An aerial photograph of a mountain range, likely the Virunga Volcanoes, with thick white clouds filling the valleys and surrounding the peaks. The sky is a pale, hazy blue with some light clouds near the horizon.

***Natural Resources:
source of violence, source of peace***

*a study on the role of natural resources in violence and peace
in the African Great Lakes region with special attention to
the tri-national Virunga Volcanoes region*

*Eric van de Giessen
Utrecht University
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Author: Eric van de Giessen

Submitted: 18 July 2005

Supervisor: Prof. Georg Frerks

Centre for Conflict Studies and Human Rights
Utrecht University

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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 (2004)

Winner of the Nobel Prize for Peace 2004

The relationship between natural resources and conflict is a 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 natural resources are becoming increasingly important with regard to understanding conflicts, as Maathai (2004) points out. It is more and more recognized that both resource scarcity and resource abundance can play a role in the origins and dynamics of violent conflicts. It is vital for conflict analysts to recognize that natural resources, degradation, resource access and control, livelihood and conflict are very much interrelated aspects.

The Great Lakes 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. Estimates from OCHA point out that since the outbreak of conflict in Rwanda almost 5 million people have been killed and even more have been displaced. Despite of official peace settlements and a transitional government the region is still characterized by violence, 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. Although difficult to identify the main factors behind the various conflicts, a variety of factors –e.g. ethnic tensions, socio-economic motives- seem to play an important role. It is increasingly acknowledged that, in order to understand the massive outbreak of violence in this region, the role of natural resources should also seriously be taken into account.

Special attention in this thesis will be provided to the afro-montane forest area in the border area of the DRC, Rwanda and Uganda: the Virunga Volcanoes region. It is feared that this region is seriously damaged during the past fifteen years, since the outbreak of war in the region, by the military, armed rebels and refugees. The intrinsic problem of border areas is that they are relatively prone to violent conflict, as a result of international disputes, spill-over effects of tensions and high attractiveness for rebels¹, while at the same time these areas, often located on mountainous lands, tend to be biologically rich. Such areas are particularly desirable with regard

¹ Le Billon (2001) states 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 out, particularly since international borders are often drawn along natural divisions, such as mountain ranges.

to nature conservation; it is therefore not uncommon to find protected areas along international borders (Seale 1997).

This thesis presents the outcomes of a study on the relationship between natural resources and conflict in the Great Lakes region. The case study on the Virunga Volcanoes region outlines the interconnected character of these factors, which, from the perspective of conflict analysis and conflict transformation, is the added value of this study. This thesis shows how natural resources can not only be a part of the underlying problems, but also how they can form a part of the solutions. In other words, natural resources can be a source of violence, but also a source of peace.

Research objectives

The aim of the research is threefold. The first aim is to get an understanding of the relative importance of natural resources in the origins and developments of 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 third aim is to learn whether and how natural resource management can contribute to conflict transformation, and specifically whether and how transboundary environmental cooperation can generate peace and stability in the region. In order to achieve these objectives, three main research questions have been defined.

1 - *'What roles do natural resources in the Great Lakes region play in the origins and dynamics of the conflicts?'*

2 - *'What are the roles of natural resources in the Virunga Volcanoes region and how has the violence and insecurity impacted the Virunga Volcanoes region?'*

3 - *'What is environmental peacebuilding, and how can it contribute to peace and stability in the Virunga Volcanoes region?'*

Methodology

In this thesis the research questions as outlined above will be answered although space is far too limited to go into these questions in detail. The thesis 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 to go into the field.

My research approaches have differed from one research question to the other. For the first research question especially research reports and articles from magazines, newspapers and online news reports have proved very useful, since much research has already been done about these issues. For the second and the third research question I have used research reports that were specifically about this Virunga Volcanoes area. Because of the smaller spatial scale and the focus on a particular area, less information was available and it was essential to use information from other information sources, mainly websites of all kinds of organizations. For the third research question about environmental cooperation research collection has been difficult because of the exploratory character of the question. For the first part of this question I have analysed existing literature on this subject. In order to apply the concept of environmental peacebuilding for

the case study region I have analysed reports of the International Gorilla Conservation Programme (IGCP), tourism plans of the government, and other papers about this area and topic. Unfortunately I could not find conservation plans of the park authorities.

Furthermore, I have made a list of questions regarding all research topics which I have sent to the different park authorities and to IGCP, a non-governmental organization that has very much information on the situation in the Virunga Volcanoes Region. Unfortunately neither of these organizations responded to this set of questions (see annex 1)

Outline of the thesis

In the first chapter some theoretical stances on the relationships between resources and conflict will be outlined. The concepts of environmental security, economies of violence and the impact of violence on natural resources will in turn be explained.

Chapter two explores how natural resources can be used for conflict transformation. Attention is paid to the benefits of environmental cooperation and how this can be used as a peacebuilding tool. The peace park concept will be analysed.

After these two theoretical chapters, the third chapter concentrates specifically on the role of natural resources in the violence in the Great Lakes region, thereby focusing on the role of land and the role of mineral resources in the region.

Chapter four specifically deals with the Virunga Volcanoes region. In this chapter some of the impacts of the violence on natural resources in this region will be outlined. It shows again that 'livelihood' plays a major role in understanding the relationship between conflict and natural resources. This chapter also critically analyses the feasibility of transboundary environmental cooperation in order to promote peace.

1 Natural resources and violent conflict: interconnected issues

Introduction

Over the past decades interstate violent conflicts have been studied by many authors from many different disciplines. Nevertheless, in these conflict analyses usually one specific factor is emphasized as the main explanation of conflict; the role of other factors is often ignored or disparaged. Therefore a comprehensive approach identifying multiple causal factors is often more useful.

Although the idea that that environmental factors are increasingly an underlying cause of instability and conflict is not new, it has not almost sufficiently been incorporated in conflict analyses and certainly not in conflict transformation. This thesis puts emphasis on the relation between natural resources, conflict and livelihood. However, it does not attempt to make a statement about the relative importance of natural resource variables compared with other security and conflict variables. On the contrary, it recognizes the value of different approaches to conflict analyses. This thesis therefore uses elements from structural conflict theory, as well as rational choice theory but also psycho-cultural conflict theory. Several useful concepts will be outlined in this chapter.

Livelihoods

In conflict literature, both resource scarcity and resource abundance are outlined as factors that can cause conflict in developing countries. An accepted distinction in conflict literature is the distinction between structural factors and triggering factors, that can both lead to violent conflict. Resource scarcity, a structural factor, is also related to relative deprivation theory. This theory assumes that collective and structural inequalities, such as a lack of access to resources, are an explanation why social groups start using violence (Gurr 2001:169). Recently there has also been much interest for resource abundance as a triggering factor in many contemporary violent conflicts. Many authors such as Collier, Vasquez (1993 and 1995), Wallensteen and Sollenberg (2000; in Gleditsch 2001:55,56) stress the importance of economic causes of contemporary violent conflicts.

Both approaches to conflict are expected to be very relevant in the Great Lakes region. Therefore they will both be outlined in this chapter. Although these two approaches seem to be mutually exclusive, in fact they are not. They can even be regarded as complementary. One central element binds these approaches: the loss of livelihood. This relationship is schematically illustrated in figure 1.1. A livelihood “comprises the capabilities, assets (both natural and social) and activities required for a means of living”, as Chambers and Conway (1992: in Sanderson 2000:96) make clear. Livelihoods of people can be under stress for a variety of reasons. Environmental scarcity, protracted violent conflicts, economic developments or population pressure are only a few of these reasons. The loss of livelihood leads to the impoverishment of households. Poverty and a lack of prospect and opportunities for the future can be a reason for young men and women to join armed groups (Ohlsson 2003; Huggins et al. 2004).

Figure 1.1 Conceptual model



Source: *author*

Structural conflict

An interesting development in present-day thinking about security is the increasing acceptance of the term environmental security. This 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 human and military security aspects. Improving environmental security aims 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. In a recent report, ‘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). As stated, the main threat to environmental security is resource scarcity. In resource scarcity three forms can be distinguished, according to Thomas Homer-Dixon: *supply-induced scarcity* results from the depletion or degradation of a resource; *demand-induced scarcity* is the neo-Malthusian argument that stresses that environmental problems and scarcity are the result of population pressure and population movements; *structural scarcity* refers to the distribution of resources (Homer-Dixon 1999:48). Environmental scarcity can arise when unequal resource access and population growth force people to migrate to ecologically fragile regions: this is called *ecological marginalization*. Environmental scarcity can also develop as a result of powerful groups

within society shifting resource distribution in their favour: *resource capture*. This can lead to terrible environmental scarcity “for poorer and weaker groups whose claims to resources are opposed by these powerful elites” (Homer-Dixon 1994, in: McDonald 1999:16).

Whether resource scarcity is the result of ecological marginalization or the result of resource capture, the result is that certain groups are denied possible assets and opportunities. This can lead to a sense of relative deprivation compared to other groups in society. Due to poor political organization and a lack of power and social assets, the demands of these deprived groups are often not articulated. So-called ‘structural conflicts’ can develop: 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. When violent conflicts finally erupt, they are often the result of long-standing historical grievances about resource distribution (Pons-Vignon and Solignac Lecomte 2004:26).

This problem often has to do with land. Huggins et al. (2004) point out that limited access to land, exacerbated by its inequitable distribution and by tenure insecurity, are regarded as the key aspects of structural conflict. Patterns of economic domination and exclusion create deprivation and social tension. This prepares the way for violence.

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. 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.

Economies of violence

The most common resources for fighting factions to generate an income are mineral resources (Douma 2003). To pay their troops and obtain money for arms and ammunition, army commanders seek to gain control over territories containing valuable resources (Klare 2001). Not only do resources play a major role for striving parties in order to *finance* their war expenses, they are also increasingly becoming a *motivation* in itself in many internal conflicts. Rather than ideological or ethnic motives, wars are about resources that are worth fighting for. These can be strategic raw materials (such as gold or tin), sources of energy (such as oil), or shared water and food (such as shared fishery resources) (Gleditsch 2001:55). “In almost all countries in Sub-Saharan Africa where major internal conflicts have materialized, war strategies have invariably focused on the possession of at least one valuable mineral resource” (Douma 2003:37).

Warfare becomes business, as rebel groups can sustain or extend their power through looting and exploiting the resources under control. In these circumstances one also speaks about war economies, or economies of violence. Closely related to this is warlordism, a term referring to the leaders of armed groups, or ‘warlords’. The wars in Chad, Liberia and Somalia are some examples of the significant role of warlords, who control strategically significant areas and do not obey higher (central) authorities. A warlord’s power and ability to keep away competing groups and (weak) central authorities largely depends on a war economy (Ayoob 2001). Often this includes the integration into international criminal networks (Le Billon 2001:575). A characteristic of warlordism therefore is the “concentration on economically exploitable regions and especially

those with exportable mineral or timber resources” (Allen 1999:372). Given the opportunistic character of these conflicts and the focus on looting instead of other motives, changing loyalty relations of troops are also a typical element.

This form of violence is usually theoretically explained as the product of rational choice. Yet, underlying this decision also structural pressures play a very large role. This will be explicated in the next section.

Mobilization and demographic pressure

No matter how strong grievances or economic opportunities (or both) are, these aspects do not yet explain violent conflict or even genocide. Another major factor is the demographic pressure. Not only is population density and growth an important element, also the age composition of a population is a powerful element in explaining a societies' tendencies to violence. The younger the population, the greater the potential for violence. Also the level of education and the rates of unemployment are vital elements (Varga et al. 2002:26) The high percentage of young, unemployed, poorly educated youth in many developing countries is also called the 'youth bulge'. Many of these youngsters have no assets to make a living. (For example, because his parents do not have enough land to distribute between him and his brothers, all that remains for a boy is cultivating steep and vulnerable hillsides.) One of the few opportunities for these young people (mainly men) to sustain themselves is joining militia groups or armies. Although militia groups, as well as regular armed forces, are rarely well paid, they sustain themselves by looting (Huggins et al. 2004).

Engaging all kinds of deprived and frustrated people to use violence depends on the degree of political organization. Instigating the massive use of violence against another group usually takes place by demarcating an in-group and an out-group along identity lines, such as ethnicity or religion. Ethnic mobilization as outlined by Baumann (1999) is a common strategy of army leaders or other entrepreneurs in order to recruit the unemployed, poorly educated young men for their armed movements.

Impacts of the violence

War implies a shock to societies and economies in a region, at the international, national, local and household level and in various ways. It is not at all the intention of this section to be comprehensive in listing those consequences, the purpose is to give an impression of how conflicts and natural resources are interconnected.

Social, economic and political structures change and normal relations and activities become less common and natural. (For example, people lose access to land or do not work on their land due to fear of being attacked.) Wars thus change conventional (agricultural) practices and significantly disrupt societies and economies. Social structures and institutions safeguarding a sustainable management of resources are weakened and people are cut off from the basic systems and elements on which their livelihood was built, such as food, shelter, fuel and water. As a result, not only does war lead to the direct destruction of resources, it might also weaken resource management at local and household level, causing environmental degradation. On the household level violence thus sets in motion a downward spiral, generating resource degradation that leads to (supply-induced) resource scarcity, thereby deteriorating bases of livelihood.

This often forces people to move away from their homes, concentrating in other (safer) areas, in cities, towns, or refugee camps. Such massive dislocations of people as a result of war can have a destabilizing effect both on their own societies and economies, as well as on the host region. Forced migration usually makes people less able to cope with hazards of the natural environment, leaving them more vulnerable to shocks. In many cases refugee camps are located in marginal or abandoned areas, in which living conditions are too harsh for permanent habitation. Direct or indirect environmental problems resulting from forced migration flows also occur in the host regions. Because the refugees have lost the assets on which they depended, they will search for alternatives. Wild animals and plants become food, forests are stripped for firewood, and streams become both sources of water and depositories of waste. When such dislocations involve large numbers and concentrations of people, the stress on the ecosystem of host regions can become significant. The situation also has social impacts, as the refugees' need for resources comes across the need of host communities that are dependent on the same resources. This might lead to conflicts with the local populations, for example when (tens of) thousands of people are looking for fuel wood. Since often this task is performed by women, there are also real dangers of assault and rape faced in unsettled refugee situations (Wall n.d.). Arriving from these environmental and social impacts, forced migration can upset the stability of host regions. It might also lead to increasing interstate tensions. The UN High Commissioner for Refugees (UNHCR) acknowledges that the reception of refugees poses social and environmental difficulties and has therefore set up environmental guidelines. These guidelines aim at considering environmental issues when dealing with emergency and refugee situations (UNHCR 1996).

On the other hand, war can also lead to a situation where human presence is impossible or considered too dangerous in certain areas. This can ease the human pressure on these pieces of land, increase fallow periods and allow forests or bushes to recover and grow again. An example is the demilitarized zone on the border between North and South Korea. This region remained relatively undeveloped and was only modestly disturbed, permitting numerous species of flora and fauna to flourish.

Conclusions

Natural resources and violent conflict are interrelated to a great extent. First of all, natural resource scarcity can underlie serious grievances, as people have restricted access to resources they need in order to make a living. This can create structural conflicts and particularly when scarcity is related to identity factors such as religion or ethnicity, violent eruptions can occur. Also resource abundance can lead to violence, as valuable resources can generate the rise of rebel movements, especially when state power is lacking. This can lead to economies of violence, where several warlords have control over large territories, mobilizing people in the region to fight for him. Attracted by the economic opportunities this offers, many especially young unemployed men who see no other opportunities for themselves are pulled into these rebel movements.

The other way around, violence also has serious impacts on natural resources. As it cuts people off from basic elements such as food, shelter, fuel and water they need to find alternatives to get these, often forcing people to leave their homes. Especially when concentrated in refugee camps, the environment of host regions can become under enormous stress because all these refugees depend on natural resources for their livelihood.

2 Natural resources in conflict transformation: 'environmental peacebuilding'

Introduction

As stated in the first chapter, academic literature on the structural causes of conflict is increasingly focusing on factors related to natural resources, taking into account aspects as resource scarcity and abundance. The debate on the relationship between resources and conflict is thus primarily concentrated on how natural and mineral resources are contributing to conflict and the 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, environmental factors not only threaten peace and stability, they can also become opportunities for enhancing peace and stability.

Forms of environmental peacebuilding

Two main forms of environmental peacebuilding² are outlined in literature. The most important form of environmental peacebuilding aims at preventing conflicts that are generated by unequal distribution of resources. It is already clearly outlined in the first chapter how resource scarcity and a loss of livelihood can lead to conflict. Hence, environmental peacebuilding or conflict prevention has to focus on land reforms to benefit the deprived groups, as well as sustainable resource management. Involving local stakeholders and stimulating participatory approaches are generally regarded as useful approaches for preventing or addressing land use conflicts. Local participation to tackle environmental problems ensures a widespread sense of commitment and ownership. Such a bottom-up approach results in solutions which are more sustainable in comparison to measures imposed top-down. Many examples from e.g. Zambia and Tanzania strongly support this approach (Chitengi 2003; Baijukya and Mwita 2000).

The other form of environmental peacebuilding is transboundary environmental cooperation, as a way to create a dialogue between parties in conflict. This often implies interstate conflicts, although not necessarily. The environment is a perfect tool for peacebuilding because it ignores political boundaries, as Dr. Pallo 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" (IUCN 1998).

² For theoretical notions on environmental peacebuilding in this thesis much use has been made of the work of Ken Conca. However, it is remarkable to notice that he uses the term 'environmental peacemaking'. In this thesis the term 'environmental peacebuilding' has been preferred, as 'peacebuilding' is regarded a more appropriate term for addressing structural issues at the root of a conflict, as e.g. outlined by Miall et al. (1999:22).

Because of this transboundary character Conca et al. (2005) state that the environment is unique as a peacebuilding tool. Environmental challenges, such as the management of international river basins, involve many stakeholders and form a major opportunity for bringing these parties together. This notion, environmental cooperation, will be elaborated upon in the next section.

Environmental cooperation as a peacebuilding tool

The ecological benefits of environmental cooperation are immense, and these could in itself already be sufficient reasons to cooperate. Often related to these ecological benefits is the economic benefit for parties that result from a coordinated approach to environmental management. These mutual benefits are interesting from a perspective of enhancing stability or creating peace. Ken Conca (2001) points out theoretical notions about how environmental cooperation can be valuable for strengthening the basis for peace and how it thus becomes a peacebuilding tool.

First of all, environmental cooperation changes the 'strategic climate', in the words of Ken Conca (2001:230-236), in a variety of ways. Incomplete information and understanding about other parties, and suspicion about their hidden motives usually slows down cooperative behaviour between parties. Cooperation offers opportunities to reduce all this kind of uncertainties. As a result, the mutual ecological and economic gains from cooperation might be identified, such as gains from e.g. a shared tourism policy. This creates job opportunities for the people living in these areas, enhancing their livelihood, which can be regarded as a cornerstone for stability, as pointed out in the first chapter.

Environmental cooperation also encourages stability by promoting diffuse reciprocal relationships. When two or more parties make agreements on environmental matters, costs and benefits are usually unequally shared and can not always be expressed in financial terms. Hence, the reciprocal relationship arising from such cooperation is called diffuse, as costs and benefits of cooperating are displaced in space or time. This creates a certain interdependence between countries, which is usually regarded as a force of stability and peace in world politics (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 the parties in the future. Since environmental cooperation builds confidence and strengthens interdependence among the parties, it can be assumed that when the parties decide to cooperate, this cooperation will be continued on other than environmental matters. Like that, environmental cooperation can catalyze broader forms of peaceful interaction.

Another aspect related to environmental cooperation is its role in transforming governance systems. 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 organizations. Groups from different countries dealing with social and environmental issues can establish cooperative trans-societal relationships and networks. Environmental cooperation can therefore ideally become the realm of various societal organizations and institutions other than the national government: a transnational civil society. One of the peacebuilding effects of these transnational networks is that it they can assist each other and empower marginalized groups, thereby aiming to strengthen their influence in policy decisions that are related to environmental security, e.g. in issues of forest destruction or land rights. (Conca 2001:241-245)

Transboundary protected areas

One way of cooperating on environmental issues can be the establishment of transboundary protected areas. Recently the number of clusters of adjoining protected areas is growing, from 59 in 1988 up to 169 in 2001, and is expanding throughout all regions in the world. Some of these have especially been set up to fulfill the roles as described above: building confidence, reducing uncertainties, creating reciprocal relationships and interdependence, etc. These parks are popularly referred to as peace parks, or parks for peace. Various transboundary parks have been established as peace parks in Southern 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 (and possibly Zimbabwe in the future) in 2002. However, transboundary cooperation implies a level of transboundary cooperation which does not always exist. Zbicz (2000) states that “in many cases, all that is ‘transboundary’ about the protected areas is a shared ecosystem, certainly not cooperation or management” (Zbicz 2000). Even more, the term peace park is in some cases mainly used as a buzzword to impress donors or tourists.

There are certainly cases where peacebuilding objectives are explicitly incorporated in environmental cooperation activities. In Lebanon for example, establishing and managing nature reserves especially aims at bringing people and institutions together, in an effort to strengthen national reconciliation (Abu-lzzedin 1998). However, from scholars on conflict and peace there has hardly been any attention for the possible positive effects of such transboundary protected areas on stability and peace between countries. The current attention for it mainly derives from environmental specialists, who are usually more occupied with evaluating the environmental effects rather than the social, political and security effects of the transboundary cooperation.

Peace park: confusion and agreement

What, then, are peace parks exactly? There seems to be no agreement among scholars and people ‘from the field’ about what distinguishes a peace park from other transboundary protected areas. A seminar on peace parks held in 1997 makes this very clear. This confusion is e.g. about the level of cooperation (harmonization of conservation policies? one shared conservation policy? or even a shared management authority with control over the territory?). Also, definitions of peace differ to a certain extent, which makes it difficult to state whether, and in which cases, it would be justifiable to use the term peace park³.

There seems to be more agreement among the participants of the seminar on the expected benefits of a peace park. First of all there are ecological benefits, through a more effective conservation of species and ecosystems. Related to this, many participants also expect that peace parks can enhance environmental security, as the shared resources on which people’s livelihoods are based can be managed better. Moreover, economic benefits are expected, especially through eco-tourism, and especially, improved political relations through building trust and interdependence between states.

³ *The Peace Park Foundation, established in 1997 to promote the establishment of peace parks in Southern Africa, has a rather broad definition on peace, defining it as harmony between humans and nature. In such a definition the term peace park is certainly justifiable. However, when perceiving peace from a security and conflict point of view, the justification of using the term is more questionable (IUCN 2000:).*

Presuppositions about conflict

Behind the idea that transboundary protected areas offer opportunities for peace, there should be certain conceptual notions of conflict. It is interesting to analyse these assumptions. First of all, one of the main stated benefits is the improvement of cooperation between countries; this presupposes that conflicts or tensions that need to be addressed have an interstate character. Secondly, setting up such protected areas are more about starting a process of cooperation rather than about specific interests or resolving particular problems. The focus on confidence building and taking away suspicion as peacebuilding (or peacekeeping) elements thus presupposes that conflicts are about poor relationships rather than about interests. Thus, the notion behind peace parks is that the conflicts they aim to resolve are caused by suspicion and a lack of trust between states. Although this more or less sounds like a cold war type of conflict, there are currently still many regions in the world where tense or violent situations between neighbouring states exist.

Preconditions

The question remains, however, what factors are conditional for states to start such a process of environmental transboundary cooperation. Of course certain ecological opportunities should exist; this precondition needs no explanation. Now what other conditional factors can be indicated? First of all, environmental cooperation can be greatly related to game theory. Rationally, not cooperating might lead to the suboptimal outcome for each of the parties, as there are no costs involved. However, when this situation continues resource scarcity will increase. In order to reduce future risk and vulnerability, environmental cooperation becomes increasingly attractive for all parties. This implies that states will only then start cooperating when resource scarcity is more or less forcing them. In order to prevent that, and initiate transboundary cooperation before the situation becomes critical, states should have other interests, preferably economic interests. Hence the primary precondition for transboundary environmental cooperation is that it contains sufficient economic interests for the parties.

In texts about peace parks improved stability is often mentioned not as the precondition but as the outcome of environmental cooperation, which makes it the justification for using the term peace park. It remains, however, difficult to measure the effects of environmental cooperation on international security; it is hardly possible to measure a causal relationship. Gartlan has pointed out that military and strategic considerations play an important role in determining the feasibility of transboundary protected areas. He states that in many sub-Saharan African countries, "defence considerations outweigh other priorities" this means that when national security is threatened, the military will invade the protected area when that is considered necessary, despite of whatever international agreements exist (Gartlan 1998:245).

Therefore, according to this and in line with common sense and the logic of political relations, states will not cooperate when they distrust each other or when the situation is unstable. A certain level of stability and political diplomatic relations should thus be regarded as a precondition for setting up transboundary protected areas. Moreover, stability is also a prerequisite for tourists to visit the region.

Conclusions

Taking action with regard to the environment can lead to building peace in two ways. First, sustainable environmental management, taking into account the interests of all stakeholders, and in particular those of deprived groups, can improve the livelihood situation for many people. This will reduce the immediate pressure for people and reduces the risk for violence. Second, environmental peacebuilding can take place through environmental cooperation. One approach towards transboundary environmental cooperation on interstate level is establishing transboundary protected areas. This could build confidence, take away tensions and enhance the interdependence between the states involved. Although these objectives are described in nice and appealing language there is a deficit in more practical literature about how peace can be defined, what a peace park actually implies in terms of the level of cooperation, and what the preconditions are for establishing such a peace park.

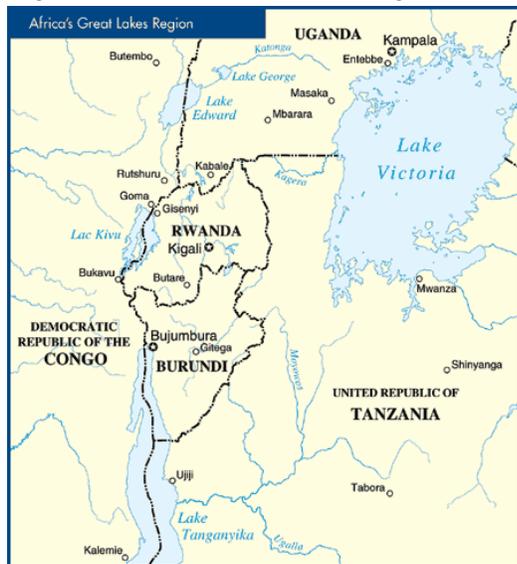
In this chapter an indication is given about what are the preconditions for establishing a peace park, except for ecological opportunities of course. First of all, mutual interests have to be large enough for the parties to start a process of cooperation, particularly if the potential partner is a former rivalling state. Second, a certain stage in diplomatic relations should have already been achieved, as a certain amount of trust and stability is in fact conditional for any cooperation to take place. Moreover, although transboundary environmental cooperation can certainly build bridges between countries, it is important to have realistic expectations about its actual contribution to peace.

3 Natural resources and violence in the Great Lakes region

Introduction

The Great Lakes of Africa are a series of lakes in and around the Great Rift Valley in Central Africa. 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 (see figures 3.1 and annex 2). Because of past volcanic activity this part of Africa contains some of the world's best farmland (see plate 3.1).

Figure 3.1 Great Lakes region



Source: Canada World View 2004

Plate 3.1 Cultivated hills, Rwanda



Source: IGCP 2005

Moreover, due to its altitude, the climate is also rather temperate. It is therefore one of the most densely populated areas of the world. The land in the region is extremely rich in mineral resources, especially in the Democratic Republic of Congo (DRC). For a long time the Great Lakes region has been characterized by persistent violence, especially in Rwanda, DRC, Uganda and Burundi.

This chapter provides an overview of the conflicts and the parties in the region, thereby focusing on the impact of natural resources in the origins and dynamics of the conflicts. For practical reasons, the analysis is limited to the Rwandan and the Congolese situation; these are also the most relevant countries for the case study. In order to understand the tensions and the horrendous outbreaks of violence in the Great Lakes region, a multi-factor approach is used, as outlined in the first chapter.

The first section looks into natural resources as sources of grievance. It focuses on resource scarcity, the loss of livelihood and the role of ethnicity. The second section complements the first

section both historically and with regard to the theoretical focus, as it looks more into natural resources as economic opportunities, thereby transforming natural resources into resources of violence.

Natural resources as a source of grievance

The instigators of the genocide in Rwanda have abused ethnic differences to mobilize and motivate people to carry out attacks on the other ethnic group. But how is it possible that so many people in Rwanda 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 can not be sufficient explanations for this? This section outlines some structural factors behind the conflict with regard to natural resource scarcity.

Land pressure plays a main role in the development of conflicts between the people in the Great Lakes region. Population pressure in this highly fertile region has increased continuously throughout the years. Rwanda is even the most densely populated country in Africa, with an average of 321 people living per km². Moreover, the region was characterized by high annual population growth rates. These demographic figures are of primary importance especially given the fact that people in these rural societies have always been highly dependent on land. In Rwanda currently still 90 percent of the people is farmer, in Uganda this is 82 percent, whereas it can be expected that in the border area, in the fertile Albertine Rift valley, this number is even higher. Therefore, demand induced scarcity of land, which has always been the primary economic asset, has increased in the whole Great Lakes region.

However, in order to explain in what way the struggle for land actually led to large scale violence, one 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.

Land and ethnicity in Rwanda

Rwandan society has always been comprised of three main groups: Hutu (a large majority), Tutsi (about 10-15 percent) and Twa (about 1 percent). These three groups lived side by side throughout the country and even intermarried, as they shared the same culture and religion. It can be assumed that the Hutu, Tutsi, and Twa are not so much distinct ethnic groups but rather distinct socio-economic groups, similar to castes or classes. Categories of Hutu and Tutsi were largely occupationally defined as farmers and pastoralists: "whoever acquired a sizable herd of cattle was called Tutsi and highly esteemed" (Uvin 1996:7).

As a consequence of colonialist control, social relationships in Rwanda changed greatly. The Belgian colonialist powers, as part of their 'divide and rule' strategy, instituted a system of rigid ethnic classification that used "modern scientific" methods such as the measurement of nose and skull size. They required the people to carry identity papers stating their ethnicity. By doing so, the colonial powers exacerbated the existing sub-divisions in Rwandan society.

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 1996:8). This changed society, as land tenure regimes, labour relations and land entitlement systems changed. For the Hutu population these changes

implied that resources were becoming more scarce, leading to a loss of livelihood. This caused many grievances and they directed their hatred towards the favoured ethnic group, the Tutsi. (Huggins et al. 2005:3).

When the Belgians gave up 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 1962 thousands of Tutsi were murdered and more than 100,000 others were forced to flee the country (Uvin 1996:8). 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. Halfway the 1980's approximately 15 percent of the land owners owned half of the land (Uvin 1998). These land owners often were rich elite from urban areas that were hardly involved in agricultural activities. Exacerbated by modernisation processes like 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 (Musahara and Huggins 2004:1). In other words, the problem of structural resource scarcity was immense.

Mobilization for violence

While the relationship between most ordinary Hutu and Tutsi was still quite unproblematic at the start of the 1990's, this changed after the Rwandan refugee population in Uganda organised itself in the Rwandan Patriotic Front (RPF) and invaded Rwanda in October 1990 to regain power in Kigali. Rwanda was increasingly characterized by social and political unrest and disorder. Although the RPF presented itself as multi-ethnic, the Rwandan government characterized it as a Tutsi movement, that was "determined to re-establish the Tutsi hegemony" (Longman 1999:350). The structural conflict over resources that already existed was thus exacerbated by increasing the fear among the Rwandan Hutu population, that the Tutsi would again take control over their already scarce resources. These structural causes of poverty and fear in Rwandan society were easily exploited by the government of president Habyarimana who instigated violence against the Tutsi population. From the late 1990 onward many ethnic massacres against the Tutsi occurred, initiated by government or military officials and in certain cases even with the direct permission of the president. These massacres, combined with increasingly anti-Tutsi rhetoric in government newspapers and on the main radio station Radio Rwanda served to enhance ethnic tensions (Longman 1999:351). 'Hutu power' was preached in order to dispose of the 'Tutsi threat'. Extreme Hutu nationalists and the Interahamwe, the youth militia of the political party in power, MRND, were increasingly involved in disrupting opposition parties rallies and they harassed opposition politicians.

Triggered by the murder on president Habyarimana in April 1994, extremist Hutu gangs (from that moment on called Interahamwe) encouraged the use of violence against the Tutsi population. The genocide started mainly in Kigali and then quickly spread towards other regions. It laid bare the frustrations of many poor, landless and dispossessed people that had migrated from their rural homes towards Kigali. This partly explains why in an urban region like Kigali genocide could take place (Huggins et al. 2004). 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, *genocidaires* as well as innocent civilians. In that month millions of people left Rwanda and took refuge in neighbouring countries, particularly Zaïre (about 2 million),

Tanzania (about 480,000), Burundi (about 200,000) and Uganda (about 10,000) (Global Security 2005).

Ethnicity, land and violence in the DRC

The violence in eastern DRC⁴ can also be traced back to intergroup tensions that were related to issues of land access and land use. In this section the situation in the Kivu provinces and in Ituri district are outlined. The provinces North Kivu and South Kivu are located in the east, bordering Uganda, Rwanda, Burundi and Tanzania. Ituri district is located in Orientale province, in the northeastern part of the country.

The disputes over land and resources date back to the colonial era and the subsequent rule of Mobutu. An underlying factor for the problems in North Kivu is the status of the large Rwandophone communities in the region, as a result of the colonial powers drawing arbitrary boundaries in 1885 as well as forced translocations of Rwandan workers to Belgian Congo. Moreover, in the late 1950's many Tutsi families moved into the country, forced by the ethnic violence in neighbouring Rwanda. Since independence, the citizenship and land rights of many of these immigrant communities were questioned by the customary authority, despite of their large share in the population (ICG 2005:8). While at first the Rwandan 'immigrants' were given access to land and jobs, and even citizenship, these decisions were repealed in 1983, which resulted in even greater ethnic tensions in the region. By the late 1980's violent clashes erupted between the pastoralist and agricultural communities in North Kivu (ICG 2005:8-9).

The ethnic tension increased as a result of the Rwandan war. Many Congolese Tutsi joined or financially supported the RPF revolt in Rwanda in 1990. At the same time the Hutu Power rhetoric from Rwanda influenced the Hutu population in Zaïre. Subsequently, the lack of state protection led each community in North Kivu to set up tribal militias for self-protection. In 1993 large scale violence erupted in North Kivu, spreading over the province. The aggression worsened by the massive influx of Rwandan Hutu refugees, including members of the defeated Rwandan army (FAR) and Interahamwe militia. These movements carried out attacks on the ethnic Tutsi population in North Kivu. Fearing persecution, many Tutsi in North Kivu sold their land and cattle and left back for Rwanda, where the RPF had taken over power (ICG 2005:9).

In Ituri district 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 in Rwanda, the Hema were given access to education and administrative positions and as such became leading businessmen and politicians. Their leading position was maintained after independence. Wolters (2005) describes Hema using their economic and political assets to strengthen their already dominant position: "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" (Wolters 2005:2). This example illustrates the tense situation and structural scarcity for the Lendu in the Ituri region.

⁴ In this thesis different names are used for this country, as its name has changed regularly. During the colonial era the country was called Congo Free State and, later, Belgian Congo. After independence in 1960 the country was called Republic of the Congo, while Mobutu changed the name into Zaïre in 1971. In 1997 Zaïre was renamed Democratic Republic of the Congo.

First violence between the Northern Hema and Lendu ethnic communities broke out in 1999 in Djugu, which is the most densely populated territory in Ituri (Huggins et al. 2004:15). This fact underlines the relevance of emphasizing resource scarcity in the development of violent conflict. Broadly seven militia groups were involved in the violence in Ituri district, organised along ethnic lines (HRW 2003). Ethnic tensions were further aggravated by the presence of the Ugandan army in Ituri, later on, who gave the impression to support the Hema in the intensifying conflict (Wolters 2005:2).

Resources as economic opportunities

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. These forces 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 (Braeckman 2004:4). The AFDL was first established to control the Ugandan-Congolese and especially the Rwandan-Congolese border, in order to prevent the return of the Interahamwe and ex-FAR armies, thereby massacring many Hutu refugees and Congolese Hutu civilians. Apart from motivations of seeking justice, or revenge, and providing security, the AFDL invasion of Zaïre can be explained by the attractiveness of mineral resources. Whereas before 1997 the underlying forces of the violence were related to resource scarcity and ethnic grievances, from this moment on the violence can be increasingly explained by economic opportunities.

African war

The AFDL went on 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. 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, in August 2004, fighting broke out around Goma and Bukavu in North and South Kivu between the Congolese army and troops backed by Uganda and Rwanda. While both countries justified this invasion by stressing the need to protect themselves from the Interahamwe, geopolitical motives and gaining control over DRC's valuable mineral resources were actually essential motivations. When the Uganda and Rwanda-backed troops attempted to overthrow Kabila again, troops from Zimbabwe, Angola, Namibia, Chad, and Sudan intervened to support the Kinshasa regime: the first real African war had started. Although a cease-fire was signed on 10 July 1999 by president Kabila, Zimbabwe, Angola, Namibia, Uganda, Rwanda and armed rebel groups, the fighting continued.

Clearly also the interests of Angola, Namibia, Zimbabwe and Sudan had a largely economic nature. The Democratic Republic of Congo has perhaps the richest concentration of precious metals and minerals on earth. The east of the country became under control of Rwandan and Ugandan forces and several rebel movements supported by these countries. Various armies fought to gain or remain control over strategic areas, mainly in the eastern Kivu provinces and Ituri district, over resources such as gold and coltan. Uganda mainly supported MLC and RCD-ML

in the northern and north eastern provinces, while Rwanda supported the rebel movement RCD-Goma which controlled the central and eastern part of the DRC.

Warlordism

These opportunistic rebel movements and foreign forces captured e.g. gold, cobalt, cassiterite (tin), diamond and coltan mines. Leaders of the armies became leading businessmen: a situation of warlordism arose. Many rival armed groups were involved in organised looting. Loyalty relations were changing quickly, as the existence of the rebel movements had hardly anything to do with ideological or ethnic motives. This is illustrated by the fact that, although the various fighting armies in Ituri are organised along ethnic lines, neither of the major ethnic communities, Lendu and Hema, feel represented by any of these armed groups. These poorly disciplined groups have been involved in extreme and highly destructive violence, causing probably the largest humanitarian tragedies of this time in terms of casualty, rape, etcetera. The chaotic situation was even exacerbated after Laurent Kabila was assassinated in January 2001 and the new president, his son Joseph Kabila, forced Rwandan and Ugandan forces to withdraw from the eastern DRC. The withdrawal of these armies and the resulting power vacuum spurred the proliferation of militias, again supported by Rwanda and Uganda.

Army and rebel army commanders developed important business interests in eastern DRC (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 over \$1,000,000 per month from coltan mining, mainly from the Kivu provinces (Vick 2001).

Through the linkages with these rebel movements, the regional economy was taken over completely by Uganda and Rwanda. Their economies clearly profited, among others 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. For coltan these figures are even higher. This grave looting by these countries is condemned by the UN Security Council which installed an expert panel to investigate the character and the extent of illegal exploitation of natural resources in the DRC. Already in 2001 the UN concluded that the war was sustaining itself, as it had created a win-win situation for all belligerents. "Business has superseded security concerns," the report concluded (UN expert panel report 2001:42). Therefore, despite of the transitional power sharing government in Kinshasa, rebel groups and armies in the east have managed to maintain this situation. As the territory of the country is exceptionally large, it is very difficult for the national government to regain control in this region (UN expert panel report 2001 and 2003).

Current developments

A main reason for the current instability in the Kivus is the dissident behaviour of parts of the national army (FARDC), who are still poorly paid and also tend to quickly change loyalty relations. There were many deserters among factions of the army that are loyal to RCD-Goma, which has a strong power base in North Kivu. Another major reason for the instability in the Kivu provinces and Ituri district is the presence of militias of the Democratic Forces for the Liberation of Rwanda (FDLR). These militias, largely made up of the surviving remnants of the ex-FAR and Interahamwe, are strongly linked to the genocidaires of 1994. They are still very powerful in

certain parts of the Kivus and, similar to other extremely violent looting rebel groups such as Mai-Mai, commit unspeakable atrocities against local communities, especially against the Tutsi population. 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. They seem to be rather successful on this aspect, as 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. 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, the international peacekeeping mission. In response, in order to deal with the insurgents forcefully, Kagame sent troops into the Kivu provinces several times, even recently in November and December 2004. Analysts however 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). However, diplomatic relations between the countries are poor. This is only exacerbated by the continuing illegal extraction of mineral wealth from the DRC. Discrepancies between domestic production and exports of minerals such as gold and coltan remain striking. It seems that in the past year tin has replaced coltan as the most popular resource to fight over in the eastern DRC (Global Witness 2005).

Impact of the violence: forced migration

During decades of violence in Rwanda many people have fled to adjacent countries. The population masses that fled for the 'social revolution' of 1959-1962 are known as the 'old caseload': this group numbers almost one million people and has largely returned after the RPF 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 remaining Banyamulenge, the Tutsi population in eastern Zaïre, 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 Zaïre 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; first of all to assist returning Rwandan refugees and second, to assist people fleeing the DRC, e.g. as a result of violence in North Kivu, around Goma, Rutshuru and Masisi (UNHCR 2005). These refugee flows result in continuous problems within Rwanda. Recently 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.

Although UNHCR has repatriated more than 77,000 refugees from eastern DRC to Rwanda since 2000, it estimates that still 40,000 Rwandan refugees, not daring to return, are currently living in the eastern DRC, scattered over isolated forest areas in the Kivus (UNHCR 2005).

Conclusions

This chapter stresses that the violence in this Great Lakes region can partly be explained by a structural conflict that developed between groups about access to resources, primarily land. This structural conflict developed along ethnic lines as the colonial powers favoured the pastoralists (Tutsi, Hema) over the farmers (Hutu, Lendu) in terms of access to education, jobs and land. Hence, structural scarcity of resources, exacerbated by demand induced scarcity because of population density and growth, led to the deprivation of mainly agricultural societies. These grievances and the fear for losing their already scarce resources, were at the source of the massive mobilization of people along ethnic lines to use violence. These structural conflicts existed both in Rwandan and in Congolese society, although violence has erupted on a much larger scale in Rwanda.

Another explanation of the violence in the region during the past decade is the foreign interference in the eastern DRC, followed by the expansion of rebel movements, both attracted by the valuable natural resources and enabled by the lack of state control. The minerals in the DRC such as gold, coltan, diamond and cassiterite, were a great opportunity for neighbouring countries to enrich themselves. Land has thus shifted from a source of conflict into a resource used for the perpetuation of war. Also they form unique economic opportunities for people with hardly any social and economic assets, it is easy for these rebel movements to recruit desperate young men to join armed groups or to work for them in the mines. This seems to have created a never-ending war economy in eastern DRC.

4 Environmental peacebuilding: Case study Virunga Volcanoes region

Introduction

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. This transboundary region is called Virunga Volcanoes region, while the adjoining protected areas can together be called the Virunga Volcanoes Conservation Area.

Figure 4.1 The tri-national Virunga Volcanoes region



Source: *author, based on Madry 2005*

The Virunga Volcanoes Conservation Area is located in the volcanic mountain area where Rwanda, Uganda and the DRC share their borders. The area is characterized by tropical montane forests that are extremely rich in biological diversity. It is the habitat of an estimated 380 mountain gorillas, which is more than half of the total global population of these endangered species. Tourism and the work of Dian Fossey brought the Virunga Volcanoes region into the international spotlight in the 1980's. The Virunga Volcanoes Conservation Area basically 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 km² (UWA 2005).

Virunga Volcanoes Conservation Area

Country	National Park	size	relative share
DRC	Virunga National Park, Mikeno sector	~ 250 km ²	58 %
Rwanda	Volcanoes National Park	~ 150 km ²	34 %
Uganda	Mgahinga Gorilla National Park	~ 34 km ²	8 %

Source: *author*

Many stakeholders can be identified in and around this forested area. First, there are the national park authorities whose objective it is to protect the mountain gorilla habitat. Secondly, because of the insecurity in the 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. They provide protection for tourists, researchers and veterinarians who enter the park. They accompany tourist groups on gorilla tracking tours in Rwanda and Uganda. In the DRC armed groups are still active in and around the forest. The forest offers a perfect hide-out place for rebels (possibly with the objective of smuggling minerals from the DRC into Rwanda or Uganda) who carry out attacks on local communities in the DRC. These local communities surrounding the forest are also very important stakeholders. Extraordinary high population density in the regions surrounding the national parks increases the pressure on resources (see annex 3), 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 et al. 2001:14). The protected areas are e.g. used for collecting water, cutting bamboo, cutting wood for fuel and construction, hunting or poaching animals, beekeeping and collecting plants for food and medicine. These functions make the area vital for the livelihood of the local communities (Lanjouw et al. 2001:15).

Impact of violence on the Virunga Volcanoes region

Apart from a recent eruption of lava, this volcanic region has also experienced the eruption of violence. The violent conflicts in the region have impacted the region in a variety of ways. First of all, 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. Thereafter, also the Zairian part of the area became the stage of violence. 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 15km², 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.

Second, the massive refugee flows into Zaïre 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 refugees including rebels moved through the area, as the forest 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. 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. 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. It is estimated that two years after the arrival of the refugees, at least 105 km² of forestland had been impacted by deforestation, of which 35 km² were totally denuded (Kalpers 2001:144). Moreover, illegal commercial activities flourished, like poaching wildlife, charcoal making and logging, mainly by the ex-FAR soldiers, who were much better armed than park rangers. Despite this, the mountain gorillas in the region have largely survived. In the period 1989 until 2004 the mountain gorilla population has even grown.

Third, and very important, the violence led to the institutional weakening of park management authorities. Since 1996, following the AFDL uprising and the subsequent civil wars, the tri-national conservation area was invaded by all kinds of military forces and refugees. Since then also rebels from the different warring factions are said to roam the protected area, although it remains unclear how many (FZS 2004). The presence of many armed forces in the forests especially on the Congolese side led to a perpetual violent situation in and around the park. Still in 2004 park rangers were systematically targeted for the procurement of weapons and food by militia and military groups operating within the park boundaries. In the Virunga National Park alone, more than 100 park staff has been killed by rebels since 1994 (Lanjouw 2005), 17 of them from the Mikeno sector. The resumption of fighting between the official DRC government and rebel troops led to widespread movements of military personnel in the Mikeno sector in 2004.

In response to the problem of resettling refugees in Rwanda, plans were developed to open up parts of the national parks for resettlement. Thanks to strong and effective pressure from international organizations to change these plans, Volcanoes National Park was largely spared. However, the main threat to the national parks currently seems to be encroachment of the national park by people for agricultural purposes. Due to the high population pressure and despite of the regulations, people are entering the park to convert bamboo and mixed forest to pastoral and agricultural land. In 2004 within a few months a large amount of forest within the Mikeno sector of the Virunga National Park was destroyed by Rwandan farmers. This was part of a coordinated deforestation operation organized for security reasons by Congolese and Rwandan military authorities. It is estimated that a total of 15 km² was destroyed (Muir 2004; BEGo 2005; NASA 2004).

This would prevent infiltrations of e.g. FDLR militias into Rwanda. 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).

Environmental peacebuilding

As outlined in the second chapter, there are two main forms of form of environmental peacebuilding: action to prevent environmentally induced conflict and transboundary environmental cooperation.

Various types of action can be taken in the Virunga Volcanoes region to reduce the likelihood of this first type, environmentally induced violence. This is greatly related to sustainable resource management. However, this thesis will not look into sustainable resource management in detail. Only two vital things are stressed here. First of all, participation of all stakeholders (local communities, military, government authorities, park authorities) is essential in resource management. Participatory land use planning is a good example of addressing environmentally induced violence. Second, land reforms have to be made ensuring equal access to land for all groups in society, as has been initiated in Rwanda.

The other form of environmental peacebuilding, transboundary environmental cooperation, will be considered in the next section.

Virunga Volcanoes Peace Park?

Ideas about setting up something like a 'Virunga Volcanoes Peace Park' were already presented eight years ago, before the violence had spread throughout eastern DRC. In 2005, the situation has changed enormously but the need for improved social and political relations between the countries has become larger than ever. As a matter of fact, the three park authorities (ICCN, UWA and ORTPN) have recognized this already in October 2001, by signing a declaration expressing their intention to create a full transboundary protected area, the 'Virunga Volcanoes Transfrontier Park', so that is already a significant step in this direction (IGCP 2005). Therefore it is interesting to consider again the feasibility of transforming the three protected areas in the Virunga Volcanoes region into one transboundary park. Being very careful, this would at least imply the harmonization of the three conservation policies, let alone the development of a shared policy on conservation, or even the installation of a shared park management authority controlling the area. Would this be feasible? This will be critically analysed by considering the conditional factors, as pointed out in the second chapter, in relation to this area.

The first precondition for setting up a transboundary protected area is that there are ecological opportunities. In the case of the Virunga Volcanoes region this is absolutely the case. Ecological opportunities in the Virunga Volcanoes region are immense. Three geographically connected protected areas exist which have a high conservation value due to a unique biodiversity and the presence of a highly endangered species of wildlife, the mountain gorilla. This potential transboundary protected area would only be about 430 km² ; this should be workable. Even more, all three areas are already officially being protected through their status as national parks.

The second precondition, as outlined in chapter two, is that mutual interests for the parties should be large enough. Although economic interests for a transboundary protected area can be defined, it is questionable whether the states consider these large enough. The main interest would be improving local, regional and national economies through gorilla ecotourism. However, demand for gorilla tourism in Rwanda and Uganda is already very high and waiting lists already exist for viewing the mountain gorillas. From a conservation perspective it might not be desirable to expand tourism, except maybe by extending the number of habituated gorilla groups to visit. It is

therefore questionable whether a transboundary protected area would have significant added value for these countries.

Another conditional factor is a reasonable political diplomatic relationship between the states involved. This is rather problematic. First of all, the diplomatic relations between Rwanda and Uganda are regularly changing, which has to do with the situation in the DRC. Moreover, the Rwandan government still considers the presence of the FDLR militias in eastern DRC as a threat to its security. Borders are therefore being secured very closely. While MONUC runs a voluntary disarmament programme, president Kabila has recently, in June 2005, announced disarmament of these rebels by force (IRIN 2005). It remains to be seen what will happen in terms of actions of the DRC government and what the impact of this will be on the security situation, which is far from secure at this moment. 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 strongly constrain the institutionalisation of transboundary cooperation through e.g. a shared conservation policy or a shared management authority.

Conclusions

This chapter on the Virunga Volcanoes region shows the enormous impact of violence on natural resources. While refugees used the resources mainly to fulfill their human needs, various armed movements have used the area for strategic military operations and for illegal activities such as poaching and logging. Also in this area natural resources have of course offered short term economic opportunities.

On the local level environmental security can be enhanced through cooperation between park authorities and local governments. Sustainable resource management approaches should be initiated to minimize natural resource scarcity in this extremely overcrowded Virunga Volcanoes region that has been characterized by violent conflicts and refugee flows for decades.

Although creating a 'Virunga Volcanoes 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 transboundary park, and calling it a peace park, will remain nothing but a dream as long as the insecurity situation 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.

Conclusions

This thesis has focused on the relationships between natural resources and conflict in the Great Lakes region. The several chapters, including a case study of the Virunga Volcanoes region, have shown how e.g. natural resources, grievances, livelihood and violence are interconnected. The research questions as posed in the introductory section have been largely answered.

First it analyses what roles natural resources play in the Great Lakes region in the origins and dynamics of the conflicts. A situation of structural resource scarcity has developed in many societies, partly because colonial powers favored certain ethnic groups over others in terms of access to land. Therefore a structural conflict developed between different ethnic groups. These grievances facilitated the mobilization of fear and hatred by the instigators of the genocide in Rwanda. The role of natural resources in the wars changed: land shifted from a source of conflict into a resource used for maintaining violence. Valuable natural resources such as gold, coltan, diamond and cassiterite have attracted neighbouring countries to interfere in the eastern part of the DRC and spurred the proliferation of rebel movements. For many young men, deprived of resources and other assets, these looting rebel movements provided unique opportunities to sustain themselves. The refugee flows that are caused by the extraordinary violent situation in certain areas again have a major impact on natural resources. The importance of land access for people in this region, including returning migrants, is therefore recognized.

Second, the thesis regards what the roles of natural resources in the Virunga Volcanoes region are and how the violence and insecurity impacted the Virunga Volcanoes region. All kinds of armed groups have roamed through the region since 1990 and the impact on the forest is significant. Deforestation took place for strategic reasons but also for commercial interests. Resources in the Virunga Volcanoes region have been used as a source of livelihood for the many Rwandan refugees since 1994, thereby creating a burden on host region just over the border in the DRC.

The third question is how natural resource management, and especially environmental cooperation, can contribute to peace and stability in the region. This remains difficult, but based on theoretical notions some conclusions can be stated. On the regional level transboundary environmental cooperation, through establishing transboundary protected areas, are expected to generate economic development and more political stability, through confidence building and strengthening transnational civil society. Therefore these parks are often called peace parks. Although creating a 'Virunga Volcanoes Peace Park' could certainly be useful from a perspective of conflict transformation, there seem to be too many constraints, mainly caused by the current instable political and security situation in eastern DRC and the poor diplomatic relations between the countries. At least a more peaceful situation should be realized before any transboundary initiative on the political level will have a chance. On the local level it could be possible to organize transboundary cooperation, between local authorities or park staff for example. Moreover, sustainable resource management approaches and land reforms should be initiated to minimize natural resource scarcity in this very overcrowded Virunga Volcanoes region.

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Annex 1 Set of questions

This set of questions was sent to the International Gorilla Conservation Programme (IGCP), within the framework of the Virunga Volcanoes region project of the Institute for Environmental Security.

Threats

1. What are the main problems in Rwanda, Uganda and DRC with regard to the conservation of the NP's?
2. In the report 'Transboundary Natural Resources Management' IGCP indicated that the conflicts in the region have affected the ability of the park authorities to effectively manage their parks. What is the security situation in and around Virunga Volcanoes region and Bwindi Impenetrable NP at the moment?
3. What is the importance of Virunga Volcanoes region and Bwindi Impenetrable NP in the dynamics of the conflict?
Are militias and insurgents using parts of the forest area of Virunga Volcanoes and Bwindi Impenetrable NP? Which militias or insurgents?
If so, what are their main activities? Do they use the forest for: housing, consumption, logging, shelter, transport, training, fighting, or other activities?
4. Has resource scarcity (the struggle for resources) in or around the NP's been a conflict-triggering factor?
5. Are militias or rebels currently still threatening or attacking official park authorities (ICCN, UWA, ORTPN)? If so, which rebel movements are these; are they for example RCD-Goma, FDLR, Mai-Mai?
6. Which authority is in control of the area surrounding Virunga National Park in DRC? Is it the national government, or RCD-Goma?
7. How significant is FDLR in this area?
8. What is the population size and population density in the regions surrounding the Virunga Volcanoes (North-Kivu, South-Kivu, North-West Rwanda, South-West Uganda)?
9. What is the current rate of agricultural settlement around the Virunga Volcanoes and Bwindi Impenetrable NP?

Management

1. How well-armed are park guards? How often do park guards use force against insurgents?
2. To what extent are the various national armies able to protect the parks?
3. We noted that the FARDC has some internal conflicts does not function without any problems (dissidents, unclear loyalty relations). Does this negatively impact the protection of the park and its natural resources?

Opportunities

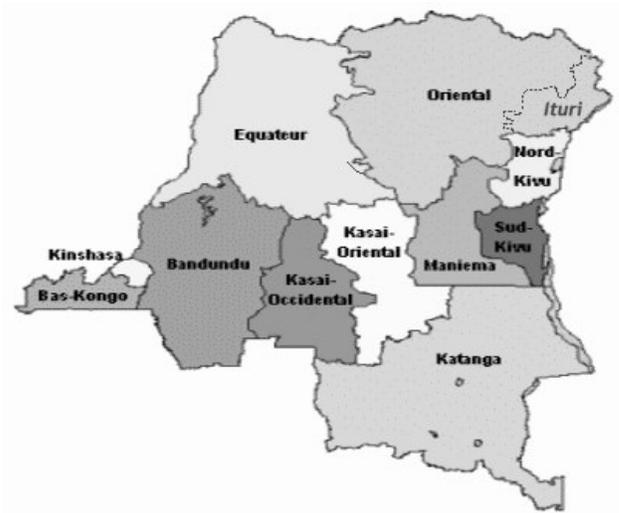
1. How is the current coordination among the various management institutions? Is it operational, continuous, and effective?
2. What measures are taken (by IGCP and other organisations) to assist local communities and to prevent encroachment into the forest by the people living adjacent to the NP's?

Annex 2 Maps

Figure A1 Countries of the Great Lakes region

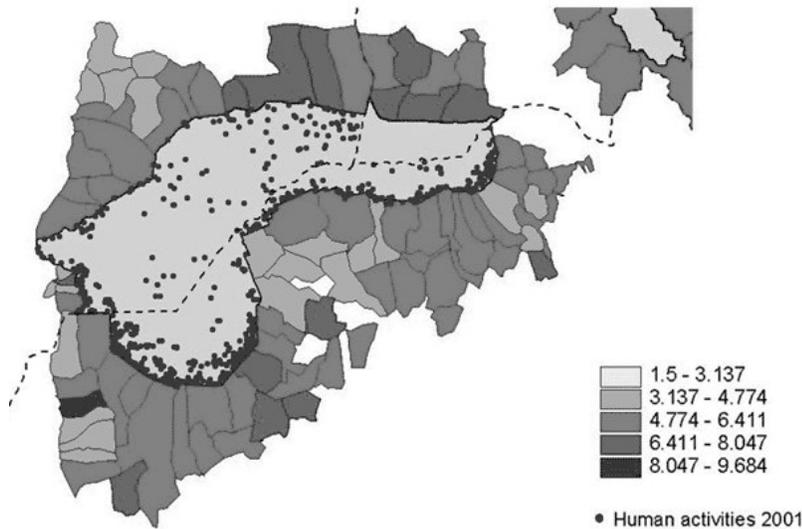


Figure A2 Provinces of the DRC: boundaries of Ituri district added



Source: author, based on MONUC 2005

Figure A 3 Mean Household Size around the tri-national Virunga Volcanoes Conservation Area



Source: IGCP 2005

Annex 3 Population density

No African country has a higher average concentration of people than Rwanda, with an average of 321 people living per km². The Rwandan provinces surrounding the Virunga Volcanoes Conservation Area are Gisenyi province and Ruhengeri province. These fertile 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). Combined with a high growth rate of the population this leads to a very high pressure on the Virunga Volcanoes region from the Rwandan side. 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*), two times as high as the national average. Population density in Uganda is 124 people per square kilometer. In the southwestern districts surrounding the Virunga Volcanoes Conservation Area the concentration of the population is even higher, as Kisoro district, directly neighboring Mgahinga National park, 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 the protected area are even more densely populated, with an average of 369 people per km² in 1991 (Adams and Infield 1998:19).

Table 3.1 Population density around the case study area

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

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