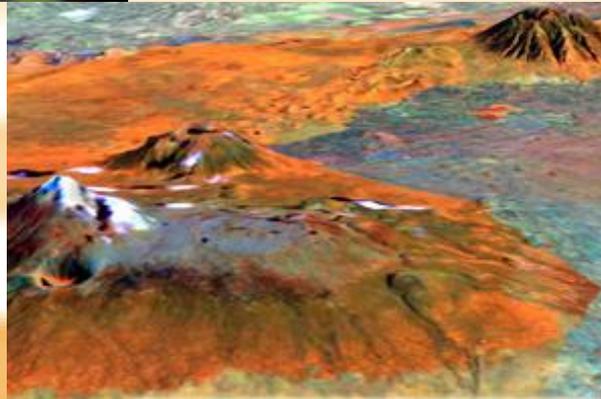


# Peace Park amid Violence?

a report on environmental security  
in the Virunga-Bwindi region

Eric van de Giessen



IES  
The Hague  
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## Prototype EnviroSecurity Assessments

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# Introduction

*“Many wars are fought over natural resources, which are becoming increasingly scarce across the earth. If we did a better job of managing our resources sustainably, conflicts over them would be reduced. Protecting the global environment is directly related to securing peace.”*

Prof. Wangari Maathai, Winner of the Nobel Peace Prize 2004

The border region of Rwanda, Uganda, the Democratic Republic of Congo (DRC) and Burundi has been the theatre of continuous violence for over almost one and a half decade. The most well-known tragedy in the region was the genocide in Rwanda in 1994, followed by a massive flow of Hutu ethnic people fleeing towards eastern DRC, then-called Zaire. Estimates from OCHA point out that since the outbreak of conflict in Rwanda almost 5 million people have been killed and millions displaced. Despite of official peace settlements there is still a lot of violence and unrest in the region, especially in Rwanda, Burundi and eastern DRC. It is estimated that in the DRC still 1,000 people die every day as a result of the war (ICG,2005).

Although difficult to identify the main factors behind the conflicts, a variety of factors –e.g. ethnic tensions, socio-economic motives- seem to play an important role. It is increasingly recognized that, in order to understand the massive outbreak of violence, also the role of natural resources should be seriously taken into account. The precise roles of the environment in peace, conflict and human insecurity are still being debated in relation to other security and conflict variables. Nevertheless, it seems that environmental factors are increasingly an underlying cause of instability, conflict and unrest.

For a variety of reasons, the African Great Lakes region is an extremely interesting area. Being a border region gives the conflicts a special political and geographical dimension, which should be recognized in order to understand the conflict. First, border areas are relatively prone to violent conflict, as a result of international disputes or spill-over effects of tensions. The persistence of violence and the flow of refugees in the Great Lakes region have indeed had many transboundary spill-over effects. Second, borders are all the more interesting when taking into account the integration of mineral resources into conflicts. Le Billon (2001) points out that “the greater the distance or difficulty of access from the centre of control, the greater the cost of control and the higher the risk of losing the resource to the adversary” (Le Billon 2001:34). Rebel groups will thus more likely be able to capture resources close to a border than resources close to the centre of control. Therefore, a border region makes it also easier for rebels to hide from the official authorities. Third, international borders are commonly drawn along natural divisions, like mountain ranges, rivers and lakes. As many of these features are biologically interesting and have a high conservation value, protected areas are often established in border regions. Therefore, apart from the humanitarian tragedies it is also strongly feared that the conflicts have (had) a great impact on the environment, and specifically the areas of high conservation value.

Special attention in this report is provided to the afro-montane forest area in the border area of the DRC, Rwanda and Uganda: the Virunga-Bwindi region. It is feared that this region is seriously damaged during the past fifteen years, since the outbreak of war in the region, by troops, rebels and refugees. This volcanic region, part of the Albertine Rift, harbours exceptional species richness and diversity. It contains a high proportion of endemic species and significant numbers of rare and threatened wildlife. Despite the ongoing violence and instability in the region, it is the habitat of the last remaining mountain gorillas of the globe.

### *Purposes of the study*

This study is carried out for the Institute for Environmental Security (IES) within the framework of the Horizon 21 Programme. This programme has been designed to draw political attention to environmental security, in order to prevent conflict, instability and unrest. The Horizon 21 Programme integrates the disciplines of science, diplomacy, international law, finance and education. It aims to provide policy-makers with a methodology and the policy tools to tackle environmental security risks in time in order to safeguard essential conditions for sustainable development. In this context, IES currently works on Prototype EnviroSecurity Assessments. It is the objective of these assessments to come up with recommendations to international decision makers on the protection of specific eco-regions. These recommendations should be based on a profound analysis of perceived trends, opportunities and threats. The final report will integrate thematic maps, based on remote sensing data (observations and forecasts), alongside policy, legal, financial and educational aspects.

The mountain gorilla habitat is one of the three Prototype EnviroSecurity Assessment case studies. This specific report contributes to the EnviroSecurity Assessment by providing an outline of the socio-economic and political situation in the region. It will look into environmental insecurity, being an important factor in explaining the violent conflicts in this region, both in the past and nowadays. The special aim of this report is to make an analysis of threats and opportunities for the protection of the Virunga-Bwindi region

### *Research Objectives*

The aim of the research is threefold. The first aim is to get insight into the relative importance of natural resources in the origins and developments of the conflicts in the Great Lakes region. The second aim is to understand the relationship between resources and conflict specifically for the aforementioned national parks. The main focus of this report will be on the direct and indirect impact of the violence on the national parks. The third aim is to learn whether and how natural resource management, and specifically a transboundary approach, can generate peace and stability in the region. This analysis will lead to some recommendations in order to manage the Virunga-Bwindi region in a sensible manner, despite the ongoing chaotic situation in the whole Great Lakes region.

### *Methodology*

The report is the result of several months of mainly desk research. Unfortunately, due to financial and time constraints, as well as the rather unsafe current situation at the moment, it has been impossible for me to go into the field. The International Gorilla Conservation Programme (IGCP) serves as the main counterpart of the Institute for Environmental Security for information provision.

For information about the origins and dynamics of the violent conflicts, especially research reports and articles from magazines or newspapers have proved very useful, since much research has already been done about these issues. To get particular information on the Virunga-Bwindi region I have also used research reports and websites from all kinds of organisations active in that area. Particularly useful were the reports of IGCP about transboundary cooperation with regard to natural resource management. However, it remains rather difficult to get insight in the actual opportunities and willingness for transboundary cooperation among the different parties.

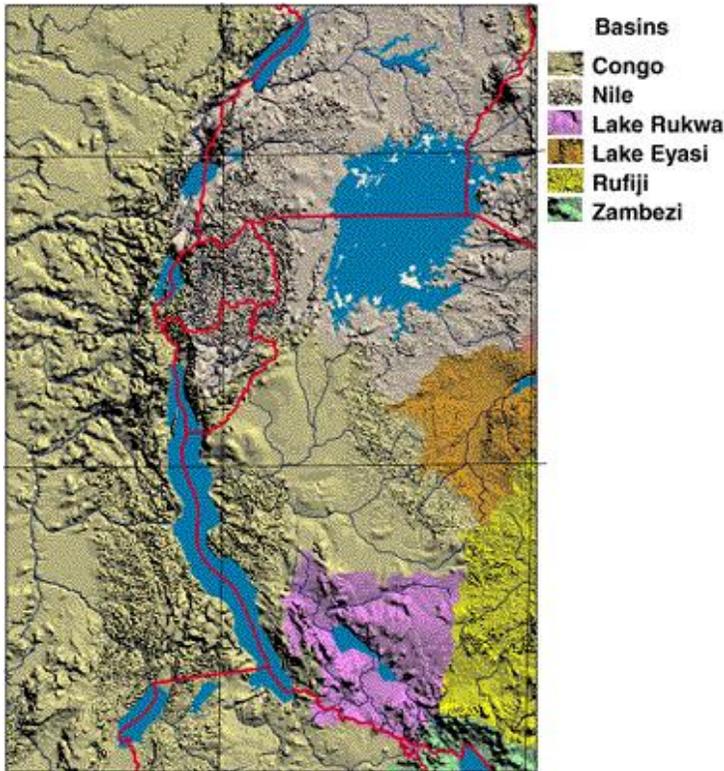
Furthermore, in coordination with Jeanna Hyde Hecker and Wouter Veening a list of questions has been set up, regarding all four research topics. This has been sent to the International Gorilla Conservation Programme. The same list of questions has been sent to UWA, the Uganda Wildlife Authority. Up to now, however, there has been no response from either of these organisations, which makes it rather difficult to provide up-to-date information in this report.

# 1 Violence in the African Great Lakes region

## 1.1 Location

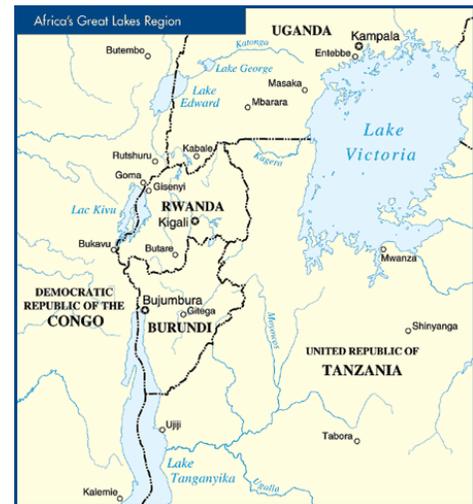
The Great Lakes of Africa are a series of lakes in and around the Great Rift Valley in Central Africa. Lake Victoria, Lake Albert and Lake Edward empty into the White Nile, while Lake Tanganyika and Lake Kivu both empty into the Congo River system. The region surrounding these lakes is often called the Great Lakes region. It includes the countries Rwanda, Burundi and Uganda, as well as parts of the Democratic Republic of Congo, Kenya and Tanzania. Because of past volcanic activity this part of Africa contains some of the world's best farmland. Moreover, due to its altitude, the climate is also rather temperate. It is therefore one of the most densely populated areas of the world, with an estimated 107 million people living in the Great Lakes region (Nationmaster 2005). The land in the region is extremely rich in mineral resources, especially in the Democratic Republic of Congo (DRC).

Figure 1.1



Source: UNEP 2005

Figure 1.2



Source: Canada World View 2004

During recent years the Great Lakes region has been characterized by persistent violence, especially in Uganda, Rwanda, DRC and Burundi. It is essential to keep in mind that all these conflicts, although interconnected, have a different character and background, also within the DRC: the situation in Ituri district is different from that in the Kivu provinces. This section mainly focuses on the crises in Rwanda and in the Kivus, as these have the strongest links to the case study area. The situation in other insecure areas in the DRC, such as Katanga province, and the

situation in Burundi will largely be kept out of this analysis. The violence in Ituri district will be briefly explained, as it also has impact on the case study area.

After section 1.2 provides an overview of the conflicts and the parties in the region, more specific attention will be paid to the impact of mineral and natural resources in the origins and dynamics of the conflicts in section 1.3 and 1.4.

## 1.2 Overview of the conflicts

### 1.2.1 Rwanda

After a long period of tension and violence, ethnic war broke out in Rwanda in the early 1990's. The Rwandan refugee population in Uganda organised itself in the Rwandan Patriotic Front (RPF) and started a guerrilla war to regain power in Kigali. Their offensive in the north of Rwanda, supported by the Zairian army but fought by the Rwandan Armed Forces (FAR), took from 1990 until 1994. Triggered by the murder on the Rwandan President Habyarimana, extremist Hutu gangs (Interahamwe) encouraged the use of violence against the Tutsi population, in order to dispose of the 'Tutsi threat'. It is estimated that in only 100 days from April until July 1994 about 800,000 Rwandans, primarily Tutsi and moderate Hutu, were massacred by Hutu extremists. The takeover of Rwanda by the RPF in July 1994 led to a massive and intensive movement of mainly Hutu refugees. In that month millions of people left Rwanda and took refuge in neighbouring countries, particularly Zaire (about 2 million), Tanzania (about 480,000), Burundi (about 200,000) and Uganda (about 10,000) (*Global Security 2005*).

As many people fleeing Rwanda were heavily armed and many of them were involved in the genocide in 1994, it is very difficult to make a distinction between whether they were rebels or refugees.

### 1.2.2 DRC

Hundreds of thousands of people crossed the border with Zaire in the direction of the city of Goma, hoping that this place could provide them with water, firewood and food. This massive population movement resulted in an enormous humanitarian crisis, despite efforts made by the international community to set up refugee camps in order to offer the refugees protection and medical help. Moreover, as many perpetrators of the genocide had fled across the border into Zairian refugee camps, the conflict expanded over the border into Zaire. The Interahamwe in eastern Zaire, supported by Mobutu, carried out attacks on Rwanda and on the Banyamulenge, the ethnic Tutsi population living in Zaire. The Alliance of Democratic Forces for the Liberation of Congo (AFDL), backed by Uganda and Rwanda, entered the country to capture Kinshasa and overthrew Mobutu in May 1997. AFDL leader Laurent Kabila changed the name of the country into the Democratic Republic of the Congo (DRC) and installed himself as president. However, a second large war broke out in August 1998, when an insurgence backed by Rwandan and Ugandan governments invaded the Kivu provinces. The official reason for them was to fight the Interahamwe and protect their borders. Actually, gaining control over DRC's valuable mineral resources also was an essential factor that should not be left unmentioned. When these Uganda and Rwanda backed troops attempted to overthrow Kabila again, troops from Zimbabwe, Angola, Namibia, Chad, and Sudan intervened to support the Kinshasa regime. A cease-fire was signed on 10 July 1999 by president Kabila, Zimbabwe, Angola, Namibia, Uganda, Rwanda and armed rebel groups, but fighting continued.

Laurent Kabila was assassinated in January 2001. The new president, his son Joseph Kabila, was successful in negotiating the withdrawal of Rwandan forces from the eastern part of the DRC. The Pretoria Accord was signed in 2002 by many remaining warring parties to end the fighting and set up a government of national unity. The transitional government was set up in July 2003. Joseph Kabila remained as president and was joined by four vice presidents from the former government, former rebel camps, and the political opposition. Despite of this transitional power sharing government, there is still a high level of violence and instability in the country, as

various rebel groups and armies have sought to gain or remain control over strategic areas, mainly in the eastern Kivu provinces and Ituri district. There a situation of lawlessness continues to exist. It is estimated that since the outbreak of the first war in 1997 about 3,8 million people have died because of the war which also forced millions of people to flee. Estimates point out that still 1,000 people are dying every day from hunger and diseases, as a result of the war (*ICG 2005*). Governmental elections that were initially planned for June 2005 have been postponed due to the chaotic situation and will not be held earlier than in March 2006, according to a best case scenario.

#### Kivus

A main reason for the current instability in the Kivus is the dissident behaviour of parts of the national army. The soldiers of the national army are still poorly paid and prone to quickly changing loyalty relations. Especially factions that belong to RCD-Goma, a member of the transitional government, have dissented after a power struggle developed between the political branch of RCD-Goma in Kinshasa and the rebels headquartered in Goma. Strongly linked to and supported by Rwanda, RCD-Goma has been able to fill the power vacuum that arose in 1997. The faction still has a strong power base especially in North Kivu.

Apart from remnants of the extremely violent looting rebel groups like Mai-Mai, the Democratic Forces for the Liberation of Rwanda (FDLR) are still one of the major reasons for the instability in the Kivu provinces and Ituri district. FDLR militias, largely made up of the surviving remnants of the ex-FAR and Interahamwe, are strongly linked to the genocidaires of 1994. They are very powerful in certain parts of the Kivus. Although hard to prove, it is generally assumed that FDLR militias commit many atrocities (execution, rape, beating, chopping off limbs, abduction, etc.) against local communities, especially against the Banyamulenge, the Tutsis. Moreover, FDLR carries out attacks on Rwandan territory. All this seems to be part of their strategy to destabilize the region, in hopes of provoking another war between Rwanda and the DRC.

#### Ituri

Also in Ituri district, located in Orientale province, in the north-eastern part of the DRC, various armed (political) movements have been active during the past few years. Apart from the FDLR, there are broadly seven militia groups involved, organised along ethnic lines. Although Lendu and Hema are the major ethnic communities, neither of these feel represented by any of these armed groups. The parties in Ituri have not been signatories to the peace agreement. Alliances between the various groups have changed frequently, and internal struggles have caused various separations. Many of the groups have been –directly or indirectly- supported by Rwanda or Uganda, as happened in the Kivu provinces (*HRW 2003 ; Wolters 2005*).

Although this regional war has long been a sidebar to the main conflict in the rest of the country, the conflict in Ituri district is estimated to have killed at least 50,000 people in the past six years (*Wolters 2005*). In the first three months of 2005 violence has forced more than 88,000 people to flee their homes (*South Scan 2005*). Both the Mid-May, more than 10,000 of an estimated 15,000 militiamen have disarmed and are awaiting reinsertion into their communities (*Wolters 2005*).

#### 1.2.3 International involvement

Since 1999 the United Nations have a peacekeeping mission in the DRC. The early activities of this 'UN Organization Mission in the Democratic Republic of the Congo' (MONUC) included military observation and the facilitation of diplomatic activities in support of the ceasefire agreement. In the course of time, MONUC's military strength has been increased and it started carrying out also other activities, like demilitarization of Bunia and repatriation of e.g. Rwandan ex-combatants. The current core activity of MONUC is to assist the national Congolese army in disarming and demobilizing the FDLR (*MONUC 2005*).

Despite all efforts, MONUC has proven itself unable to provide security in the region. On the contrary, United Nations soldiers have even been accused of committing sexual exploitation and abuse of Congolese women, including refugees. Violence in the region is even increasing since

2004. After nine UN peacekeepers were killed in an ambush in Ituri in February 2005, MONUC's policy has become more stringent. Leaders of UPC, PUSIC, FNI and FRPI were arrested by the DRC government, because of their involvement in these killings. At March 31 2005, the mandate extended, the number of UN troops increased up to 16,200 and a deadline for disarmament was posed to the militia groups in Ituri. This has given the previously slow disarmament process in Ituri a boost. Yet it seems that no proper arrangements have been made to ensure their reintegration. Lacking adequate sources of income and food, 'disarmed' FDLR troops have reportedly threatened to resume violence (*WFP 2005*).

The situation in the border region between the DRC, Uganda and Rwanda is still far from secure. The Rwandan national government regards the attacks by the FDLR militias as a legitimization for sending troops over the border in order to restore a stable situation. For example, in 2004 Rwandan president Kagame stated that the FDLR had carried out eleven attacks on Rwandan territory that year, without any reaction of DRC's national army or MONUC. In response, in order to deal with the insurgents forcefully Kagame has sent his troops into the Kivu provinces several times; even recently, in November and December 2004.

These counter-attacks of Rwandan troops on the FDLR might in itself seem legitimate, as it protects the Rwandan people in Rwanda and the DRC. However, the presence of foreign troops in a sovereign state severely undermines stability in the region. Many analysts moreover believe that Rwanda exaggerated the threat posed by the FDLR fighters, who number between 8,000 and 10,000. Crisis Group has indicated that they are a grave danger to civilians in the Kivus whom they attack, but "they are too disorganized to pose an imminent military or political threat" to Rwanda (*ICG 2004;4*). MONUC's recent strengthening of disarmament activities has taken away Rwanda's legitimization for an intervention on foreign territory. Moreover, at the end of June 2005 president Kabila has announced the forced disarmament of these rebels (*IRIN 2005*). It is highly probable that FDLR disarmament will clear the way for the reestablishment of normal diplomatic relations between Rwanda and the DRC.

### *1.3 The role of land in the violent conflicts*

In order to understand the tensions and the horrendous outbreaks of violence in the Great Lakes region, it is necessary to recognize the social processes. Inclusion and exclusion of groups has taken place along ethnic lines especially since the colonial period. Whereas before colonialism groups were fairly able to live together, during the Belgian administration a division within society developed between different 'ethnic' groups. The instigators of the genocide in Rwanda have abused ethnic differences to mobilize and motivate people to carry out attacks on the other group. But how is it possible that so many people could be mobilized for these atrocious purposes? And what factors played a role in the outbreak of massive violence in the eastern DRC, assuming that ethnic differences alone are not sufficient explanations for this. To comprehend that, underlying structural factors should be outlined. This section stresses the importance of natural resources, combined with demographic characteristics, as structural factors behind the conflict.

## Box 1.1 Environmental security

The relationship between resources and conflict is an ambiguous and complex issue. Although the precise roles of the environment in peace, conflict, destabilisation and human insecurity are still being debated in relation to other security and conflict variables, it seems that environmental factors are increasingly an underlying cause of instability, conflict and unrest (*IES 2005*). Although the idea that resource constraints can lead to insecurity is not new, this notion has not adequately been internalised in (inter)national security policies.

The term environmental security can be defined as “the freedom from environmental destruction and resource scarcity” (*Gleditsch 2001:54*). It is broader than the classical definition of security, which usually centres around military security aspects. Improving environmental security aims at preventing erosion of the world’s carrying capacity, and at preventing war and armed conflict resulting from resource scarcity and environmental degradation. In other words, environmental security has a strong human security component, and vice versa (*Gleditsch 2001*). In a recent report called ‘Investing in Prevention’, the British Prime Minister’s Strategy Unit has outlined its view on prevention of violent conflict. Environmental security is bluntly mentioned as one of the main future risk factors for stability. The report states that there is “the very real possibility of increasing tensions over land use, particularly where there are competing demands or environmental degradation” (*Prime Minister’s Strategy Unit 2005:14*).

### Scarcity

The main element in the relationship between resources and conflict is resource scarcity. Three forms of resource scarcity can be distinguished, according to the ideas of Thomas Homer-Dixon. The first is *supply-induced scarcity*, which results from the depletion or degradation of a resource. Another form of scarcity is *demand-induced scarcity*. This is the neo-Malthusian argument that stresses that environmental problems and scarcity should be seen as the result of population pressure and population movements. The third form of scarcity, *structural scarcity*, refers to the distribution of resources (*Gleditsch 2001:55, Klem 2003, Mc Donald 1999*).

Homer-Dixon, who pointed at the mutual causality between environment and population. He recognizes that population pressure results in scarcity, but he also points at environmental scarcity as one of the main causes of population movements. Hence he emphasizes the reciprocal character of this relationship.

### Land

In the case of environmental scarcity, opposing interests can be brought easily to the forefront, through which conflicts can arise. In Africa, the linkage between land and conflict is particularly relevant, as entitlement to land is crucial for the basis of livelihood of the majority of the population. Insufficient access to land is therefore a factor in the impoverishment of households (*Huggins and others 2004*). Conflicts about land access or land use often occur, for example between cattle keepers and peasants. This is a common example of the relation between environmental scarcity and opposing interests. As the livelihood of both groups is endangered, these land use disputes can sometimes result in severe expressions of violence, as many recent examples in Sub-Saharan Africa prove.

### 1.3.1 Population pressure

An important characteristic in the Great Lakes region, is the demographic situation, and especially the large concentration of people. This fertile region has been inhabited by numerous groups of people for centuries. Population density in both Rwanda and Burundi, and to a lesser extent Uganda, is extremely high, Rwanda being the most densely populated country in Africa, with an average of 321 people living per km<sup>2</sup>. Moreover, annual population growth rates of the countries of the Great Lakes region seem to be consistent with growth rates in other regions in Sub-Saharan Africa (*Varga and others 2002:26*).

These demographic figures are of primary importance especially given the fact that people in these rural societies are highly dependent on land. Almost all people are farmers and few off-farm activities exist (*Lanjouw n.d.:2*). Therefore in all societies in this region land has always been the primary economic asset. (*Huggins and others 2004*). In Rwanda as well as in the neighbouring Congolese Kivu provinces and Ituri territory, entitlement to land is rather unequal. This is not only strongly related to poverty, but also seems to play a major role in the background of the conflicts in the region.

The relationship between population density and conflict seems to be very relevant in the DRC. For example in 1999, the first large scale conflict in Ituri between the Northern Hema and Lendu ethnic communities broke out in Djugu, which is the most densely populated territory in Ituri (*Huggins and others 2004:15*).

### 1.3.2 Land and ethnicity

Land pressure plays a main role in the development of conflicts between people. However, in order to explain in what way the struggle for land actually led to large scale violence, we should recognize that the land issue is part of a larger historical process. Under the colonial administration access to land became increasingly related to ethnicity

#### Rwanda

For a long period, Rwandan society was comprised of three main groups: Hutu (a large majority), Tutsi (about ten percent) and Twa (about one percent). These three groups lived side by side throughout the country, as they spoke the same language, believed in the same god and shared the same culture. Little agreement exists among experts about the differences between these groups. It can therefore be assumed that the Hutu, Tutsi, and Twa are not so much distinct ethnic groups but rather distinct socio-economic groups within Rwandan society, similar to castes or classes. Categories of Hutu and Tutsi were largely occupationally defined: "whoever acquired a sizable herd of cattle was called Tutsi and highly esteemed" (*Uvin 1996*).

As a consequence of colonialist control, social relationships in Rwanda changed greatly. The colonialist powers instituted a system of rigid ethnic classification that used "modern scientific" methods such as the measurement of nose and skull size. The Belgian powers required people to carry identity papers stating their ethnicity. Believing that the Tutsi were more intelligent, reliable and hard-working, the Belgian administration favoured the Tutsi by giving them almost exclusive access to education and jobs in the administration and in the army (*Uvin 1996*). They also changed land tenure regimes, labour relations and access to land, which caused much resentment. (*Huggins and others 2005:3*). All Rwandans had to carry a personal ethnic pass stating whether they were Hutu or Tutsi. In so doing, the colonial powers exacerbated the existing sub-divisions in Rwandan society (*Lanjouw and others 2001:10*).

When the Belgians abandoned formal control over Rwanda during the process of decolonization, some Hutu saw their chances to overthrow the powerful Tutsi elite, in a coup referred to as the 'social revolution'. From 1959 to 1963 thousands of Tutsi were murdered and more than 100,000 others were forced to flee the country (*Uvin 1996*). Frequently large scale attacks and counterattacks between the Hutu and Tutsi took place from this period until the 1990's.

Although much land of the expelled Tutsi population was allocated to others, the postcolonial government however did not create a more equitable system of land ownership. In 1984, approximately 15 per cent of the land owners owned half of the land. Those buying land tended to

be in commerce, government, or the aid-industry, rather than full-time agriculture (*Uvin 1998 in Huggins and others 2005:3*). "In 1990, according to some estimates, about a quarter of the rural population was landless, and in some districts that figure was 50 percent" (*SIDA 2004 in: Musahara and Huggins 2004:2*). In the meantime, population pressure increased continuously. Huggins and others point out that "limited access to land, exacerbated by its inequitable distribution and by tenure insecurity," are regarded as key aspects of 'structural conflict'. This concept is based on the idea that patterns of economic domination and exclusion create deprivation and social tension, thereby preparing the way for violence. Land disputes were also at the heart of most conflicts between households.

This 'structural conflict' over resources was exacerbated by the fear among the Rwandan Hutu population, that the Tutsi would again take control over their already scarce resources; after all, the RPF had started an offensive in the north of the country. All these structural causes of poverty and fear in Rwandan society could easily be exploited by the instigators of the genocide.

This is also the explanation why in urban region like Kigali genocide took place: the dispossessed, the landless, that had migrated to Kigali due to lack of land access in their rural homes, suddenly got a license to kill, with impunity (*Huggins and others 2004*).

### The Kivus

The conflict in the Kivu provinces (North and South Kivu) is also related to disputes over land and resources, which date back to the colonial era and the subsequent rule of Mobutu. An underlying factor for the conflict in North Kivu is the status of the large Rwandophone communities in the region. "When the borders between the Congo Free State and German East Africa were drawn in 1885, a large area inhabited by Hutu was included in the Congo. The present territory of Rutshuru was then and still remains 80 to 90 per cent Hutu (*ICG 2005:8*)". In order to employ cheap and easily controllable workforce in the mines and plantations of eastern Congo, the Belgians relocated thousands of Hutu and Tutsi from Rwanda to Masisi, Walikale and parts of Katanga. By 1955 around 160,000 Rwandan immigrants had been transplanted. Since independence, these immigrant communities have found their land rights and their citizenship questioned by the customary authority, despite of their large share in the population. (*ICG 2005:8*).

The situation was further complicated by the ethnic purges of the 1950's in neighbouring Rwanda. After many Tutsi families fled the violence in Rwanda, Mobutu welcomed them into its party and gave them access to land and jobs. In 1972 Mobutu granted all Rwandan immigrants citizenship and gave many of the Belgian plantations in Masisi and Western Rutshuru to the newly arrived Tutsi. Eleven years later Mobutu repealed the decision to give blanket citizenship to all Rwandan immigrants, which resulted in even greater ethnic tensions in the region. By the late 1980's violence erupted between the pastoralist and agricultural communities in North Kivu (*ICG 2005:8-9*). "In October 1990, at the beginning of the RPF revolt against the regime of president Habyarimana in Kigali, many Tutsi left Masisi to join the rebels in Uganda. The RPF also enjoyed the support of some wealthy Congolese Tutsi. At the same time, the Hutu community in Rutshuru rallied behind an organisation formed in the late 1980's, the Mutualité des Agriculteurs de Virunga (MAGRIVI). This group, strongly influenced by the Hutu Power rhetoric from Rwanda, was as a lobbying force to exert pressure on the state and ensure Hutu influence in Goma and Kinshasa (*ICG 2005:9*)". Subsequently, the combination of an early democratisation process and a lack of state protection led each community in North Kivu to set up tribal militias for self-protection. In 1993 violence erupted, starting in Walikale from where it soon spread to Masisi.

The massive influx of Rwandan Hutu refugees, as well as members of the defeated Rwandan army (FAR) and Interahamwe militia, renewed the aggression. Fearing Congolese persecution, Tutsi in North Kivu sold their land and cattle and left back for Rwanda, where they were welcomed by the new RPF regime.

The advent of the (Tutsi dominated) Alliance of Democratic Forces for the Liberation of Congo (AFDL) two years later pushed many Tutsi to return to North Kivu. The AFDL was first established to control the Rwandan-Congolese border in order to prevent the return of Hutu militias. Yet,

sweeping through the region, the AFDL searched for the Interahamwe and ex-FAR armies and massacred many Hutu refugees and Congolese Hutu civilians.

#### Ituri

In Ituri territory controversies over land already existed well before colonialism. However, under Belgian rule the division between the different ethnic groups intensified, as the Belgians favoured the (pastoralist) Hema ethnic group over the (primarily agricultural) Lendu ethnic groups. Similar to the Tutsi ethnic group in Rwanda, the Hema community had larger access to education and administrative positions. They invested their cattle-based wealth in vehicles, buildings and other investment necessary for commerce and trade. Disputes arose in the post-independence period between Lendu and Hema over fishing and land rights, but especially when foreign-owned assets, ranching and farming concessions were handed over to Congolese. Because of their dominance, Hema traders and politicians were able to profit most. These Hema leading figures became very influential within the Mobutu regime and able to take advantage of the networks of patronage. This development of changing social relations partly explains the tense situation in the Ituri region before violence broke out in neighbouring regions.

"In 1999 a small group of Hema in the area of Walendu Pitsi attempted to modify land ownership registers by bribing local officials. It is alleged that they subsequently used the new documents to evict Lendu inhabitants from their homes and land, triggering the Lendu to strike back. The situation was further aggravated by the presence of the Ugandan army in the DRC, who gave the impression to support the Hema in the emerging conflict" (*Wolters 2005:2*).

#### Forced migrants and return

During decades of violence in Rwanda many people have fled to adjacent countries. The population masses that fled after the 'social revolution' of 1959 were known as the 'old caseload': this group numbers almost one million people and has largely returned after the Tutsi army took over power in July 1994. As stated earlier, during those days many Hutu refugees left their country and went to neighbouring countries, such as Tanzania and the DRC. Placing an enormous pressure on the natural resource bases of these regions, the refugee presence from 1994 until 1996 caused certain serious problems and tensions, let alone the ethnic dimension. After two years the Banyamulenge, the Tutsi population in eastern Zaire, rose up against the primarily Hutu refugees (*Global Security 2005*). Subsequently, hundreds of refugees returned to Rwanda, and at the end of 1996, when refugee camps in Zaire and in Tanzania were dismantled, two million refugees were rapidly forced to return to Rwanda. The return of these Rwandan refugees, also known as the 'new caseload', resulted in large problems with regard to land ownership claims. This posed very large problems to the government, that opened up public lands such as Akagera National Park for resettlement and urged people to share land and natural resources. Since then, the government has been developing a national land policy aiming at land reform and increasing access to the landless (*Musahara and Huggins 2004:1,2*). Refugee camps are still needed in Rwanda, to assist both returning Rwandan and fleeing Congolese (Banyamulenge) refugees (*UNHCR 2005*).

Although UNHCR has repatriated more than 77,000 refugees from eastern DRC to Rwanda since 2000, when it started a repatriation operation it estimates that still 40,000 Rwandan refugees are currently living in the eastern DRC. These people have been living scattered over isolated areas in the Kivus since 1996. Their life in the forest is extremely hard, and when these people come out they are often in very bad health, especially the children (*UNHCR 2005*). In April 2005 refugees were still fleeing the DRC towards Rwanda, as a result of violence in North Kivu (around Goma, Rutshuru and Masisi).

However, also within Rwanda the situation is not yet stable in 2005. In the north-west of the country high number of vulnerable refugees were being transferred to other camps, as a result of pressure on the region around Gisenyi. At the same time, nearly 7,000 Hutu Rwandans have fled their country into Burundi and Uganda, fearing unfair treatment in the new village-level "gacaca"

courts. After efforts by a special taskforce to encourage and mobilise them to return, a part of these Rwandan refugees have returned early May.

## 1.4 *The role of mineral resources in the conflicts*

It seems that mineral resources were not an important reason for the parties in the Great Lakes region to start fighting in the first place. However, it is without any doubt that the attraction of mineral resources in the DRC were important factors in understanding how the violent crises have evolved into a large African war that has taken down the whole region, as the involvement of many adjacent countries strongly prolonged these conflicts.

### Natural resource control under Mobutu

The Democratic Republic of Congo has perhaps the richest concentration of precious metals and minerals on earth. This has always formed an interest for various parties. Mining companies, like Gecamines (copper and cobalt), Okimo (gold), Miba (diamonds) and Sominki (gold and cassiterite), were under state control in the Mobutu era. Despite interest from large international corporations from South Africa, France, Canada, the US and Australia, president Mobutu always refused to privatize these mining companies, as they formed the cash cows of his regime and the main source of his vast personal wealth.

### Foreign involvement

The interference of foreign armies and rebel movements in the conflict should also be seen in this perspective. The attractiveness of mineral resources is probably one of the main motivations of the AFDL to invade Zaire and overthrow Mobutu in 1996. The AFDL should be seen as a sort of African 'joint venture' in which Rwandan and Ugandan soldiers, Angolan planes and Zimbabwean financial contributions all played a part. Already in April 1997, a month before the fall of Kinshasa, Kabila's AFDL made a million-dollar deal with a US-Canadian corporation, American Mineral Fields, to extract copper, cobalt and zinc in the southern province of Katanga (*Braeckman 2004:4*).

Clearly the interests of Angola, Namibia, Zimbabwe, Sudan, Rwanda and Uganda had a largely geopolitical and economic character. While the stakes of Zimbabwe mainly arrived from resources located elsewhere in the country, such as diamonds in Mbuji Mayi, Rwandan and Ugandan troops roamed in the eastern part of the country. However, after Laurent Kabila took control in Kinshasa, the relationship with his former allies Rwanda and Uganda deteriorated, as he attempted to restrain the influence of these countries and their corporate allies. In July 1998 Kabila demanded all Rwandan and Ugandan troops, which had brought him to power in the first place, to leave the country. Within a couple of days fighting broke out around Goma and Bukavu, and a war developed between the Congolese army and Rwandan and Ugandan troops. Although certain reports indicate that this invasion was actually spurred by Kabila's lack of commitment to fight the Interahamwe at the border with Rwanda and Uganda and the need for these countries to protect themselves, it is clear that the control over valuable mineral resources in the DRC was also greatly at stake.

The east of the country became under control of Rwandan and Ugandan forces and several rebel movements supported by these countries. Uganda mainly supported MLC and RCD-ML in the northern and north eastern provinces, while Rwanda supported RCD-Goma which controlled the resources in the central and eastern part of the DRC. Through these linkages, the regional economy was taken over by Uganda and Rwanda, as almost all consumption goods and services derived from these countries. Second, and more important, these foreign forces captured gold and diamond mines. Leaders of the armies became leading businessmen. Ugandan army and rebel army commanders developed important business interests in the Ituri region, where diamonds, gold, cobalt, cassiterite and coltan are some of the major resources (*Essick 2001; Wolters 2005*). Since the price explosion of coltan in 2000, mining coltan became a very lucrative

business. It is estimated that in 2001, the RCD-Goma alone raised about \$200,000 per month from diamond mining, mainly from Kisangani, and over \$1,000,000 per month from coltan which were mined mainly in the Kivu provinces (*Vick 2001*).

The Rwandan and Ugandan economy clearly profited through the easy smuggling of Congolese resources over their borders. The value of their exports of natural resources increased drastically. Even although diamond and gold are not mined in Rwanda, its export figures of diamonds and gold sharply increased since 1997, when the AFDL, backed by Rwandan troops, was taking over power in the DRC. For coltan these figures are even higher, especially in Rwanda, as its sphere of direct or indirect influence included the Kivu provinces which are very rich in coltan. Recorded coltan production increased from 147 tonnes in 1999 to 1,300 tonnes in 2001, when coltan was the country's largest export earner (*ISS, 2005*). In 1997, just at the start of the current chaotic situation, Uganda reported exporting 2.5 tonnes of coltan a year. In 1999, the volume had increased up to almost 70 tonnes. In 2001, Uganda exported seven times more coltan than they produced (*Wakabi 2004*). These figures indicate the direct or indirect involvement of these countries in resource extraction of the DRC. Realizing the gravity of the looting, the UN Security Council installed an expert panel to investigate the character and the extent of illegal exploitation of natural resources like diamonds, cobalt, coltan, gold and other lucrative resources in the DRC. Their reports published between 2001 and 2003 indeed accused Rwanda, Uganda and Burundi of systematically exploiting Congolese resources.

The lootable character of these resources has attracted many rebel movements, which profited from the lack of government control in the region. As all warring parties benefit from the uncontrollable and anarchic situation in the region, nothing will really change. "Because of its lucrative nature," the UN report said, the war "has created a 'win-win' situation for all belligerents. Adversaries and enemies are at times partners in business, get weapons from the same dealers and use the same intermediaries. Business has superseded security concerns" (*UN expert panel report 2001*). First of all was this situation detrimental to the regional security situation and therefore greatly impacted the ordinary Congolese people. Also the environment was harmed. As many illegal mines were established in protected areas, like Kahuzi-Biega National Park and the Okapi Fauna Reserve, coltan mining became a large threat not only to human security but also to wildlife in those areas (*Harden 2001; Redmond 2001*).

#### Current situation

In response to strong international pressure, Rwanda and Uganda subsequently withdrew their armies from the region late 2002. The resulting power vacuum however spurred the proliferation of militias, again supported by Rwanda and Uganda. In that way the countries were able to maintain, or even extend, their influence in the region.

Ugandan interests in Ituri are largely looked after through its linkage with RCD-ML. Though, Uganda has in fact supported almost all different rebel movements in the region during the past years. Income from timber, gold, diamonds and coltan in areas it controlled, as well as taxes on border trade continued to benefit Ugandan networks (*ICG 2004:3*). Discrepancies between domestic gold production and gold exports remain striking.

Rwandan relationship with the RCD-G continued, thereby remaining its involvement in the Kivu provinces. Rwanda is even accused of extending its control in Ituri region through an alliance with UPC. This deal involved the training, supply and even command of UPC troops by RCD-G soldiers and Rwandan troops. Whether or not Rwandan soldiers were themselves in Ituri is not clear, but the involvement of the RCD-G ensures Rwandan influence. At present there are unconfirmed reports that Rwanda continues to provide weapons to the UPC (*Wolters 2005*).

Currently, the mineral cassiterite seems to have replaced coltan as the new mineral of choice in the Kivus, as prices of coltan have decreased and tin prices increased strongly in 2004. RCD-G troops controlled cassiterite production and trading in North Kivu until December 2004, when government troops took over Walikale, a major cassiterite mining centre in North Kivu. Fighting has thus plagued this resource-rich area over the past year. "In South Kivu, mining activities are equally militarised, with soldiers from the FARDC, FDLR and Mai-Mai groups controlling mines,

illegally taxing the artisanal miners and committing massive human rights violations in these areas” (*Global Witness 2005*). Large quantities of cassiterite cross the border from North and South Kivu to Rwanda every month. Again, significant differences exist between official trade figures and the actual scale of the cassiterite trade.

## 2 Virunga-Bwindi region

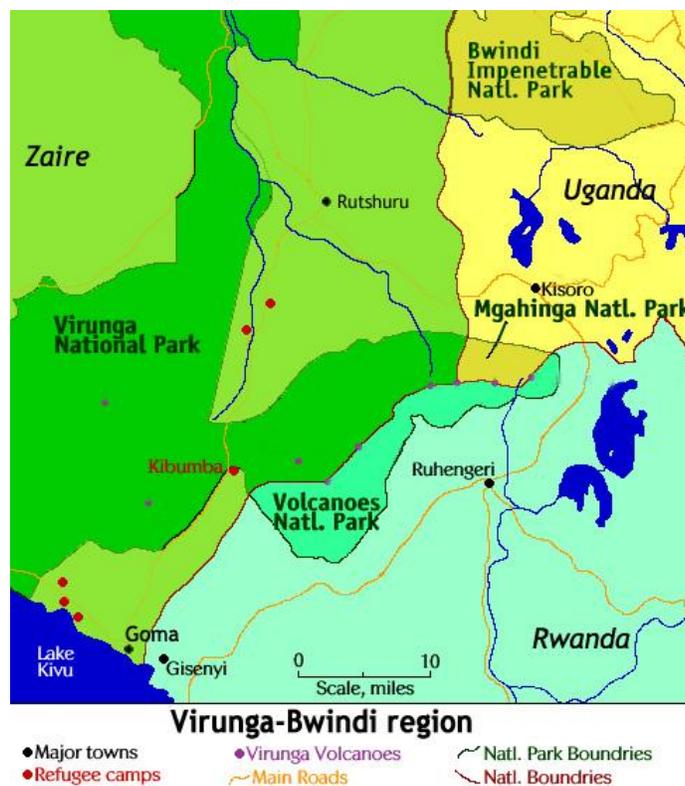
In the midst of this turbulent Great Lakes region several protected areas have been established in all countries. In the border region of Uganda, Rwanda and the DRC an area of high conservation value is located. Broadly, this is our study area. In this report the study area will be called the Virunga-Bwindi region, consisting of the transboundary Virunga Volcanoes Conservation Area and Bwindi Impenetrable National Park.

Figure 2.2 Virunga-Bwindi region



Source: IGCP 2005

Figure 2.1 Virunga-Bwindi region



Source: author, based on Dian Fossey Gorilla Fund 2005

### 2.1 Bwindi Impenetrable National Park

One of the two mountain gorilla habitats is located in Bwindi Impenetrable National Park, Uganda. This protected area comprises 331 km<sup>2</sup>. The lowland montane forest of Bwindi is believed to contain the richest faunal community in East Africa. It is the habitat of about 320 of the last remaining populations of the endangered mountain gorillas - *Gorilla beringei beringei* - according to the 2002 census (IGCP 2005). Already since the 1930's parts of the area were officially protected. The protected area was extended and in 1991 the Bwindi Impenetrable National Park was established. Gorilla eco-tourism was introduced in order to conserve and protect this critically endangered species and to generate revenue for the government and the local people. Especially after the collapse of gorilla tourism in Rwanda in the early 1990's, Bwindi Impenetrable National Park developed as a major tourist destination (WCMC 2001).

### 2.2 Virunga Volcanoes Conservation Area

The Virunga Volcanoes Conservation Area is located about 40 kilometres to the south, in the volcanic mountain area where Uganda, Rwanda and the DRC meet. The area is characterised by tropical montane forests that are extremely rich in biological diversity. The mountain gorilla population in the Virunga Volcanoes Conservation Area numbers about 380 individuals and has grown by 17% from 1989 until 2004 (IGCP 2005). Basically the Virunga Volcanoes Conservation

Area consists of three national parks, in three different countries, Rwanda, Uganda and the DRC. Each of these countries protects its own portion of the Virunga Volcanoes Conservation Area, which makes up approximately 434 km<sup>2</sup> (UWA 2005a). It therefore is an example of a transboundary conservation area.

- The Rwandan part of the Virunga Volcanoes Conservation Area is called Parc Nationale de Volcano, or Volcanoes National Park. After forest was cut on a wide scale in the 1960's and 1970's (in order to cultivate pyrethrum, a basis for insecticides) the territory of Volcanoes National Park declined enormously and now comprises about 125 km<sup>2</sup>. Since tourism plans were developed for the area in 1976 and all livestock keeping was abandoned, the park developed as a main gorilla tourism destination. Tourism and the work of Dian Fossey, in Volcanoes National Park brought Rwanda into the international spotlight in 1980's (Weber 1987 in: Plumptre and Williamson 2001 ; Government of Rwanda 2005).

- Mgahinga Gorilla National Park is the Ugandan part of the tri-national Conservation Area. with its territory of almost 34 km<sup>2</sup> it only comprises 8% of the Virunga Volcanoes Conservation Area. After Ugandan parliament decided to make the Mgahinga Forest a National Park, in 1992 all settlers and their livestock were resettled to another area, but received compensation. Since all human land use officially stopped, parts of the forest regenerated and tourism activities were developed in the National Park (Karlowski 2004 ; UWA 2005a).

- The largest part of the Virunga Volcanoes Conservation Area is located in the DRC, in the southern part of Virunga National Park. This part, which is called the Mikeno sector, comprises about 250 km<sup>2</sup>. Mountain gorillas are only located in this southern sector of the park. Virunga National Park was created in 1925 as one of the first protected areas in Africa (until 1969 it was called Albert National Park). This protected area is located in the DRC, along the Congolese-Ugandan border, including Lake Edward and Lake Kivu, extending over an area of about 7,900 km<sup>2</sup>. 95% of this park area is located within North-Kivu province (ICCN 2004). Since 1979 Virunga National Park is on the World Heritage List, because it offers a unique diversity of habitats and wildlife. Also from a water perspective the area is of great importance, as Lake Edward belongs to the Nile river system and Lake Kivu to the Congo Basin river system (WCMC 1998). Therefore this area has a potential to divide or to unite the various countries that depend on the Nile and Congo river systems.

### 2.3 Stakeholders

A variety of stakeholders exists in this region which makes conservation efforts the more difficult. It is of great importance, in order to tune the behavior of the various parties, to realize who the stakeholders are and what their interests are. This will not be outlined in full detail, but a general overview of stakeholders will be given here.

#### Local communities

The previous section has offered a picture of the population density in the regions surrounding the national parks. This makes the pressure on resources very high, especially since many people depend on natural resources such as land and wood as a basis for their livelihood strategy. Over 90 percent of the surrounding local communities practice self subsistence agriculture (Lanjouw and others 2001:14). The protected areas are e.g. used for water, cutting bamboo, cutting wood

for fuel and construction, hunting or poaching animals, beekeeping and collecting plants for food and medicine (*Lanjouw and others 2001:15*).

Inequitable land policies have developed since colonial times. Exacerbated by 'modernisation' processes as enlargement of scale, this created a large more or less 'landless' population in the region. In 2001, 60 percent of the households in Rwanda had less than 0.5 hectare. A significant share of land is in the hands of a rich elite mainly from urban areas (*Musahara and Huggins 2004:1*).

Land scarcity and the search for arable land greatly threatens conservation of the protected areas, as will be described later in this report. Limited access to land and its inequitable distribution is also an important factor for understanding tensions between various groups in society.

#### Park authorities

Park authorities in the three countries, often supported by international organizations, are carrying out frequent surveillance missions through the national park. They often visit mountain gorilla groups, in order to monitor their location, health, etc.

The official park authority of Volcanoes National Park is the Office Rwandais pour la Tourisme et des Parques Nationaux (ORTPN). In the National Park a park warden and his staff are responsible for "law enforcement, protection and surveillance, research and monitoring, education and extension work, tourism, management and administration" (*IGCP 2004*). It is a parastatal organisation whose board members are appointed by Rwandan parliament. The organisation is financed through government subsidies and grants from partners and donors, but mainly by park fees paid by tourists. ORTPN organizes mountain gorilla tracking tours in the Volcanoes National Park, at a cost of \$250 per person for foreigners.

The Ugandan Wildlife Authority (UWA) is in charge of the management of Mgahinga National Park and Bwindi Impenetrable National Park, as well as eight other national parks and all Ugandan wildlife reserves and sanctuaries. Similar to the Rwandan situation, permits for gorilla tourism can be obtained at UWA. Its official mission is also to conserve and sustainably manage the wildlife and protected areas of Uganda, "in partnership with neighbouring communities and stakeholders" (*UWA 2005b*). In the past years UWA has been improving demarcation and securing of park boundaries (*WCMC 2001*).

The ICCN, Institut Congolais pour la Conservation de la Nature, is the national agency in charge of protected areas in the DRC. This parastatal organisation currently protects several wildlife reserves and 7 National Parks, Virunga National Park being one of these. The financial situation of ICCN has become under serious threat since the beginning of the war. Moreover, due to the political crisis in the country and rebel control in the east, the headquarters in Kinshasa have not been able to pay the salaries of ICCN staff in the eastern part of the country (*Baliruhya ; Lanjouw and others 2001*). The working conditions for ICCN staff are also extremely difficult, due to insecurity resulting from the presence of armed settlers and military (*Muir 2004:3*).

#### Military

Because of the insecurity in the border region, a lot of official military troops are present. On the Rwandan side of the DRC-Rwandan border, within the national park, permanent surveillance takes place by the Rwandan national army, to prevent possible militias from entering the area.

The park staff in all three countries works closely with military authorities. They provide protection for tourists, researchers and veterinarians who enter the park. They accompany tourist groups on gorilla tracking tours in Rwanda and Uganda.

Military personnel in this region have usually lacked a proper understanding of the value of the forest. In contrast, they used to exploit resources of the protected area, such as wood and wildlife, for commercial purposes. The collaboration between the park staff and the military is therefore also beneficial, as the rangers can make military personnel more aware of the value of the forest (*Schmidt 1999*).

## Rebels

It is unknown whether rebels are still roaming inside the boundaries of the protected areas. It would not be surprising if this were the case, as the forests can be perfect hide-out places. It offers them food, dense cover and secure escape routes. Moreover, the forest provides a source of income thanks to commercial exploitation of resources. It is however unknown to what extent rebels are currently active in illegal commercial activities within the national parks.

In the Virunga Volcanoes Conservation Area and Bwindi Impenetrable National park there are limited valuable resources, in contrast to other regions in the DRC. In Kahuzi-Biega National Park (DRC) for example, the control over coltan-rich areas is the major reason for rebel parties to fight. With regard to extracting minerals, the Virunga-Bwindi region is therefore less attractive for rebels. However, Virunga National Park can be of great interest for rebels, with regard to smuggling minerals from the DRC into Uganda.

## National governments

The national governments have multiple interests with regard to the area. The fact that those interests are often irreconcilable clearly leads to internal struggles within the governments, i.e. between the various ministries. Ministries that have an important interest in the region are those responsible for land, wildlife and natural resources, such as the Rwandan “Ministry of lands, environment, forestry, water and mines”, as well as those ministries responsible for tourism or for agriculture and livestock. Hence issues of resettlement of refugees and access to land have to compete with issues like nature conservation and tourism development. Nevertheless, in all three countries there is explicit government support for environmental conservation of the area and for developing gorilla ecotourism.

## International community

The interest of the international community in the Virunga-Bwindi region stems from the moral obligation to conserve the nature in this region, also because of its unique biodiversity. Much attention has come to the region since Dian Fossey carried out research in the Virunga Volcanoes area and wrote a book, “Gorillas in the Mist” in 1983. Her campaign against poaching and for the preservation of the mountain gorillas effected international recognition of the importance of conserving the area. For example, the International Gorilla Conservation Programme was set up in 1991 as a partnership between the African Wildlife Foundation (AWF), Fauna & Flora International (FFI) and the World Wide Fund for Nature (WWF). More information about international initiatives with regard to the environment in the region will be offered in the annex.

## 3 Threats to the Virunga-Bwindi region

This chapter looks into the impact of the violent conflicts in the region on the Virunga-Bwindi region, in section 3.1. Moreover, from a conservation perspective it is vital to recognize what are the current threats to the region, in order to take actions. Despite a lack of up-to-date information these threats are outlined in section 3.2. The final section, 3.3, will give a brief overview of the actual effects of the violence and other factors on the environment in this area.

### 3.1 *The use of forest in times of conflict*

#### 3.1.1 *Strategic military space*

According to Kalpers (2001), the Virunga Volcanoes were a very interesting strategic area for the military of both the RPF and RAF, as it is the sole wooded area on the border between Uganda and Rwanda. Soldiers profited from the forest as it offered them dense cover and secure escape routes. "In 1991, eastern Volcanoes NP and all of Mgahinga Gorilla NP were affected by military operations. Very quickly, the RPF adopted the tactic of circling around the Sabyinyo volcano (a feature that borders all three countries), so that military operations next encroached into the Mikeno sector of Virunga NP inside Zaire. Between 1991 and 1994, the Virunga Volcanoes experienced intensive movements for infiltration purposes (by RPF troops) or for patrols and searches (by RAF troops). The military presence in the vast forest grew and intensified. Both rebel and regular units increased in number and in activity. The RAF also established permanent positions in strategic locations such as the edge of the forest and the hollows located between the volcanoes of the eastern Virunga region (Sabyinyo, Gahinga, and Muhabura Volcanoes)" (Kalpers, 2001).

A large threat involved the laying of "several hundred mines in the forest region, mainly along the paths and along the Rwandan-Zairian border" between 1991 and 1994 (Kalpers, 2001, 6). Moreover, deforestation has taken place for strategic purposes, e.g. to open up terrain for improved visibility and security. In 1991 the Rwandan army (RAF) has deforested 15km<sup>2</sup>, including a significant portion of the Mwaro corridor, connecting Mikeno and Nyamulagira sector. They cut the bushes around a main trail, about 50 to 100 metres wide. This would decrease the risk of ambushes, which took place frequently here. It is, however, an important area for large mammals moving between the two forest sectors. Therefore, this human intervention has had a significant impact on their habitat (Muir 2004; Shambaugh, Oglethorpe and Ham 2001; Kalpers 2001).

From 1994 until 1996, many rebels and bandits left behind in the forests, fearing to return to Rwanda. Since 1996, the tri-national conservation area was again invaded by all kinds of military forces and refugees, following the AFDL uprising and the subsequent civil wars. Since then rebels from the different warring factions are said to roam the protected area, although it remains unclear how many. Also Goma, which houses offices for several conservation groups was unsafe during the civil war (WWF 2004 ; Berggorilla & Regenwald Direkthilfe 1999).

Since 1996 many armed forces have roamed the forests in the National Parks in the Rwandan side but especially on the Congolese side, in Virunga National Park. This led to a perpetual violent situation in and around the park.

#### 3.1.2 *Refugee space*

The massive refugee flows into Zaire in 1994, following the genocide and the takeover of the RPF, had a great impact on the area, especially on the Congolese side. Heading for Goma, many people moved through the Volcanoes National Park and Virunga National Park, some even with their livestock. Some families even stayed in the forest for a while, as it provided shelter,

firewood, food, and water. Five refugee camps were rapidly set up in the region around the border town of Goma, at the edge of Virunga National Park: Lac Vert and Mugunga (close to Goma), and Kibumba, Kahindo and Katale (towards the north). At the end of 1994, the refugee population was estimated at approximately 720,000 people (*Delvingt 1994 in: Kalpers 2001:8*). The refugee camps lasted for 27 months.

All these refugees, with their urgent human needs, were dependent on the ecosystem services of Virunga National Park. (*Kalpers 2001*). The refugee and cattle movements through the forest damaged parts of the forest, and created a waste problem. The main threat to Virunga National Park however was posed by the people's survival strategies based on the use of natural resources. The collection of firewood and wood for construction, as well as the clearing of forest for agricultural purposes, resulted in wide-scale deforestation in the park. At the beginning of the crisis 40,000 people on average entered the park every day in search for wood. During the refugee crisis this woodcutting continued to intensify (*Kalpers 2001:7*). Moreover, illegal commercial activities flourished, like poaching of wildlife, charcoal making and logging, responding to an increased demand from Goma.

In an interview in 1995 Marc Languy, director of WWF, pointed out that the greatest damage was being done by the ex-FAR soldiers, who were cutting down trees for profit. By selling wood to refugees, they had a profit of up to \$ 2800 per day. As these soldiers were much better armed, park rangers were generally unable to enforce the laws, in order to protect Virunga National Park. (*Environment 1995*). Therefore, these illegal activities could continue, resulting in deforestation and a reduction in the number of wildlife. Moreover, the Mikeno sector was impacted by bamboo cutting. The bamboo was used by the refugees for making mats, baskets and constructing shelters.

Many refugees returned to Rwanda late 1996. However, this did not mean that the Virunga Volcanoes Conservation Area was left behind peaceful. In response to the problem of resettling refugees in Rwanda, plans were developed to open up parts of the national parks for resettlement. In Kagera National Park this led to an enormous destruction of forest, as about two thirds of the park was taken over by farmers and cattle keepers. Volcanoes National Park was largely spared, especially as a result of strong and effective pressure from international organizations to change these plans.

## 3.2 Threats

### 3.2.1 Weakened park authorities

The violence since 1990 has seriously hindered conservation efforts of the various park authorities. In the Virunga National Park alone, more than 100 park staff has been killed by rebels since 1994 (*Lanjouw 2005*). Seventeen of them were active in the Mikeno sector. Still, the situation is extremely insecure. This was again reaffirmed in September 2004, when more than 100 bandits and ex-militia launched an attack on the park station of Kabaraza in Virunga National Park. Fortunately, almost all personnel were able to escape, but all 40 houses had been broken into and anything valuable was stolen, including ten AK47 rifles left behind by the rangers as they fled into the bush.

Attacks like this in Virunga National Park happen all the time. The park rangers are systematically targeted for the procurement of weapons and food by militia and military groups operating within the park boundaries. Between January 2004 and December 2004, there have been 13 attacks on park stations and patrol posts. Although the militias lack organisation and military discipline, they are greater in number and better equipped than the park rangers. The rangers simply do not have the training or the weapons to properly defend themselves, and the militias and military groups know this. There are reports of militia groups working together to attack the larger patrol posts, in some areas assisted by the local population, many of whom are internally displaced and sought refuge in the park during the war. They see the removal of the rangers as an opportunity to

increase the level of their own illegal exploitation of the park's resources, and are therefore willing to provide the militias with the intelligence necessary to carry out effective raids. The rangers say that in this violent period of national reunification their work is more dangerous and unpredictable than it was during the civil war from 1997 until 2002 (*Berggorilla & Regenwald Direkthilfe 2004*).

In Bwindi National Park the situation has generally been less dangerous. Tourism has even increased, in spite of the insecurity in the region. Nevertheless in March 1999 three tourist camps in Bwindi Impenetrable National Park were attacked, when about 100 armed men entered Uganda from the DRC. Buildings were looted and set on fire, vehicles were burnt, seventeen people were kidnapped and eight tourists and their guide were eventually killed.

After the massacre, the rebels returned to the DRC. It is not clear to which group the murderers belong. Some people described them as Interahamwe, others as Hutu militia. They themselves said that they belonged to the ALIR (Rwandan Liberation Army) which has become notorious for their numerous raids in north-western Rwanda. Afterwards, a group calling itself NALU (National Army for the Liberation of Uganda) claimed responsibility for the murders. This could not be confirmed. Ugandan troops were posted in the National Park to ensure security in the future (*Berggorilla & Regenwald Direkthilfe 1999*).

The extreme violence in the park has had serious impacts on the park authorities in a variety of ways. First of all, the murder on so many park staff in the region is a grave tragedy and has seriously reduced the amount of skilled, experienced and motivated personnel.

The second negative effect of the violence in the national parks was the income drop. This was largely the result of declining tourism revenues. In Rwanda, the parks were closed for most of the period from 1996 until 1999. In Uganda, both parks were closed for a month following the attacks in Bwindi Impenetrable National Park in March 1999. Virunga National Park in the DRC has been closed for tourists since 1998. Gorilla tracking tours are currently still impossible here due to the security situation (*Lanjouw and others 2001:39*). Before the civil war, international publicity with regard to the gorillas and organized tourism brought many visitors to Rwanda. It made tourism the third-highest foreign currency earner for Rwanda, after tea and coffee (*Williamson 2001*). Tourism almost totally stopped after the civil war started. Also in Uganda the important revenues from the tourism sector declined seriously. Before the attack in Bwindi Impenetrable National Park, tourism was Uganda's second largest source of foreign currency after coffee export. About 75% of the tourist money was derived from gorilla tourism (*Berggorilla & Regenwald Direkthilfe 1999*). After the attacks in March 1999 tourism was suspended completely during a month. Tour companies that were using the raided camps before the attack withdrew from this part of Uganda and removed their equipment.

Another reason for the park authorities' income deterioration is that the government and international organizations have no money left for conservation. Instead they have focused on short-term security issues. This has left the park authorities unable to pay salaries, or provide uniforms and equipment (*WWF 2004*).

Fortunately, international institutions such as IGCP and WCS have anticipated on this and provided the authorities with money for conservation activities and uniforms. However, this has been insufficient for Virunga National Park (with an area of 800,000 ha, administered by approximately 750 people, 700 of whom are rangers) (*Karlowski 1999*). Third, the violence and the lack of money have made it very hard for the remaining staff to effectively carry out their activities. Wrecked infrastructure, buildings and communication equipment has limited their capacity to take action. The theft of weapons, e.g. in Kabaraza, reduces their defensive capabilities against future attacks. Fear for attacks of rebel militias even resulted in the closure of Volcanoes National Park for rangers for most of 1997 and 1998. (*Schmidt 2001*). Therefore the park authority, ORTPN, has been unable to effectively monitor the development of the animals.

In 1998, in the Mikeno sector, 4 out of 5 posts were still guarded. In the Nyamulagira area, 8 posts out of 13 were still guarded. However, in both areas, park boundaries were not respected. Although rangers were officially responsible for protecting these areas, they were essentially powerless (*Karlowski 1999*). Therefore, the weakening of park authorities made people free to

carry out illegal activities that pose a direct or indirect threat to mountain gorillas, like poaching, illegal logging or encroachment of the protected area for agricultural purposes.

### 3.2.2 *Encroachment agriculturalists*

The main threat to the national parks currently seems to be encroachment of the national park by people for agricultural purposes. This is a threat already for decades. In 1979 plans were announced by the Rwandan government to clear another 52 km<sup>2</sup> of Volcanoes National Park for cattle grazing. Eventually this plan did not go through, as tourism plans were developed instead. The risks of forest conversion to agriculture in the Volcanoes National Park still remains. Local political leaders in north-western Rwanda have suggested to convert parts of the Park to agriculture or that cattle should graze in the park, but the central government has not taken these suggestions seriously. In early 2000 however, the government proposed to resettle some refugees from Gishwati forest into the Volcanoes National Park but this decision was reversed by a Government Commission.

#### Population pressure

For decades, the Virunga Volcanoes region has been subject to high pressure because of the strong concentration of people and the rate of human population growth. Population densities in the fertile Albertine Rift valley, especially in the districts and provinces around the case study area, are extraordinary high, as illustrated here.

#### Rwanda

As pointed out earlier, Rwanda is the country with the highest concentration of people in Africa, with an average of 321 people living per km<sup>2</sup>. The Rwandan provinces surrounding the Virunga Volcanoes Conservation Area are Gisenyi province and Ruhengeri province. These Northwestern provinces have population densities that are even much higher than the national average. With population densities of 422 and 538 people per square kilometre respectively in 2002, the provinces of Gisenyi and Ruhengeri are the most crowded of all rural provinces in Rwanda (*City Population 2004a*). Moreover the growth rate of the population cultivating the fertile volcanic soil is high. This leads to a very high pressure on the Virunga Volcanoes region from the Rwandan side.

#### DRC

It is estimated that about 60 million people are living in the territory of the DRC, which equals an average of almost 26 people per square kilometre. Although population densities in the DRC are much lower than in Rwanda, it is again the fertile region of the Albertine Rift valley that shows remarkable figures. The Kivu provinces are the two densest populated provinces of the entire country outside of the capital Kinshasa. Population figures from 1998 indicate that in North Kivu and South Kivu 56 and 49 people live per square kilometre respectively (*City Population 2004b*).

#### Uganda

Population density in Uganda is 124 people per square kilometer. In the Southwestern districts, surrounding the Virunga Volcanoes Conservation Area and Bwindi Impenetrable National Park, the concentration of the population is even higher, as the districts directly neighboring the two national parks, Kisoro district and Kanungu district, show population densities of 324 and 164 respectively (*Uganda Bureau of Statistics 2002*). The parishes within Kisoro district directly bordering Mgahinga National park, are again even more densely populated (with an average of 369 people per km<sup>2</sup> in 1991) (*Adams and Infield 1998*).

Table 3.1 Population density around the case study area

Country	Regions near the case study area	Population density (people / km <sup>2</sup> )		Data period
		Country	Region	
DRC		26		est. 2005
	- North Kivu province		56	est. 1998
	- South Kivu province		49	est. 1998
Rwanda		321		est. 2005
	- Gisenye district		422	est. 1998
	- Ruhengeri district		538	est. 1998
Uganda		113		est. 2005
	- Kisoro district		324	2002
	- Kanungu district		164	2002
total Africa		28		est. 2005

Source: calculations based on UN Statistics 2002, City Population 2004a and 2004b, Uganda Bureau of Statistics 2002

The relatively high density figures in the border region illustrate the high population pressure on the resources here. Moreover, people in this region are usually very dependent on natural resources for their survival. The violence and chaos in recent years has deprived many inhabitants of the Great Lakes region of their belongings. The lack of assets often results in a livelihood strategy that can be characterized as short term and solely aiming at survival. The livelihood of almost all households is based on agriculture and it seems that almost all households depend on firewood and charcoal for cooking (*Uganda Bureau of Statistics 2002*). The fact that forested parks often are the last remaining source of fuel makes the combination of high population density, high poverty and dependence on natural resources a major threat for the conservation of the protected areas.

Especially in the situation of Bwindi Impenetrable National Park, which is an isolated forest surrounded by a densely concentrated population, agricultural encroachment is the major threat to preservation of the forest (*WCMC 2001*). Approximately 10,000 families cultivate the land immediately surrounding Bwindi Impenetrable National Park. More than 20 years ago, according to Butynski (1984), about 84% of the forest compartments already displayed signs of human activity (*WCMC 2001*).

Due to this population pressure and despite of the regulations, people are entering the park to convert bamboo and mixed forest to pastoral and agricultural land. Robert Muir (2004) has pointed out that in 2004 within a few months a large amount of forest within the Mikeno sector of the Virunga National Park was destroyed. This took place roughly between April and June, in a period of decreasing security in the Mikeno sector. The resumption of fighting between DRC government and rebel troops led to widespread movements of military personnel in Mikeno sector. For security reasons therefore, the Mikeno sector became the target of a coordinated deforestation operation. Allegedly large strips of land were sold to Rwandan farmers, who cut down the forest and cleared the area using machetes and axes. They were accompanied (and according to some sources they were even paid) by military personnel from the Rwandan Defence Forces (RDF) and local chiefs around Kibumba (DRC). It is estimated that a total of 15 km<sup>2</sup> was destroyed, as shown in figure 3.1 (*Muir 2004 ; NASA 2004*).

The officially stated objective for this large scale deforestation is to open up the Mwaro corridor and Kibumba area, through which the Nyamulagira sector and the Mikeno sector of Virunga National Park are connected with each other. After all, Rwandan military commanders declare, this will prevent infiltrations of e.g. FDLR militias into Rwanda from the Nyamulagira sector (Muir).

The forest clearance in Virunga was halted in late June after Western diplomats and conservation groups pressured the Rwandan government to intervene (*The Scotsman 2004*).

Although the motives for encroachment of the national parks (security, farming) are understandable, it will most probably lead to uncontrolled exploitation of the natural resource base. Lack of community participation in park management, plus a low level of public awareness in conservation, exacerbate the human threat. Unless future conservation efforts closely involve local communities, encroachment is likely in the future.

### 3.2.3 Commercial activities

In times of war law enforcement is highly difficult, especially when the greatest threat is actually posed by the presence of (official) armed troops in the national parks. Because the soldiers were better armed, park rangers are unable to enforce the laws. There are several military posts in the parks. As the soldiers don't always receive their salaries either, they take to poaching and cut trees to make charcoal which is sold in the villages. This mainly occurs in the Nyamulagira sector, west to the Mikeno sector, as this is very close to Goma, where demand is high. Whether that still occurs anno 2005 is unclear, but it has been a massive problem during the refugee crisis. Selling wood to refugees, soldiers were making up to \$ 2800 per day (*Berggorilla & Regenwald Direkthilfe 1999*). In Bwindi, commercial logging used to be less a problem due to its rugged terrain, but recent information about this is lacking (*WCMC 2001*).

Coltan mining or the extraction of other mineral resources is not directly affecting our case study area. Gold is found and extracted in the northern parts of Virunga National Park though. It might also be possible that smuggling of mineral resources towards Rwanda moves through the national park, but actual data about this is not available.

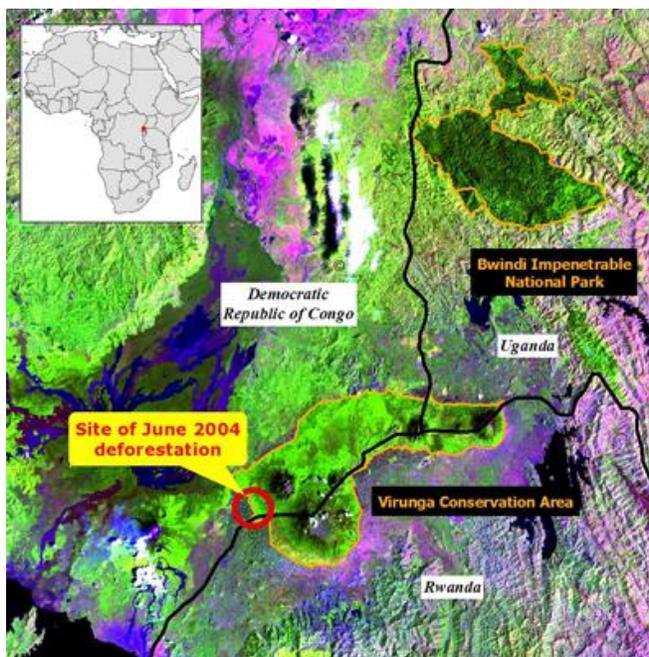
### 3.2.4 Other threats to the mountain gorillas

Apart from the above-mentioned factors directly or indirectly threatening the habitat of the mountain gorillas there are other factors that pose a direct threat to the mountain gorillas and to biodiversity in general. The most obvious of these is poaching wildlife. Often it is the presence of the army that leads to high levels of poaching, as happened in Akagera National Park (*Plumptre and others 2001*). Potential threats to wildlife are posed by rebels, poachers and soldiers.

Although mountain gorillas are a potential source of food or income, currently there is almost no evidence of gorilla hunting in the forests of the Virunga-Bwindi region. However, gorillas have become the victim of poaching for antelope, bush pigs and other animals. This unselective hunting takes place with snares that can also kill or injure the gorillas.

A less apparent factor threatening the mountain gorillas is tourism. Although tourism can also be an opportunity to conservation, it also poses threats. Tourism can pose a danger to the mountain gorilla population in two ways, through habituation and through disease transmission. In recent years there has been an increased demand to habituate more mountain gorilla groups in order to

Figure 3.1 Remote sensing image indicating encroachment in Mikeno sector



Source: NASA 2004

generate more money and satisfy the growing number of people who want to view gorillas in their natural habitats. Habituation to humans however increases the mountain gorillas' vulnerability to possible poachers. Tourism also brings in an element of risk through potential disease transmission from humans to gorillas. It has been proven that (captive) gorillas have a definite susceptibility to human diseases, but they do not have the same resistance as humans have. This means that gorillas can be affected by respiratory diseases, such as measles, herpes, pneumonia and enteric diseases, such as polio, and salmonella. Therefore, gorilla eco-tourism can have catastrophic consequences for the survival of the mountain gorilla population.

Consequently some rules have been set up. First of all, in Bwindi Impenetrable National Park only healthy tourists are allowed to enter the park (*Johnstone 1997 in WCMC 2001*). Other rules exist regarding the distance to be maintained between gorillas and visitors, the number of visitors per group and a strict one-hour limit to the visit (*Williamson 2001*). The constant presence of people, whether these are tourists, refugees or armed groups, can cause stress among the gorillas.

### 3.3 Environmental effects

#### 3.3.1 Forest

The amount of deforestation in Virunga National Park as a result of the refugee crisis from 1994-1996 was enormous. According to Kalpers (*2001*) the most irreversible damage occurred in the Mikeno sector, within the zone of influence of the Kibumba camp, where extensive areas were deforested. It is estimated that two years after the arrival of the refugees, 105 km<sup>2</sup> of forestland had been impacted by deforestation, of which 35 km<sup>2</sup> were totally denuded (*Kalpers 2001:144*). UNHCR even mentions a higher number of 113 km<sup>2</sup> of forest (*Sanders 1997*). Because of the extraordinary threat of the refugee crisis, Virunga National Park was placed on the List of 'World Heritage in danger' in 1994 (*Kalpers 2001:7*).

However, after the refugee camps had been dismantled, and despite of the ongoing insecurity in the region, the forest in the Virunga Conservation Area recovered. More than six years after the refugee crisis a regrowth of forest was detected (*BEGo 2005*). It is expected that these results are not so dramatic thanks to conservation authorities.

Table 3.2 Changes 1987 – 2003

Non-forest to open canopy forest	3318 ha.
Non-forest to closed canopy forest	1351 ha.
Open canopy forest to non-forest	43 ha.
Closed canopy forest to non-forest	319 ha.
Urbanization	271 ha.

Source: *BEGo 2005*

These statistics date from before the events of 2004, when people coming from Rwanda entered the Mikeno sector of the Virunga National Park. This event also seriously impacted the forest, as more than 7 km<sup>2</sup> has been clear-cut and more than 8 km<sup>2</sup> has seriously been degraded (*CBFP 2005:12*).

#### 3.3.2 Development of the mountain gorillas

Despite the war, the number of mountain gorillas living in the Virunga-Bwindi region has increased, from 624 in 1989 to almost 700 individuals in 2004. Since the war began in 1996, large areas of the National Parks were off-limits to rangers. When surveillance became safer and patrols could be carried out again, it became clear that surprisingly many mountain gorillas survived. Between 18 and 23 mountain gorillas were killed, probably not by poachers but by soldiers unaware of the value of the animals and not knowing how to deal with them. According to

Mr. Mushenzi, director of the ICCN, soldiers have even shot gorillas just because they were frightened by them. In May 1997 a Congolese army patrol unexpectedly stumbled onto a group of mountain gorillas in the forest. Scared by the defensive behavior of the silverback, the leader of the gorilla band, the armed men shot and killed at least ten gorillas (*Schmidt 1999*).

#### Bwindi Impenetrable National Park

From 1987 to 1993 Thomas Butynski and his team identified and monitored about 290-310 mountain gorillas in Bwindi Impenetrable National Park. In 1997 a team of scientists from WCS (Wildlife Conservation Society), IGCP (International Gorilla Conservation Programme), ITFC (Institute of Tropical Forest Conservation) and UWA (Uganda Wildlife Authority) found that nearly 300 gorillas were living in the park. Five years later, in 2002, again an increase was found, when another team of researchers counted about 320 gorillas in the Bwindi Impenetrable National Park (*IGCP 2005 ; Berggorilla & Regenwald Direkthilfe 1997*).

#### Virunga Volcanoes Conservation Area

In 1959, biologist George Schaller estimated there were 400 to 500 gorillas in the Virungas. In the early 1970's however, biologists counted 275 individuals. An apparent low in the Virunga population was reported in 1981: only 254 mountain gorillas were left. During the eighties the population recovered, as a census completed in 1989 estimated 324 gorillas in the Virunga Volcanoes region. As Amy Vedder, researcher for the WCS stated: "In the early 1990's things looked very good. Concentrated conservation efforts had begun to show results. We were detecting an upturn in numbers of gorillas. Also, the systems for tourism were bringing a tremendous amount of revenue, so there was great local and governmental support" (*Schmidt 1999*). But then the war broke out and it was feared that after more than a decade of persistent violence and without effective protection, the survival of the mountain gorillas was seriously threatened. However, a survey conducted by IGCP and other partners late 2004 in the three adjoining parks recorded 380 individuals. This would mean that there are 56 more mountain gorillas today than there were in 1989, implying a 17 percent increase over a 15 year period (*IGCP 2005; WWF 2004*).

## 4 Opportunities for the Virunga-Bwindi region

As pointed out in the previous chapter, there are many threats to the mountain gorilla population in the Virunga-Bwindi region. There are, however, also several factors that can potentially benefit the survival of the animals and the protection of their habitat.

First of all, the survival strategies of the animals themselves are very strong. Their mountain home is extremely rugged and densely vegetated. When they want to avoid contact, they are adept at hiding. Moreover, wild mountain gorillas have a robust population. On average, 31 percent of females give birth each year, and 32 percent of offspring die in the first five years of life. This means the population can grow steadily if safe, even if they have been impacted significantly by the wars and conflict (*Schmidt 1999*).

Second, both Rwandans and Congolese are proud of their gorillas. Vedder, director of WCS Africa program indicated that during the early stages of Rwanda's civil war, both rebels and the government pledged not to fight in the forest to avoid harming the gorillas. The gorilla has become a national symbol and today the Rwandese passport, visas for foreigners, and bank notes all feature gorillas (*Williamson 2001*). Ms. Vedder witnessed such an attitude on the Congolese side herself, as she tells: "We were frequently stopped and questioned by soldiers. Some of these encounters felt threatening at first, but as soon as the soldiers realized we were with park rangers, they relaxed and wished us a pleasant visit" (*Schmidt 1999*). This indicates that the importance of protecting the mountain gorillas is incorporated in the mindset of the people.

### Opportunities for action

There are many opportunities for action to be taken in order to create a sustainable way of coping between interests of nature conservation and interests of the people surrounding the protected areas. Some actions can possibly be taken at international and national level, while other actions are suggested to be taken on local and household level. Some international organizations and regional networks are already established and work rather effectively in the domain of conservation and development. Yet it is extremely difficult to get an overview of these organizations and the activities they carry out. Therefore a short and incomprehensive list of organizations is made of programmes and organizations that are currently being carried out, published as annex at page 42. After all, a crucial thing for international organisations is to frequently analyse what is already been done by others, what activities are still greatly needed, and where organisations can possibly join efforts and financial resources.

### International fund

The Congolese park authority ICCN still faces very serious challenges, partly because of the fact that eastern DRC is still under rebel control and partly because of a lack of financial resources. In order to keep conservation activities going on, the least the international community can do (and some organizations are in fact also doing that) is supporting the park authority staff to carry out their work. Providing uniforms, communication equipment and salaries to the park staff in times of need is a very practical and effective way to deal with immediate problems.

### Monitoring

Remote sensing is a very useful tool for policy makers and park authorities to perceive land use changes over, say, a couple of years. However, in order to be able to respond quickly to changing situations (like the encroachment of Mikeno sector in 2004) it would be very useful to have a permanent monitoring system. Like that land use changes can be detected almost immediately and if a quick response mechanism is developed, action can be taken much more rapidly.

## Land

Rwanda is working hard on its land policy, trying to improve access to land for more households, including returning refugees. Although this could possibly provide many opportunities, there is a need for the Rwandan and Ugandan governments also to promote non-farm activities. Otherwise, given the dependence on land, combined with high growth figures and enormous population density in the regions surrounding the National Parks, the situation will definitely become untenable.

## Tourism

Gorilla tourism is currently possible in both national parks in Uganda and in Rwanda's Volcanoes National Park, where it was resumed in 1999. Tourism is currently tightly controlled at the park, but the demand for gorilla tracking is growing (*WCMC 2001*). Although there is a high demand to habituate more groups in order to generate more money, the mountain gorilla population is too small and too fragile to withstand increased pressure from tourism (*Nkurunungi 2001*).

Yet, tourism can, if managed carefully, create a win-win situation for all parties: the mountain gorillas, the surrounding communities, the park authorities, the national government, the scientific community and the tourists. After all, gorilla tourism was in the first place introduced as a means 'to make the gorillas pay for themselves'. Currently mountain gorilla tourism generates well over US \$2 million to the three countries, but this could even be much higher, as Moyini and Uwimbabazi (*2000*) have calculated it. Annette Lanjouw, director of the International Gorilla Conservation Programme (IGCP), even estimates that revenue from tourism and related activities can bring US \$20 million to the entire region each year (*National Geographic 2004*). Those revenues can help the park authorities to cover salaries and operating costs in all the protected areas of the country. Tourism creates not only direct revenues, but also enhances international awareness and concern for the plight of gorillas. It therefore generates funds for conservation activities and research.

Gorilla tourism attracts many visitors to the region, who should be encouraged to prolong their stay. This can be done by developing other tourist attractions and investing in existing attractions. In Uganda other attractions in that region include the Rwenzori mountains, Fort Portal and Queen Elizabeth National Park. Rwanda is already developing its shore at Lake Kivu for tourism and offers the magnificent Nyungwe National Park. Extending tourism facilities would therefore be beneficial for the wider region and can potentially attract a lot of foreign currency.

Gorilla ecotourism can be a way to help local communities generate income. People might work as a ranger for the UWA or offer tourism-related activities, such as to make and sell souvenirs, sell drinks, set up museum-like exhibitions, or facilitate hikes through the region outside of the park.

Tourists pay US\$250 to spend an hour with mountain gorillas. In Uganda and Rwanda, the money is spent both on protecting national parks and investing in local development projects (*IGCP 2005; WWF 2004*).

## Raising awareness

Gorilla tourism brings in money for local people. However, putting too much emphasis on the opportunities of tourism should be avoided; demand is already rather high and the numbers of visitors have to be kept low from a conservation perspective. It is therefore also necessary to point the surrounding communities at the non-financial motives for conservation: the environmental security aspect. The forest in which the gorillas live is indispensable to people's survival. Once it disappears, the land used for agriculture will suffer from erosion, loss of rainfall, and reduced fertility (*WWF 2004*). This will be a catastrophe for the owners of the land and their children, as the loss of land implies the loss of the basis of their livelihoods. Behavioural patterns can only be changed when people realize the relationship between deforestation and the impact on their livelihood. Awareness raising about these issues is therefore an opportunity for developing sustainable agricultural practices while in the same time protecting the mountain gorilla habitat.

### Cooperation

There is a need for the different stakeholders on different levels to cooperate. First, cooperation between the military and the park staff will ensure much better mutual understanding. For example, while park authorities and legislation were never taken seriously by the military some years ago, further cooperation between them will probably improve their awareness of the value of nature and the importance of the activities of the park staff. Second, local and district government authorities and the local population have to work together, as it is vital that natural resource management is based on participatory processes. Local participation to tackle environmental problems and find practical solutions ensures a widespread sense of commitment and ownership for these plans. Such a bottom-up approach results in solutions that are more sustainable in comparison to measures imposed top-down.

### Demarcation

Responding to the crisis in Mikeno sector, regarding the illegal encroachment by farmers, the ICCN has requested help from various international organizations. These have financially contributed for the construction of a wall to demarcate the park boundaries to local communities. This wall, built by local workers, is one meter high and one meter wide, and will reduce human - wildlife conflicts: it prevents wildlife such as elephants, buffalos and primates to leave the forest (*FZS 2004*).

### Buffer zones

Another effective measure to prevent encroachment is by establishing buffer zones around the national parks. Supported by the Environmental Programme for Virunga National Park (PEVi) such buffer zones have been built in Virunga National Park. Local communities can obtain wood from these areas and tree nurseries and plantations have proved a popular source of income. Vegetable and honey production, improved livestock husbandry, and solar cookers are also helping to improve people's livelihoods and ease pressure off the park (*WWF 2004*).

### Fuel wood saving

Another opportunity for conservation of the forest is by supporting improved cooking stoves and other energy saving techniques. Due to the shape and material of these cooking stoves they are heat conserving. The use of improved cooking stoves will result in a drastic decline in the demand for firewood. Therefore, households need to collect less firewood, which will reduce the rate of deforestation in the area. Several agencies already promoted it in certain refugee camps during the refugee crisis in the DRC (*Kalpers 2001*).

## 5 Transboundary environmental cooperation

The debate on the relationship between resources and conflict is primarily concentrated on how natural and mineral resources are contributing to conflict and the relative role of resources in relation to other sources of conflict. Notwithstanding the importance of this debate, this is a rather limited view on the role of environmental factors. After all, environment is more than a threat; it can also be an opportunity. Environmental factors therefore not only threaten peace and stability, they can also become factors enhancing peace and stability. Environmental cooperation therefore is a way to manage environmental conflict. The Nile River Basin Initiative, described in annex, is a practical example of environmental cooperation. It is based on the idea that cooperating on sustainable water management can encourage sustainable development and at the same time help to prevent conflicts. Although the Nile River Basin Initiative is a very large scale program, involving nine states, environmental cooperation can take place on all levels, even on household level. In this chapter the focus is on transboundary environmental cooperation. Ken Conca has outlined different ways in which, in theory, environmental cooperation can be helpful in stimulating security.

### Box 5.1 Benefits of environmental cooperation

#### Strategic climate

First of all, environmental cooperation changes the 'strategic climate', as Conca (2001) calls it, in a variety of ways. Incomplete information and understanding about other parties, and suspicion about their hidden motives usually slows down cooperation between parties. Cooperation offers opportunities to reduce all kinds of uncertainties and build confidence. As a result, mutual gains from cooperation might be identified, such as gains from e.g. a shared tourism policy.

Environmental collaboration also encourages stability by promoting diffuse reciprocal relationships. Reciprocity is called 'diffuse' when costs and benefits of cooperating are displaced in space or time. This is usually the case with environmental cooperation. This creates a certain interdependence between countries. Interdependence can be seen as a force of stability and peace in world politics. The main argument behind this idea is that interdependence can create opportunities for mutual gain across national borders. "This gives states a stake in peaceful cooperation and raises the costs of war to an unacceptable level. (Conca 2001:239)"

Moreover, environmental collaboration forces actors to think about the future. It might establish long term relationships and sustained interaction. This reduces the risk of environmental conflict among parties.

#### Transforming governance

Another aspect related to environmental cooperation is its role in transforming governance systems. After all, international cooperation does not necessarily mean intergovernmental cooperation. The usually weak attention of national governments regarding environmental issues suggests that the initiative for environmental cooperation will probably have to come from non-governmental organisations. Groups from different countries dealing with social and environmental issues can establish cooperative trans-societal relationships, networks. Environmental cooperation can therefore ideally become the realm of various societal organisations and institutions other than the national government: a transnational civil society. One of the peacemaking effects of these transnational networks is that it "can greatly empower previously marginalized groups to have a voice in policy decisions" related to environmental security, e.g. in issues of forest destruction or land rights (Conca 2001).

## 5.1 Park for Peace

Transboundary environmental cooperation can lead to the setting up of transboundary protected areas. Recently the number of such areas is growing, from 59 in 1988 up to 136 in 1997, and is expanding throughout all regions of the world. Some of these have especially been set up to fulfill the roles as described in box 5.1: building confidence, reducing uncertainties, creating reciprocal relationships and interdependence, etc. These parks are popularly referred to as 'peace parks', or 'parks for peace'.

Various such transboundary parks have been formed in Sub-Sahara Africa, like the Kgalagadi Transfrontier Park at the border region between South Africa and Botswana in 2000 and the Great Limpopo Transfrontier Park crossing the border between South Africa and Mozambique.

## 5.2 Virunga Volcanoes Peace Park?

With regard to the role nature can play in biodiversity conservation and creating certain preconditions for peace, it is interesting also to consider the idea of the Virunga Volcanoes Conservation Area as a peace park. A transboundary national park would imply the development of a shared policy on conservation, or even the installation of a shared park management authority that has control over the area. Would this be feasible? Kalpers and Lanjouw were already thinking about setting up something like a 'Virunga Volcanoes Peace Park' eight years ago, before the violence had spread towards the eastern DRC. In 2005, things have changed, but there is still a rationale behind it. Both opportunities and constraints for the implementation of this idea can be indicated.

### 5.2.1 Opportunities

First of all, it is necessary to analyse whether there is potential to set up such transboundary cooperation initiatives. Compatible institutions and mutual benefits for cooperation should therefore be identified. Opportunities for managing the national parks have already been mentioned in chapter 5. Here some opportunities for setting up a transboundary approach will be briefly mentioned, partly based on the report by Lanjouw and others (2001).

- ecological opportunities:
  - three geographically connected protected areas (all three are already National Parks)
  - high conservation value due to unique biodiversity and presence of a highly endangered species of wildlife, the mountain gorilla
- geographical opportunity:
  - the tri-national area is only about 430 km<sup>2</sup> ; this should be workable.
- political opportunities:
  - political support for sustainable environmental management has strengthened in all three countries
  - countries are already cooperating within transnational frameworks (Nile River Basin Initiative, CARPE)
- institutional partners:
  - compatible park authorities (parastatal organizations, similar activities)
  - international development and conservation organizations active in the region
- economic opportunities:
  - attention and financial support
  - improved livelihoods through conservation
  - improving local and national economy through gorilla tourism
- social:
  - international ethnic groupings
  - common languages (Kinyarwanda and Rukiga)

### 5.2.2 *Current efforts*

Efforts to promote environmental cooperation are currently being taken by the International Gorilla Conservation Programme (IGCP). In order to promote better integration of conservation and development activities, this organisation stresses the mutual benefits of increased collaboration. It has produced a report on its efforts to promote transboundary natural resource management in the Virunga-Bwindi region, and the opportunities and constraints it runs into.

Partly as a result of its lobbying work at management level, the park authorities of the three countries met, in October 2001. They signed a 'declaration expressing their intention to create a full transfrontier protected area, the Virunga-Bwindi Transfrontier Park' (IGCP 2005 ; WWF n.d.).

Robert Muir has indicated that in 2004 a meeting took place between the protected area authorities ICCN and ORTPN to discuss and identify means to stop the agricultural encroachment in Mikeno sector. Although this has not resulted in a decreasing rate of destruction, Muir acknowledges it is a significant achievement and should be the basis for the strategy to resolve the crisis.

However, until now cooperation mainly takes place between the park authorities and international organizations. From a conservation point of view this will probably be highly useful, but from a peace perspective increasing direct cooperation between the three national park authorities is probably necessary.

On a lower level, transboundary cooperation has taken place in the form of joint patrols between Rwandan and Congolese rangers, organized and facilitated by IGCP. This stimulates the exchange of information between personnel in these two countries about their views on conservation and particular problems occurring in their parks.

### 5.2.3 *Constraints for transboundary cooperation*

There are however also quite some factors hindering the creation of a peace park. It is important to realize these constraints.

#### Security

The Rwandan government still considers the presence of rebels, especially the FDLR militias, in eastern DRC as a threat to its security. Borders are therefore being secured very closely. While MONUC makes efforts to disarm the rebels voluntarily, president Kabila has recently announced a forced disarmament programme. It remains to be seen what will happen in terms of actions of the DRC government and how the militias will respond. It is a fact that the security situation is far from secure at the moment.

#### Political

Partly as a result of the security situation in the eastern DRC and the recent invasion of Rwandan forces in the DRC, diplomatic relations between the countries are extremely poor. Moreover, the transitional government of the DRC still has even no political control over the eastern part of the country. These factors make the institutionalisation of transboundary cooperation simply impossible.

#### Priorities

The priorities of the governments of Uganda, Rwanda and the DRC are not so much receiving priority, as the governments have to focus on military issues, social rehabilitation, justice, etcetera. Environmental issues therefore receive very little attention, to put it mildly.

The priorities of international institutions and organisations in this region, such as MONUC, various foreign ministries and NGO's, are also primarily focused on political issues and issues of security and relief. Initiatives exist, as pointed out in chapter 6, and these should not be underestimated, but the majority of the money and efforts go to human security issues. There is reluctance to invest in the DRC because of a lack of confidence in the government.

### Institutions

As pointed out earlier, the park authorities have weakened due to the crises. According to IGCP these institutions were already weak before violence erupted in 1994.

At the level of park authorities it is hard, but sometimes possible, to establish cooperative meetings. However, there is always a mediating institution involved.

Different administration systems within the three countries, have made it hard to harmonize management approaches between them. Problems exist mainly between the francophone (Rwanda and the DRC) and anglophone (Uganda) countries. The language in itself is also a problem, as "translation is often needed and documentation always has to be produced in both French and English" (*Lanjouw and others 2001;39*).

## 5.3 Conclusion

Although creating a Virunga-Bwindi peace park would be wonderful both from a security and from an ecological perspective, it seems that the constraints are currently too high to give this idea any constructive meaning. At least a more peaceful situation should be realized before any transboundary initiative on this political level will have a chance. Institutionalization of a transfrontier park, and calling it a 'peace park', will only remain nothing but a dream as long as the insecurity in eastern DRC is not solved.

However, the transboundary cooperation at the level of park staff should be continued and strengthened, as far as it is possible. Joint patrols and sharing knowledge can greatly benefit mutual understanding among the people. At least this can be a small step to peace.

## 6 Conclusions & recommendations

The African Great Lakes region has been characterized by violence for many years. Multiple factors, partly originating from the colonial era, have played a role here. The Belgian emphasis on ethnicity has spurred tensions between Tutsi and Hutu. Related to this, access to land became increasingly unequally divided and tensions between impoverishing households and large land owners arose. In the course of decades a 'structural conflict' developed, which erupted several times during the past 50 years.

Following years of tension in Rwanda, the 1994 genocide caused about 800,000 deaths and enormous refugee flows, mainly towards the border between Rwanda and Zaire, now named the Democratic Republic of Congo (DRC). The spill-over effects of this ethnic conflict were disastrous, as the violence became the catalyser for another conflict, again inciting another war, etcetera. Violence extended over the territory of the Democratic Republic of Congo, Rwanda, Burundi as well as the border regions with Uganda. In order to fight for control over mineral resources, many neighbouring countries profited from the situation of lawlessness and interfered in the conflict, hence creating a large African war. All sorts of rebel movements, supported by Rwanda or Uganda, controlled large parts of the country and its resources. Despite setting up a 'transitional government of national unity' in 2003, the country is still far from united. Likewise, the international peacekeeping mission that is trying to disarm the rebels in the east, near borders with Burundi, Rwanda and Uganda, has not succeeded in bringing peace to the region.

Also in the volcanic border region between Uganda, Rwanda and the DRC – then called Zaire, the eruptions of violence were apparent. The war posed a threat not only for the people living there, but also for the tropical montane forests that, due to their rich biological diversity, have a very high conservation value. The Virunga-Bwindi region is the habitat of about 700 endangered mountain gorillas; the only place in the world where these animals live.

The incredibly large refugee camps near the forest and the presence of armed groups within and around it caused wide-scale deforestation despite measures being taken. The violence also had a great impact on the already weak park authorities. The security situation in the parks and a lack of resources made patrolling and tourism impossible. Thanks to the efforts from park staff and several organisations, conservation activities have been resumed and the mountain gorillas have largely been protected.

The national parks are however still subject to large pressure, due to high rates of population growth, high population densities near the national parks and a great dependency of the people on agricultural land and fuel wood in order to survive. Despite the willingness of national governments to protect the parks, this land pressure makes the situation almost untenable.

Therefore, action can be taken on different levels. At household level, fuel wood saving techniques should be applied in order to reduce the amount of fuel wood needed from the forests. Related to that, buffer zones between the national park and the agricultural areas should be established, to prevent encroachment in the parks. A clear demarcation is also useful as wildlife does not destroy the plots of farmers and the park boundaries are made clear to everyone. Cooperation should be encouraged, both between military and the park authorities but also between local and district governments and the local people. Participation is extremely important, for example when it comes to demarcating the park boundaries.

On the national level, governments should make serious efforts to improve land access for landless households as well as to promote off-farm activities to reduce the pressure on land. Also gorilla tourism should be promoted, as this benefits people both locally and regionally, and attracts a lot of foreign currencies. Tourism is however not the only economic value of the protected forest areas; the livelihood of many people depends on it. People should be made aware of the enormous value of the forest and the importance of managing it sustainably.

On the international level a fund should be installed to assist the park authorities, and a permanent monitoring system and quick response mechanism should be set up, in order to detect land use changes inside the park boundaries and to take action.

Particular interesting here is promoting transboundary cooperation on environmental issues. As Dr. Z. P. Jordan, then South African Minister of Environmental affairs and Tourism said in 1997: *“The rivers of Southern Africa are shared by more than one country. Our mountain ranges do not end abruptly because some 19th century politician drew a line on a map. The winds, the oceans, the rain and atmospheric currents do not recognize political frontiers. The earth’s environment is the common property of all humanity and creation, and what takes place in one country affects not only its neighbours, but many others well beyond its borders.”*

Applying such a philosophy to the Virunga Volcanoes Conservation Area would not only lead to a better management of the park, but also to a greater mutual understanding, a build up of confidence, more reciprocal relationships and forms of interdependence between the three countries and the different ethnic communities inhabiting the region. In the end those things are a precondition for peace.

There are many encouraging factors for the implementation of such a transboundary management approach. Moreover, the development of gorilla tourism is a mutual benefit that all parties seem to realize. However, other factors form a hindrance to the implementation. Diplomatic relations between Rwanda and the DRC are currently rather poor, after Rwandan invasions in the Kivu provinces, even recently in December 2004. The security situation in these eastern Congolese provinces, also near the Virunga National Park, is not all right yet. Still many people die as a cause of the violence every day. These regions are not yet under full control of the national government of the DRC. Related to that, priorities of the national government are mainly put on issues of immediate human security, instead of environmental security and nature conservation.

These factors greatly constrain the feasibility of a true transnational park. On the level of park staff however, current efforts should be continued to improve transfrontier cooperation, through knowledge sharing and joint patrols for example. The idea of a Virunga Volcanoes Peace Park will nonetheless remain a great idea that can benefit both the human population and the mountain gorilla population in the region in the future.

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## Annex International initiatives

In this section some programs dealing with the mountain gorilla habitat in our case study region will be listed and described. Note that the list is most likely not comprehensive. Some features will be highlighted for each of the programs, like the type of organisation, their objectives and approaches, the kind of projects they carry out, etc.

### **International Gorilla Conservation Programme (IGCP)**

Established:	1991
Type of organisation:	coalition African Wildlife Foundation (AWF), Fauna & Flora International (FFI) and the World Wide Fund for Nature (WWF)
Objective:	to ensure the conservation of the regional afro-montane forest habitats of the mountain gorillas in Rwanda, Uganda and the Democratic Republic of Congo.
Emphasis:	-regional collaboration between the three countries to work together to protect and conserve the area. -empowerment / development surrounding communities
Activities:	Ecological monitoring and surveillance; Tourism development; Joint training, communication and sharing of experiences; Promoting community participation Promoting management planning.
More information:	<a href="http://www.mountaingorillas.org/">http://www.mountaingorillas.org/</a>

### **Dian Fossey Gorilla Fund International**

Established:	1978 (established by Dr. Fossey as Digit Fund, renamed in 1992)
Type of organisation:	non-profit organization
Objective:	to preserve and protect the world's last 650 mountain gorillas
Activities:	Monitoring and protecting the mountain gorillas residing Volcanoes National Park; Tracking and anti-poaching patrols; Promote the use of common gorilla monitoring protocols and practices; Collecting demographic, behavioural and environmental data; Funding small-scale development activities in communities near the gorilla habitat, in support of the local people; Training rangers and trackers; Bringing GIS and remote sensing technology to collaborating universities in Africa and training students and trackers in applying these technologies; Promoting public awareness of gorilla conservation via media and other communication projects;
More information:	<a href="http://www.gorillafund.org/">http://www.gorillafund.org/</a>

## **Environmental Programme for Virunga National Park (PEVi)**

Established: 1987  
Type of organisation: collaboration WWF and ICCN  
Objective: to raise awareness of the value of conservation among local communities.  
Activities: rural development activities such as tree planting and tree nurseries.  
More information: [http://www.panda.org/news\\_facts/newsroom/features/news.cfm?uNewsID=10763](http://www.panda.org/news_facts/newsroom/features/news.cfm?uNewsID=10763)  
[http://www.panda.org/about\\_wwf/where\\_we\\_work/africa/where/eastern\\_africa/drc/index.cfm](http://www.panda.org/about_wwf/where_we_work/africa/where/eastern_africa/drc/index.cfm)

## **Albertine Rift Ecoregion Conservation Programme**

Established: 2001  
Type of organisation: WWF (WWF Eastern Africa Regional Programme Office)  
Objective: To ensure the long-term conservation of the Albertine Rift Montane Forests and other important interconnected ecosystems  
Activities: Developing a strategic framework for conservation efforts in the eco-region with a wide variety of stakeholders  
Implementing and co-ordinating a set of comprehensive and inter-related field projects in the Albertine Rift  
Supporting national authorities in the planning and management of protected areas and buffer zones  
More information: <http://www.panda.org/downloads/africa/albertinerift.pdf>

## **Albertine Rift Programme**

Established: 1950's  
Type of Organization: Wildlife Conservation Society (WCS)  
Objective:  
Activities: Developing scientific reports 'Albertine Rift Technical Reports Series'  
Support field research such as mountain gorilla surveys  
Capacity building activities, support for the training of staff of ORTPN, UWA and ICCN.  
Support to protected area management, support for transboundary collaboration between Uganda and DRC, building upon the work of IGCP.  
More information: <http://albertinerift.org/arift-home/arift-protectedareas/virunga>  
<http://www.wcs.org>

## **Mountain Gorilla Geomatics Project**

Established: 1992  
Type of organisation: collaboration Dian Fossey Gorilla Fund International and Dr. Scott Madry.  
Objective: To use advanced remote sensing, Geographic Information Systems (GIS), and Global Positioning Systems (GPS) technologies (often referred to together as "Geomatics" technologies) to provide a digitized database of

the mountain gorilla habitat. The database includes layers of information that contain vegetation patterns, gorilla ranging and human use of gorilla habitat, including changes over time, and the impact of human encroachment on the reserve.

More information: <http://www.informatics.org/gorilla/region.html>

### **Build Environment for Gorillas (BEGo)**

Established: 2003

Type of organisation: collaboration European Space Agency and UNESCO, project is lead by Synoptics in collaboration with other European partners and a Data User Community

Objective: To explore the capabilities of earth observation technology in a specific case: the protection of the habitat of the mountain gorilla.

Activities: Analysing satellite images, both optical and radar, on land cover changes, location of illegal activities, patrol coverage, location of gorilla groups, illegal logging;

Creating geo-products based on this information

More information: <http://www.gorillamap.org>

### **Integrated Forest Monitoring System for Central Africa (INFORMS)**

Established: unknown

Type of organization: Woods Hole Research Center in cooperation with NASA and CARPE

Objectives: To monitor land-cover and land-use changes in the tropical rain forests of Central Africa

Activities: To integrate data acquired from satellites with field observations from forest inventories, wildlife surveys, and socioeconomic studies to map and monitor forest resources.

More information: <http://www.whrc.org/africa/> and

<http://www.nasa.gov/vision/earth/lookingatearth/gorillas.html>

### **Great Apes Survival Project (GRASP)**

Established: 2001

Organisation: collaboration UNEP and UNESCO

Objective: To prevent extinction of gorillas, chimpanzees, bonobos and orangutans.

Activities: to provide a framework into which all the individual conservation efforts of governments, wildlife departments, academics, non-governmental organisations (NGOs), UN agencies and others can be layered to ensure maximum efficiency, effective communication and successful targeting of resources.

More information: <http://www.unep.org/grasp/>

### **Frankfurt Zoological Society**

Established: 2002  
Organisation: Frankfurt Zoological Society (FZS) in close cooperation with IGCP and ICCN  
Objective: to improve the monitoring abilities of the National Park, as well as to optimise the park management.  
Activities: Provisions of the ranger patrols in the south of the park (Rumangabo)  
Acquisition of tents, uniforms and equipment for rangers in the gorilla zones  
Installation of a HF radio network for the southern part of the park and a VHF radio network for the patrols in the gorilla areas  
Solar panels for power supply  
Equipment and salaries for the monitoring of the gorillas  
Provision of medicines and medical equipment for the pharmacy in Rumangabo  
More information: <http://www.zgf.de/>

### **Biodiversity Conservation in Regions of Armed Conflict: Conserving World Heritage sites in the Democratic Republic of Congo**

Established: 2000  
Organisation: UNESCO, the United Nation's Foundation (UNF), ICCN, German Technical Cooperation (GTZ) and various international NGOs.  
Objectives: To ensure the conservation of World Heritage Sites in the DRC  
To strengthen the conservation of the sites and ICCN as a whole.  
Activities: Bringing direct field reinforcement, particularly through salary substitute support to site's staff and provision of key field equipment.  
Diplomatic interventions to convince leaders and others authorities in all concerned States of the need to ensure the security of the working environment and for the conservation personnel and equipment.  
Building personnel capacity through training and to establish collaborative programmes of long term training, surveillance and monitoring.  
Surveying post-war status and establishing long term monitoring of the biodiversity in the sites.  
Promoting programmes of collaboration with indigenous communities improving resource conservation.  
More information: [http://whc.unesco.org/pg.cfm?cid=39&id\\_project=29](http://whc.unesco.org/pg.cfm?cid=39&id_project=29)

### **Mountain Gorilla Conservation Fund**

Emphasis: Education  
Activities: Organizing teacher meetings and distributing training guides to teachers in Uganda to educate students about mountain gorillas, their habitat and the coexistence with people surrounding the parks.  
Construction of protected disposal pits near Bwindi Impenetrable National Park.  
More information: <http://www.mgcf.net/>

## Regional Initiatives

### **Congo Basin Forest Partnership**

- Established: 2002
- Type of organization: association of 29 governmental and nongovernmental organizations. Active African governments are: Cameroon, Democratic Republic of the Congo, Central African Republic, Republic of the Congo, Gabon, Equatorial Guinea
- Objective: to improve communication and coordination among its member organizations vis-à-vis their projects, programs, and policies to promote sustainable management of Congo Basin Forest ecosystems and wildlife and improve the lives of people living in the region.
- Activities: Organizing coordinating sessions for the partners  
Facilitating communication, exchange of ideas, and coordination amongst partners through the website.  
Conducting a survey of member organizations to gather information on existing and planned projects and programs on forest conservation and sustainable management in the Congo Basin region
- More information: <http://www.cbf.org/en/index.aspx>

### **Central African Regional Programme in the Environment (CARPE)**

- Established: 1995
- Type of organization: initiative by USAID including nine states in the Congo Basin: Cameroon, Central African Republic, Equatorial Guinea, Gabon, Republic of Congo, Democratic Republic of Congo, Rwanda, Burundi, and Sao Tome e Principe.
- Objective: Providing critical information and capacity strengthening for forest management in the Congo Basin.
- Activities: Promoting the implementation of sustainable forest management practices, encourage local community forest management  
Strengthening environmental governance, such as civil society and NGO's, to develop integrated land use plans, set up policies and laws to protect e.g. national parks and sustainable logging  
Build capacity for natural resource monitoring  
Publishing reports on the state of the forests of the Congo Basin
- More information: <http://carpe.umd.edu/>

### **Nile River Basin Initiative**

- Established: 1993
- Type of organization: partnership among the basin states of the Nile: Democratic Republic of the Congo, Uganda, Rwanda, Ethiopia, Burundi, Sudan, Kenya, Egypt, Tanzania

Objectives: To build a strong foundation for cooperative action and for future investment projects.  
To achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin resources

Activities: Eight projects are designed to establish an integrated approach to developing and managing water resources. The focus is on building institutions, sharing information and data, providing training, creating avenues for dialogue and networks needed for joint problem-solving, collaborative development, and developing multi-sector and multi-country programs of investment to develop water resources.

More information: <http://www.nilebasin.org/>

## IES EnviroSecurity Assessments

A major proportion of the world's ecosystems and the services they perform for society and nature is being degraded or used unsustainably. This process affects human wellbeing in several ways. The growing scarcity of natural resources creates a growing risk for human and political conflicts and hinders sustainable development and the poverty alleviation that depends on it. Situations involving resource abundance can also be related to serious environmental degradation, increased community health risks, crime and corruption, threats to human rights and violent conflicts – in short, to a decrease of security.

The overall objective of IES EnviroSecurity Assessments is to secure the natural resource livelihood basis on the local, regional and international level. IES pursues this objective along the following mutually related lines: (1) the conservation of ecosystems and their related services, (2) the implementation of the international legal order, (3) the provision of economic incentives for maintenance of ecosystem services, and (4) empowerment of relevant actors and dissemination of results.

## About the Institute

The **Institute for Environmental Security** (IES) is an international non-profit non-governmental organisation established in 2002 in The Hague, The Netherlands with liaison offices in Brussels and Washington, D.C.

The **Institute's** mission is: *"To advance global environmental security by promoting the maintenance of the regenerative capacity of life-supporting ecosystems."*

Our multidisciplinary work programme - **Horizon 21** - integrates the fields of science, diplomacy, law, finance and education and is designed to provide policy-makers with a methodology to tackle environmental security risks in time, in order to safeguard essential conditions for sustainable development.

Key objectives of the **Horizon 21** programme are:

- **Science:** Create enhanced decision tools for foreign policy makers, donors and their target groups on regional, national and local levels;
- **Diplomacy:** Promote effective linkages between environment, security and sustainable development policies.
- **Law & Governance:** Contribute to the development of a more effective system of international law and governance;
- **Finance:** Introduce new and innovative financial mechanisms for the maintenance of the globe's life supporting ecosystems; and
- **Education:** Build the environmental knowledge capital of people and organisations.

Our mission and programme should be seen in the context of promoting international sustainable development goals and as a contribution toward long-term poverty alleviation.

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