRC-Goma), WCS, ARCOS, Nature Uganda etc.</p> <p>Internet search, on destination markets & dealers</p>
1.3	Establishing the seasonality, quantities, volumes, and species	<p>Which season(s) do the illegal activities mostly happen and why?</p> <p>Which species are targeted and for what purpose?</p> <p>Who accesses respective products?</p> <p>What are the quantities/volumes?</p>	<p>Review of law enforcement reports of forestry and wildlife agencies, protected areas monitoring and RBM reports and customs.</p> <p>Analysis of timber confiscations by species and volume. And auctions by the forestry agencies. Review of records and licensing by authorities.</p> <p>Investigative interviews within the markets and sample recordings of product volumes; i.e. in the timber markets & hubs, charcoal markets and source areas.</p> <p>Review of existing literature on off take and illegal trade assessment reports</p>
1.4	Establishing the drivers, underlying causes, and those involved	<p>What is neighboring community attitude towards resource conservation?</p> <p>What is the community understanding of the impacts of over use?</p> <p>What is the policy framework for trade in forestry and wildlife products?</p> <p>What are the stakeholder perceptions, especially private sector?</p>	<p>Review of existing policy framework on forestry and wildlife products use.</p> <p>Interviews and consultations with stakeholders; community members, private sector, PAA staff, Forestry staff, local authorities, conservation agencies (WWF,</p>

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
		<p>Are there alternative livelihood activities?</p> <p>Are there sustainable legal trade mechanisms for some of the products?</p>	<p>WCS.), government officials (CITES scientific and management authorities), GVTC, Internet search</p>
1.5	Document effects of illegal trade in forest products on the potential for REDD+ financing	<p>What was the Conservation status 20 to 30 years ago?</p> <p>What has heightened illegal activities?</p> <p>Would the forest reserves in the area qualify for REDD+ financing based on the current forest/biomass cover and forest protection effort?</p>	<p>Understanding and applying REDD+ financing criteria and mechanisms.</p> <p>Review conservation status and protection effort of existing forests</p> <p>Document perceptions & opinions of conservation NGOs, local government, protected and forestry managers, CSO, as these have a bearing on long term commitment to REDD+ objectives.</p>
1.6	Investigate and document forms of illegal practices such as concealing etc	<p>What are the products traded in illegally?</p> <p>How are they packaged?</p> <p>How are they transported?</p> <p>What are the concealment methods?</p> <p>How are the crimes abetted along the chain (from source to destination)?</p> <p>What kinds of documentations (CITES, Customs, Timber certification etc) are required and how are they verified?</p>	<p>Investigative discussions with immigration and customs officials, Police, PAA and Forestry Staff, interviews with key community informants.</p> <p>Review of media publications and information from internet. LATF, TRAFFIC and ETIS reports on illegal Wildlife trade Other reports & publications</p>
1.7	Assess existing timber tracking mechanisms	<p>What are the timber trade policies governing timber trade in the 3 countries?</p> <p>What timber tracking mechanisms exist in the 3 countries?</p> <p>Who is involved in timber tracking?</p> <p>How effective are the tracking mechanisms in place?</p> <p>Is there a central data base or coordination between respective agencies involved?</p>	<p>Review timber trade policy guidelines for Uganda, Rwanda and DR Congo</p> <p>Review existing customs practices in respect to timber trade for the 3 countries.</p> <p>Review of monitoring reports & data for the Forestry agencies on timber trade</p> <p>Interviews with Senior forestry and customs and customs officials</p>
1.8	Review existing litigation provisions in relation to illegal timber trade,	What are the existing policy and legal frameworks on management of forestry and wildlife resources and particularly trade in the products?	Review policy and legal documents; Wildlife Policies and laws in the three countries, Forestry Policies and

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
	charcoal and wildlife trade in the local and central government authorities in the GVL	<p>Are penalties for illegal trade in timber, forest products, wildlife and other crimes appropriate to deter crimes?</p> <p>Is there harmonization of the different legal frameworks to effectively address forestry and wildlife crimes and illegal trade?</p> <p>Is legal trade in forestry and wildlife products clearly defined and provided for in the existing policy and legal frameworks?</p> <p>Have international treaties/regulations such as CITES, LATF and others on timber trade been domesticated within the national laws and regulations?</p>	<p>laws; Local Government Acts, and any Bye-laws, Relevant Customs and Immigration regulations and policies.</p> <p>National Wildlife and Timber/forestry regulations, CITES regulations. Literature on policy and legal review briefs at ministerial level, CSO, policy and legal analysts</p> <p>Review of legal cases on wildlife crimes and illegal timber</p> <p>Interviews with PAA and forestry authorities, Local government authorities, representatives of responsible ministries in the three countries; Judiciary representative e.g prosecutors, police/CID .</p> <p>Consultation with CSOs such as ACODE, and legal and policy analysts.</p>
1.9	PA efforts to managing trade in timber, charcoal and wildlife resources within and the cross-border	<p>What are the current Law Enforcement efforts by the respective agencies?</p> <p>What are the capacity gaps that need to be addressed?</p> <p>What transboundary collaborative efforts exist?</p> <p>What are the licensing/permit guidelines in place for products off-take and legal trade?</p> <p>Are there monitoring and data collection mechanisms on (illegal) trade, information sharing mechanism between stakeholders?</p> <p>Conservation NGOs, security and other law enforcement agencies, Positive involvement of private sector players/users/ traders and communities.</p> <p>Are Community Forestry Management & Wildlife utilization schemes effective in checking illegal activities?</p>	<p>Review of field notes of rangers, minutes of meetings, legal cases, etc. GMP plans, annual operational plans and strategies, annual and quarterly reports of PAA and forestry departments at the operational level</p> <p>Collaboration with international agencies; Interpol, CITES, LATF etc,</p> <p>Review of CFM and wildlife utilisation monitoring reports</p> <p>Interviews and discussions with private licensed wildlife products dealers, licensed timber dealers,</p>
1.10	Regional efforts at addressing illegal trade in timber, charcoal and wildlife	<p>What data exists at regional level on illegal trade in timber, charcoal and wildlife?</p> <p>What is the extent of illegal trade of products originating from Virunga in the regional markets and beyond?</p> <p>What are the regional mechanisms in place to address illegal trade</p>	<p>Review EAC relevant protocols.</p> <p>Review LATF, TRAFFIC and ETIS reports and interview key officials</p> <p>Internet search</p> <p>International NGO efforts in the region to address illegal trade</p>

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
Specific Objective 2: Document effects of the timber, charcoal and wildlife trade on the habitat and species of the protected park and forest areas in the GVL			
2.1	Establish loss of forest cover as an indicator of habitat loss based and biomass (volumes).	Select cloud free satellite images representing the 1980-90 period and 2000- 2010 period Satellite imagery and vegetation maps, Stakeholder information Previous studies	GIS mapping of trends/changes in land and biomass cover in 50km radius of protected areas in GVL. Changes will be considered for the last 30 to 10 years/or as per available data in the three countries. Analysis of biomass (Volumes) harvested (lost) Consultations with conservation agencies and research institution such as WCS, Karisoke Research Centre, ITFC, WWF
2.2	Establish the conservation status of the most affected species by illegal trade in relation to CITES and IUCN red list	Types of species, both fauna & flora, and their occurrence in the GVL (common, endemic, endangered), CITES and IUCN red lists documentation, Timeline: conservation trends	CITES categorization and IUCN red lists to document the current conservation status species in the GVL Review census data of animal species and plant check lists.
2.3	Generate relevant GIS / Remote sensed or other electronic illustrations of the findings	Access to satellite images, timelines. Spatial representation of all map and satellite data outputs in a GIS	Review of existing map data and information on forest /biomass cover for the forest reserves in the different countries. Where deficient and or nonexistent, appropriate satellite images will be acquired and used to derive forest biomass/cover maps. Maps on the routes and illegal activity hot spots, forest biomass/cover, etc, will be prepared in ArcGIS software. A corresponding database will be established in Microsoft ACCESS and metadata information describing the data) prepared for future updates and use.
2.4	Establish /take stock of the current and future available alternatives (forest resources) within the 50km radius from each of the protected areas in the GVL	Document current standing stock and available biomass within 50km radius of the aforementioned mentioned protected areas Document alternatives to timber currently in use and extent of use. Document alternative energy sources, adaptability and extent of use What are the alternative renewable and efficient energy sources being promoted? What has been done; what has worked & why, what shows; what has not worked& why not; stakeholder perceptions.	Use of GIS –buffer function in delineating the 50m radius from each of the targeted protected area Use local and IPCC biomass stock default values to estimate standing stock biomass Use population data and information on forest resource harvests to estimate available biomass Ground truthing in selected key sites/hotspots as through interviews and remote sensing techniques

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
			<p>Review of environmental projects' reports and documents (WCS, IGCP, WWF) in the region; NFA and District forest services activities and reports as well as project documents,</p> <p>District Environmental Action Plans, review CFM and tree planting strategies at local government and national level.</p> <p>Interviews and discussions with private and community CBOs engaged in tree planting and forest rehabilitation</p>
2.5	Establish cost-benefit analyses of feasible conservation-based enterprises for economic development in the communities adjacent protected areas in the GVL	<p>Types of resources mobilized; sufficiency; indications of sustainability & at what level.</p> <p>List of resources, budget support, contributions by different groups; timeliness (link with timeline)</p> <p>Benefit margins of the enterprises; unintended outcomes in households/communities; changes in livelihood patterns</p> <p>The benefits of the intervention to conservation, if any; observed changes/implications to conservation; unintended outcomes? Changes in attitudes and practices towards conservation.</p>	<p>Examine revenue and expenditure streams of key selected enterprises in the region to determine benefit margins</p> <p>Assess trends/changes in household livelihoods engaged in selected enterprises based on available baselines and current situations</p> <p>Review M + E of the performance of the enterprise with regard to impacts on conservation and attitudinal changes</p>
Specific Objective 3: Propose practical solutions to mitigate illegal trade, habitat degradation and promote economic development in the GVL			
3.1	Defining entry points to curb illegal trade in timber, charcoal and wildlife products	<p>Activities by PAA, conservation NGOs, relevant government institutions; activities by other partners</p> <p>Stakeholder perceptions and support,</p> <p>Monitoring mechanisms in place; resource requirements and mobilization</p>	Summarised actionable recommendations on what can be done, by who/responsible agencies, monitoring indicators and mechanisms, collaborative mechanisms between the relevant agencies & departments, capacity building strategies
3.2	Validating through consultations recommendations from other related studies and screen out the most feasible ones in the short, medium and long terms	Stakeholder perceptions, relevant recommendations from related studies and analysis of the applicability to the current issues of illegal trade in timber, charcoal and wildlife.	Matrix of relevant and validated recommendation compiled with applicability in the short, medium and long term.
3.3	Document key recommendations in a	Recommendation on key aspects such as;	Action plan with modules/units each presented with what

Num	Key details of interest as outlined by WWF	Key questions to consider and issues to document	Methods
	modular form answering the how, what, motivations, with illustrative models to ease future implementation	<ul style="list-style-type: none"> -Monitoring and data collection on illegal activities and trade -Law enforcement and information sharing among the respective agencies and departments -Sustainable alternatives for forest resources and energy -Positive involvement and engagement of private sector players & communities 	to be done, how, by who, resources/suggested sources where possible and monitoring mechanisms
3.4	Proposing structural and other changes needed to implement the recommendations	<ul style="list-style-type: none"> Policy and legal reforms/provision to improve legal trade Improved policy implementation 	<ul style="list-style-type: none"> Enabling environment; legal and policy provision Capacity building- skill development, logistics and institutional structures as well as human resources Collaboration between institutions and linkages
3.5	Dissemination of findings in form of presentations and summary versions	<ul style="list-style-type: none"> What are the most effective ways of disseminating findings/ What are the key recommendations and to whom should they be addressed? 	<ul style="list-style-type: none"> Power point presentation, GIS maps and data, photos and Discussion paper/briefs

Appendix 2: Terms of Reference for the Consultancy

Background

The Greater Virunga region is a priority for conservation in Africa. It is one of the richest ecosystems in the world in terms of species diversity and endemism. It is also the home of the world's most endangered great ape, the mountain gorilla, along with thirteen other endangered mammal species. Similarly it has a good climate and fertile soils (most of the area being volcanic) and therefore supports a huge population, probably with the highest rural population density in Africa. In the recent past, there was high insecurity with a large population being internally displaced or moving across borders to avoid the insecurity. The combination of a high population density and high conservation status have resulted in several challenges which need to be addressed if the endangered species and forest habitats are to be maintained and degraded ones improved.

Conservation of the Greater Virunga landscape which transcends boundaries can only be feasible when implementation is undertaken at a trans-boundary level. Already efforts to this end have been initiated and just need strengthening especially through periodic consultations and planning. A trans-boundary strategic plan¹⁶ was consultatively developed and approved in 2006 providing an initial assessment of what needs to be done at trans-boundary level.

Human population pressure and insecurity are two of the greatest threats to the biodiversity in the region. As the population settles down to their major economic activity, agriculture, it is important that the conflicts arising out of wildlife moving out of protected areas and destroying the crops and livestock are addressed to reduce the conflict and garner support for conservation. Limited work has also been done to address habitat loss and reducing threats to degradation. There have been efforts to reduce the level of illegal activities such as timber and charcoal trade, poaching and wildlife trade with appreciable success, especially in Rwanda and Uganda. However a lot of work still needs to be done to document the extent, dynamics and propose actions to bring this further down to acceptable levels.

WWF UCO with support from Norwegian Embassy through Greater Virunga Transboundary Cooperation (GVTC) is to undertake documentation of the extent of timber, charcoal and wildlife trade in the Greater Virunga Region as part of the data needed to review the GVTC strategic plan. This study will be executed in partnership with the conservation agencies and non-governmental organizations in the area.

Geographical scope of the consultancy

The study will be of trans-boundary nature and will be conducted in the countries of Uganda, Rwanda and DRC. It will cover all the protected areas in the Greater Virunga landscape as well as the adjacent communities within a radius of 50kms or adjacent districts. The protected areas include both forests and national parks especially those that are contiguous with each other. In Uganda the national parks include Semuliki, Rwenzori, Queen Elizabeth, Bwindi, Mgahinga and contiguous forest reserves of Kalinzu and Kashyoha Kitomi. In Rwanda the study will cover Volcanoes National Park and contiguous forest reserve while in DRC it is Virunga National Park (Northern, Central and Southern Sectors).

Study Objectives

¹⁶ Greater Virunga Strategic Plan (ARCOS)

The overall objective of the study is to document extent of illegal timber, charcoal and wildlife trade in the Greater Virunga Conservation Areas with the view of proposing measures to curb down the illegal practices.

The specific objectives shall include:

- A. To undertake research on timber, charcoal and wildlife trade and market dynamics in the Greater Virunga region.

Aspects to be covered include:

- a) Mapping the routes and illegal activity hot spots
 - b) Document markets fuelling illegal trade and direct consumption of forest and wildlife resources
 - c) Establishing the seasonality, quantities volumes and species
 - d) Establishing the drivers, underlying causes and those involved
 - e) Document effects of illegal trade in forest products on the potential for REDD+ financing
 - f) Investigate and document forms of illegal practices such as concealing, under-declaring, etc
 - g) Assess existing timber tracking mechanisms
 - h) Review existing litigation provisions in relation to illegal timber trade in the local and central government authorities in the Greater Virunga Landscape
 - i) PA efforts to managing trade in timber, charcoal and wildlife resources within and across the borders
- B. Document effects of the timber, charcoal and wildlife trade on the habitat and species of the protected park and forest areas in the Greater Virunga Landscape.

Aspects to be covered include;

- a. Establish loss of forest cover (habitat loss) over the last 20 years as a result of the trade
 - b. Establish the conservation status of the most traded species in relation to CITES and IUCN red list
 - c. Generate relevant GIS/ Remote sensed or other electronic illustrations of the findings
 - d. Establish/ take stock of the current and future available alternatives (forest resources) within the 50km radius from each of the protected areas in the Greater Virunga
 - e. Establish cost-benefit analyses of feasible conservation-based enterprises for economic development in the communities adjacent protected areas in the Greater Virunga
2. Propose practical solutions to mitigate illegal trade, habitat degradation and promote economic development in the Greater Virunga Region.

Aspects to be covered include;

- a) Defining entry points to curb illegal trade in timber, charcoal and wildlife products
- b) Validating through consultations recommendations from other related studies and screen out the most feasible ones in the short, medium and long terms
- c) Document key recommendations in a modular form answering the how, what, motivations, with illustrative models to ease future implementation
- d) Proposing structural and other changes needed to implement the recommendations
- e) Disseminating findings in form of presentations and summary versions

Deliverables

The consultant should deliver on the following:

1. Inception report – showing interpretation of the terms of reference and the format of the report and data collection tools and methods
2. Draft report – spiral bound and soft copy showing responses to objectives and specific aspects in the terms of reference
3. Final report – 5 copies perfectly branded bound and soft copy showing responses to objectives and specific aspects in the terms of reference including;
 - a. Text backed by facts, figures, illustrations
 - b. Recommendations presented as models
 - c. Report summary for publication and dissemination
 - d. At least 15 original photos of good quality taken during the study

Time schedule

The consultancy is expected to take 30 days spread over a period of two months and scheduled to start on 7th December 2012.

The Consultancy Team

The consultancy team will require strong knowledge and experience of regional trade in natural resources particularly wildlife and forest resources. The consultant must have investigative abilities and capacity to get information from the different institutions involved. The team must have proven ability in working with stakeholders to draw out lessons, analysis and writing of technical reports, including excellent oral and written communication in English and French. Evidence of delivering results in time will be an added advantage.

Appendix 3: Wildlife trafficking in the GVL regions

Product	Source	Quantity (Unit)	Destination market	Remarks	
Timber	Beni, DRC		Uganda and Kenya through Kasindi port	From Ituri forest - counties of Witcha and Mtwanga; 20% from North Kivu, Walikali district; 80% from Mambasa and Ilumu in Orientale province	
	Bunia, DRC		Rwanda through Goma Kampala, Kenya	Via Ntoroko; prior to civil strife in DRC	
	Goma, DRC	On average. 1 truck per month/trader delivered in the Goma market. 1 truck of fuso has 4-5 m ³ . About 5 people combine to load and deliver one truck. Export twice per week, of 4 trucks and @ with capacity of 4-5m ³ (120 pieces @ at 50 US \$)		Rwanda	From districts of Lubelo, North Kivu; Masisi, West Walikali
	DRC - Kasindi	Markamia -4 lorries/week (5 tonnes capacity lorry) Mahogany- abt 8 lorries/week size of pieces- 4mx30cmx2.5cm. imports are captured in the customs statistics system in real time		Rwanda	
	DRC	400 pieces per year of Mahogany; 200 pieces per year of Mvule 500 pieces per year of Markhamia		Rwanda	Mahogany and Mvule of 14ft X 50cm X 10cm; For Ruhengeri Catholic Diocese
	DRC			DRC local markets	Eucalyptus and pines from DRC private plantations for timber boards
	Mpondwe, Uganda	3,000 tons		Kasese, Bwera, Kampala, Kenya	Via Nyahuka; very high demand in Kenya
	Ibanda, Kitagwenda and Kamwenge, Uganda	50 tons		Ibanda town, Rubindi, Mbarara	From private forests; Kasyoha-Kitomi and Kalinzu CFRs
	Nyamwesi, Uganda			Uganda, Kenya	Via Butogota
	Gishwati forest, Rwanda			All catholic church diocese workshops	Forest reduced from 28,000ha to 4,600ha; The biggest workshops in Kabagayi, Gitarama, Muhanga and Ruhengeri
	Rwanda private forests			Musanze, Kigali	Eucalyptus, Grevillia and Cypress spp. Adhere to tree cutting regulations and movement permits
Rwanda	2000 – 3000 pieces per year		All catholic church diocese	2m X 18cm X 2.5cm	

Product	Source	Quantity (Unit)	Destination market	Remarks
			workshops	
	Rwanda		DRC through Kivu	<i>Grevellia</i> spp. Need for lighter timber for boats and coffin making in DRC
Bamboo	PNV – Gataraga and Shingiro sectors		Within areas around the park	High demand for crafts materials and construction Poverty levels high
	Uganda		Rwanda	Via Cyanika Border; loss of forest and vegetation cover
Charcoal	Rwanda private farms – Kinigi sector	15-20 bags /week are sold in Gisenyi town	Rwanda: Musanze and Rubavu - Gisenyi towns	Free permits for domestic charcoal production; 5,000RW Francs for 3 months for commercial production. There is no charcoal burning from PNV Rwanda
	“Rwanda”	Average of 1000 bags /day of 50-55kg.	DRC	Considered an informal trade under by National Bank of Rwanda & MINICOM & TRADE national statistics.
	PNVi - DRC	2400 sacks /day, each of 55kg.	Rwanda and Goma DRC. In Rwanda charcoal is consumed in the border sectors of Mudende, Kabatwa, Kyanzarwe and Busesamana. The rest is sold in Goma through Gisenyi	Goma- all charcoal, 90% is from PNVi, North entry Munigi from Rutshuru; Rwanda through Ruhunda market in Kubumba
	DRC		Rusese, Uganda	
	Kibale, Kitagwenda and Kamwengye private lands	28 tons	Fort Portal, Ibanda, Rubindi and Mbarara towns	Severe forest degradation on public lands
	Kalinzu CFR		Surrounding towns	Licensed, controlled harvesting of <i>Parinari excels</i> trees
	Mt. Rwenzori area, Ihandiro subcounty		Bwera town	
Poles	Kibale, Kitagwenda and Kamwengye		Eucalyptus plantations	Private plantations for electricity poles
	DRC		Uganda via Kasindi port	From private plantations
	Uganda		Rwanda	Loss of forest and vegetation cover. 10 -20 years back, Kabale and Kisoro had more tree and vegetation cover
Reptiles	Chameleons from Uganda’s Bwindi Impenetrable National Park		Legal	Under the Wildlife Use Rights programme, Uganda, chameleons are legally traded

Product	Source	Quantity (Unit)	Destination market	Remarks
	Tortoises from Tanzania		DRC; other destinations	Tortoises arrested at Bunagana border point
Birds – Parrots	DRC Maniyema and Walakali forests in Orientale province		Outside Uganda	Via Ntoroko Customs border post; River Lamu; Bunagana and Ishasha; Cyanika - Uganda Via Goma / Gisenyi - Rwanda
Live animals				
Mountain Gorillas	DRC	9 individuals	Abroad; Middle East and Zoos	Transit through Rwanda 2 gorillas confiscated in Rwanda between 2005 -2010 A baby gorilla was confiscated in Gisenyi in 2011
Lowland Gorillas	DRC – Khausi Biega National Park	7 individuals		South of PNVi A baby gorilla in rehabilitation at Kinigi
Debraza monkeys	DRC	Unspecified numbers confiscated		DRC is home range
Chimpanzees	DRC – Mambasa and Walikali forests	2 chimps confiscated	Dubai and Asia	Via Goma and Kasindi; Via Burundi through Uvira/Bukavu
Bush meat				
Mainly Duikers	Uganda, Kasyoha-Kitomi CFR		Subsistence (local consumption)	
Mainly Duikers, buffaloes and bushbucks	Rwanda, Gataraga and Shingiro sectors		DRC; local consumption in Rwanda	Poaching mainly in the central and western part of the park bordering PNVi in DRC Poaching reduced because Batwa were resettled outside the forest
Hippos	Uganda and DRC, Bunia along major water bodies		Asian markets	Demand in Asia coupled with proliferation of automatic rifles in the region
Antelopes, monkeys, baboons, elephants	DRC – PNVi around Lake Edward and Central sector		DRC	Mainly consumed in DRC; sold house to house
Ivory				
Elephants tusks	Tanzania PNVi in the central	ICCN recorded 10 elephants /year in 2008 ICCN recorded 24 elephants /year in 2012	Asian markets; China	Transit through Uganda and Rwanda via Goma, Kasindi and Ishasha

Product	Source	Quantity (Unit)	Destination market	Remarks
	sector; Around major water bodies ¹⁷ ; Ishasha; Mabenga; Ishango; Vitchumbi; Rwindi Uganda, Queen Elizabeth National Park, Ishasha sector			Reduction in populations on both sides of PNVi and QEPA
Hippopotamus teeth	PNVi in the central sector; Around major water bodies ¹⁸ ; Ishango; Vitchumbi; Rwindi Uganda, Queen Elizabeth National Park, Ishasha sector		Asian markets; China	Hippo teeth to Uganda through Rutshuru and Ishasha; Reduction in populations on both sides of PNVi and QEPA

Source: extracted largely from field notes (January 2013)

¹⁷Rivers Muzizi and Semliki; Lakes Edward and Albert

¹⁸ibid

Appendix 4: Individuals, Groups and Institutions Consulted (January 2013)

	Name	Institution	Designation	Contacts (email & telephone)
UGANDA				
1.	Edward Asalu	Kibale National Park, UWA	Conservation Area Manager	
2.	Commanding Officer	Majoro Police Post, Ibanda		
3.	District Forest Officer	Ibanda District		
4.	District Forest Officer	Rubirizi District		
5.	Nelson Enyagu	Toro Semliki Wildlife Reserve, UWA	Assistant Warden Law Enforcement	enyagu.nelson@yahoo.co.uk +256782 363284
6.	Nelson Guma	Queen Elizabeth National Park, UWA	Conservation Area Manager,	ngumako@gmail.com +256702 140266
7.	Selevest Masereka	Toro Semliki Wildlife Reserve, UWA	Assistant Warden Community Conservation	ernest.selemaa@yahoo.com +256772 634206
8.	Byabagambi Warren	Nyahuka Police Post, Mpondwe	O/C CID Nyahuka	
9.	Sande Ainea	Nyahuka Trading Centre	Chairman, Timber dealers	+256772 963891
10.	Dan Tuhaise	Ntoroko URA, Uganda Customs	O/C URA	
11.	Timothy Muhairwe	Kabarole District FS	District Forest Officer	+256704970090
12.	Bridget Mbabazi	QEPA	CCR Nyamugasani	+256782 053115
13.	Mayola Kassim	Kayanja Parish	Secretary for production	
14.	Banganalya	Kayanja RU group	RU Committee & CPI	
15.	Koreta Isaac	Kayanja Parish	C/man LC II	
16.	Muthema Semu	Kayanja Trading Centre	C/man	
17.	Byarugaba Silver	Kayanja Landing Site	Fisherman	
18.	Stephano Thembo	Kayanja Trading Centre	Resident	
19.	Twikirize Joyce	Kayanja Landing Site	Fisherwoman / Charcoal dealer	
20.	Isango Resource Use Group	Isango – QEPA	Isango Resource Use Group	
21.	Mbusa Szezi	Isango	Community member	
22.	Pontious Ezuma	Bwindi Impenetrable NP	Conservation Area Manager	
23.	Community Elders	Bwindi Impenetrable NP	Nkwenda LC I elders / community members	
24.	John Makombo	Uganda Wildlife Authority	Director Conservation	john.makombo@ugandawildlife.org
25.	Samuel Amanyana	Uganda Wildlife Authority	Warden, Community Conservation	samuel.amanya@ugandawildlife.org
26.	Bakebwa Ismael	Mgahinga Gorilla National Park	Monitoring & Research Ranger	bismael78@gmail.com
27.	Rwamuhanda Levi	Mgahinga Gorilla National Park (MGNP)	Head Ranger	+256774718091
28.	Kukundakwe Apophia	MGNP	Ranger Guide	+256773264806
29.	Niwanyine Peace	MGNP	Ranger Guide	+256773507956
30.	Twesigye Silver	MGNP	Law Enforcement Ranger	+256777783128
31.	Tumushime Hillary	MGNP	Accounts Clerk	+256773337620
32.	Chelangat Latif	UPDF	SWIFT (Wildlife and Tourism Protection)	+256778743810

			Unit)	
33.	Odere John Crispus	UPDF	SWIFT	+256778706203
34.	Masaba Christopher	MGNP	Warden In Charge	cmasaba@gmail.com +256775906400
35.	Ahimbisibwe William	Uganda Revenue Authority	In charge Customs Cyanika	+256774112546
36.	Mudanga Vicent	Kisoro District Local Government	District Natural Resources Officer	vmudanga@yahoo.com +256753110556
37.	Munezero Richard	Kisoro District Local Government	District Tourism Officer	r_munezero@yahoo.com +256772932018
38.	SP Otim Bosco	Uganda Police Force, Kisoro District	District Police Commander	+256714667854
39.	Kyalimpa Julius	Uganda Police Force, Kisoro District	In charge of Records	+256774267579
40.	Pat Gamukama	Internal Security	Liaison Officer Bunagana Border	+256772849596 +256703537096
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42.	Keinamura Frank	Uganda Revenue Authority	In charge Bunagana Customs	+256788812554
43.	Capt. Davis Katunguka	Internal Security	Internal Security Officer -Mpondwe	+256774769691
44.	Byaruhanga Warren	Uganda Police Force	Officer in Charge Criminal Investigation Department Nyahuka	+245782355690
	Kiirya Stephen	District Forest Services	District Forest Officer-Ibanda	+256702621652
45.	Brigadier Kankyirihio	Uganda Peoples Defence Forces	2nd Divison Commander, Mbarara	+256755592633
46.	Frank	National Forest Authority	Sector Manager, Kalinzu	+256702112779
47.	Mugabirwe Ben	Uganda Police Force	AIP- Ishasha	+256772870901
48.	Richard Ojlong	Uganda Police Force	AIP- Uganda Police	+256772341540
RWANDA				
49.	Maxime Nzita Nganga	GVTC	Ag. Executive Secretary	zainmax@yahoo.com +250788300913
50.	Teddy Musabe	GVTC	Planning and Policy Development	tmusabe@gmail.com
51.	Eugene Rurangwa	IGCP	Programme Manager	erurangwa@igcp.org
52.	Kayijamahe B. Charles	IGCP	Species Specialist	ckayijamahe@igcp.org
53.	Benjamin Mugabukomeye	IGCP	Conservation Incentive Officer, Musanze	bmugabukomeye@igcp.org +256788531708
54.	Telesphore Ngoga	RDB-Tourism and Conservation	Senior Community Conservation Officer/Conservation Division Manager	telesphore.ngoga@rdb.rw +250788874321
55.	Dr. Tony Mudakikwa	RDB-Tourism and Conservation	Research & Monitoring, CITES Management Authority	antoine.mudakikwa@rdb.rw
56.	Francois Bizimungu	RDB-Tourism and Conservation	Operations & Planning Officer	francois.bizimungu@rdb.rw
57.	Dismas Bakundukize	Rwanda Natural Resources Authority	Director of Forestry and Nature Conservation	bakudismas@yahoo.com +250788625426/722625426
58.	Innocent Ntezimana	TURATE UBUHINZI – Kinigi (representing	President	+250 785082539

		Kinigi Sector Ex - poachers Association and the overall 4 districts/8 cooperatives bordering the park		
59.	Francois Ndungutse	AMIZERO –Kinigi (Umbrella of 16 cooperatives of ex-poachers operating around PNP	President	+250 783630536
60.	Musana Abel	RDB PNV-Rwanda	Research and Monitoring Warden	musana.abel@rdb.rw
61.	Prosper Uwingeli	RDB PNV-Rwanda	Chief Warden	prosper.uwingeli@rdb.rw +250788535949
62.	Ndayisaba Oreste	RDB PNV-Rwanda	Assistant Warden Community Conservation	ndayisaba.oreste@rdb.rw +250788767321
63.	Nyirakaragire Elizabeth	RDB PNV-Rwanda	Veterinary Doctor	
64.	Myasiro Tharlisse	Ruhengeri Catholic Church Diocese-Economat General-Musanze District	Workshop Supervisor	+250788635049
65.	Jules Ndashimye	Rwanda Revenue Authority	Gisenyi Customs Manager	juliusmye@yahoo.com +250288640348
66.	Sifa Monique	Rwanda National Bank-Gisenyi-Rubavu District	Field Data Officer	+250788701626
67.	Mwemezi Assumani	Rubavu District	District Forest Officer	assumanimwemezi@yahoo.fr + 250788512531
68.	Felix Bizimana	Rwanda Police Force-Rubavu District	District Police Commander	+250788311149
69.	Gatera Placide	Rwanda Police Force-Rubavu District	Police Officer	gateraplacide2007@yahoo.fr +250788311496
70.	Ngagijimana Jean Pierre	Musanze District Local Government	District Environmental Officer	+250788544779
71.	Umutoni Monique	Musanze District	REMA Intern	monicau2003@yahoo.fr
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73.	Mbarute Boniface	Rwanda Revenue Authority	Customs Manager-Cyanika	mbaboni@yahoo.fr +250788444024
74.	Thiery Hoza Ngoga	Rwanda Natural Resources Authority	Division Manager-Land Technical Operations	tnhoza@gmail.com +250788872720
75.	Musinguzi Fabien	Rwanda Police Force	Police Commander Kigali Airport	+250788496636
76.	Rugero Mark	Rwanda Police Force	Police Officer Kigali Airport	+250788430133
77.	Mutakirwa Denis	RPD, Kigali Airport	RPD Staff	+250788460293
78.	Dr. Rose Mukankomeje	Rwanda Environment Management Authority	Director General	+250788300208 dgrema@rema.gov.rw
79.	Zigiranyirazo	Bugeshi Sector	Veterinary Extension Officer	+250788613367
80.	Byukusenge Jean Dedier	Community- Bugeshi Sector	President of COTIKA Cooperative	+250783111925
81.	Mukeshimana Marie	Community -Bugeshi Sector	Member-ANICO Bugeshi	+250782216671
82.	Nkundumpaye Aminada	Community Bugeshi Sector	Uwahoze Arirushumusi-	+250787038119

			AKABATARI	
83.	Nkuriyimana Javan	Community Bugeshi	President of KORIBU Cooperative	+250788882704
84.	Ufitimana Juvenal	Bugeshi Sector	Sector Forest Officer	
85.	Ir. Nkurunziza Pierre Claver	Bugeshi Sector	Agriculture Officer	
86.	Ziragaba Pierre	Community Bugeshi	Member ANICO Bugeshi	
DEMOCRATIC REPUBLIC OF CONGO (DRC)				
87.	Ephrem Balole	ICCN	Planning Officer, Virunga National Park	ephrem@gorilla.cd +243998088046
88.	Jean Bosco Bihamakara	ICCN	Community Warden Virunga National Park	
89.	Mushenzi	ICCN	Director, Virunga National Park	
90.	Muhindo Kimbesa	ICCN-	Inspector, Virunga National Park	+243820600779
91.	Papy Shamavu	WCS- D.R. Congo Programme	Project Manager Virunga Conservation Project	pshamavu@wcs.org +243993075560
92.	Joseph Mutokambali	Directorate of Natural Resources North Kivu Province, Goma, DRC	Chef Bureau Conservateur, Forests	bodjokaj@yahoo.fr +243994067221 +243853805764
93.	Byamungu Deo Libuyu	Association of Timber Dealers; Goma	Executive Secretary	+243994183768 +243853374287

Appendix 5: List of satellite images selected from

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