

## GEF PROJECT - DRC

### REHABILITATION OF THE DRC'S NATIONAL PARKS NETWORK

#### ANNEX 9: FINANCIAL AND ECONOMIC ANALYSIS

This technical annex presents the results of the financial and economic analysis of the ICCN's program rehabilitation of the DRC's national parks network.

The main objective of the project is the strengthened capacity in the DRC to conserve globally important biodiversity through (i) the support to ICCN institutional rehabilitation; (ii) the direct support to Garamba and Virunga national parks and their buffer zones ; and (iii) the evaluation and expansion of the protected areas network.

Very few data exist with which to evaluate the extent of the benefits likely to be generated by the project. This reflects the weakness of data collection in DRC but also the difficulty of measuring and valuing many of the effects involved and the very short history of efforts to do so anywhere in the world. Because of these limitations, the analysis presented here is limited to providing an incomplete evaluation of both financial and economic benefits that are sometimes built on precarious assumptions on the medium/long term. The political situation in East-DRC does not help much to define future trends of human activities in and around national parks.

Therefore, the financial analysis will calculate tentative sustainability thresholds in terms of ecotourists visits to the two national parks. The economic analysis will both quantify the main opportunity costs and benefits according to originating activities in order to provide indications on which project-related activities are likely to contribute more to the economic viability.

### Financial analysis

#### Fiscal sustainability

The financial analysis concentrates on the fiscal sustainability of the two National Parks where project intervention will take place that is the Garamba and Virunga NP. The analysis estimates fiscal sustainability thresholds in terms of visitors' number. The table n°1 presents the main assumptions of the analysis.

**Table 1: Main assumptions of the financial analysis**

Parameter	Assumption with project
Tourist number	No tourist for the first two years in GNP and then between 50 and 200; between 200 and 3000 tourists in the VNP
Average on-site expenditure - including entrance & tracking fees	500\$/tourist at GNP; 1500\$/tourist at the VNP (Hatfield, 2005) <sup>1</sup> - 150\$ per tourist at GNP; 300\$ per tourist at VNP
Official taxes: - Taxation on turnover - Taxation on the professional revenues - Taxation on (expatriate) salary	- 18% of the turnover - 40% of the net benefit (estimated at 20% of the turnover) - 10% of the gross salary [only for GNP]
- Indirect taxes ('ripple' effects) considered through tax multiplier by Hatfield (2005)	600\$/tourist at the VNP; not estimated for GNP

<sup>1</sup> Hatfield R., 2005. *Economic Value of the Bwindi and Virunga Gorilla Mountain Forests*. AWF working paper, Washington D.C.

For the purposes of the analysis, fiscal sustainability has been defined as the capacity to raise fiscal revenues from a given protected area at least equivalent to its recurrent costs. Fiscal revenue is the aggregation of the entrance & tracking fees, the official taxes and the indirect taxes. Recurrent costs have been defined based on proposed GEF interventions as well as additional contributions from donors and NGO's likely to maintain their support in the coming five years. Results are shown in the table below.

**Table 2: Recurrent costs and fiscal revenues generated by Garamba and Virunga NP**

	year 1	year 2	year 3	year 4	year 5
<b><i>Total Recurrent Costs</i></b>					
Garamba NP	966 799	966 799	966 799	966 799	966 799
Virunga NP	2 094 500	2 094 500	2 094 500	2 094 500	2 094 500
<b><i>Fiscal Revenues</i></b>					
Total fiscal revenue for the GNP	10 157	10 157	14 707	19 257	28 357
Total fiscal revenue for the VNP	242 400	606 000	1 212 000	2 424 000	3 636 000
<b>% of Recurrent costs covered by Fiscal revenues</b>					
Garamba National Park	1%	1%	2%	2%	3%
Virunga National Park	12%	29%	58%	116%	174%

Based on a realistic scenario at project completion (300 visitors at the Garamba NP by 2011 and 3.000 visitors at Virunga NP), additional fiscal revenues would cover respectively 3% and 174% of the parks recurrent costs. The Garamba NP suffers of the present military troubles in this region and the likely withdrawal of its World Heritage Site label in the coming years. Virunga NP is also characterised by political unrest but this drawback is compensated, in the fiscal analysis, by the enduring tourist flows from neighbouring countries and by its substantial indirect fiscal effect that has been taken into account here. This park could be fiscally sustainable at about 3.000 visitors per year.

## **B. Economic analysis**

The activities to be undertaken under the ICCN's program rehabilitation of the DRC's national parks network are described in detail in the project appraisal document (PAD). They include (a) institutional strengthening of the ICCN (national level); (b) site-level direct support to two national parks and buffer zones (site level); and (c) expansion of the national protected areas network (national level).

### **Economic costs**

The main assumptions of the economic analysis are: (a) the analysis covers 5 years; (b) economic costs and benefits are calculated by applying a standard conversion factor of 0.9 to all financial prices; (c) the cost of the support to ICCN institutional rehabilitation is accounted for according to the cost share of the two selected NP where GEF intervention will take place; and (d) a 10% discount rate is used. Table 3 below shows both the financial (see annex 5) and the economic costs of the ICCN's program rehabilitation of the DRC's national parks network. The total economic cost of the project is 20.5 million US\$. The present value of projected economic costs over 5 years is 16.9 million US\$.

**Table 3: Financial and Economic Costs**

Costs in US\$	Financial costs	Economic costs
<b>Component 1 (ICCN rehabilitation) (a)</b>		ICCN rehabilitation at % financial costs of Virunga & Garamba
		46%
<i>Investment costs</i>	500 000	205 851
<i>Recurrent costs</i>	500 000	205 851
<b>Total Component 1</b>	<b>1 000 000</b>	<b>411 702</b>
<b>Component 2 (national parks)</b>		
<i>Garamba</i>		
<i>Investment costs</i>	750 000	675 000
<i>Recurrent costs</i>	1 250 000	1 125 000
<i>Opportunity costs</i>		
Poaching		not assessed
<b>Total Garamba</b>	<b>2 000 000</b>	<b>1 800 000</b>
<i>Virunga</i>		
<i>Investment costs</i>	900 000	810 000
<i>Recurrent costs</i>	1 400 000	1 260 000
<i>Opportunity costs</i>		14 715 000
Poaching		not assessed
Slash&Burn Agriculture		8 775 000
Fuelwood extraction		4 590 000
Fishing		1 350 000
<b>Total Virunga</b>	<b>2 300 000</b>	<b>16 785 000</b>
<b>Total Component 2</b>	<b>4 300 000</b>	<b>18 585 000</b>
<b>Component 3 (Network expansion)</b>		
<i>Investment costs</i>	700 000	630 000
<i>Recurrent costs</i>	1 000 000	900 000
<b>Total Component 3</b>	<b>1 700 000</b>	<b>1 530 000</b>
<b>Total project</b>	<b>7 000 000</b>	<b>20 526 702</b>
<i>Investment</i>	<b>2 850 000</b>	<b>2 320 851</b>
<i>Recurrent</i>	<b>4 150 000</b>	<b>3 490 851</b>
<i>Opportunity</i>		<b>14 715 000</b>
<b>NPV total project costs over 5 years</b>		<b>16 918 830</b>

### Opportunity costs

In addition to the (financial) costs of implementing the project, there would also be opportunity costs from foregoing use of protected areas for other productive uses such as agricultural activity, hunting and fishing. Presently, both National Parks of Garamba and Virunga are exploited for their natural resources by the neighbouring (and sometimes interior) populations. These intense uses are to be stopped and at least greatly reduced thanks to the implementation of the project. On main type of opportunity cost has been identified regarding the Garamba NP, and four types for the Virunga NP. They are all included in the assessment of the project economic costs and detailed below.

#### ■ Garamba NP – Illegal hunting

A very important threat to Garamba National Park is the large-scale poaching that has flourished as a result of the civil wars in Sudan and the DRC. With 80.000 Sudanese refugees living in camps on the edge of the park, commercial hunting for bushmeat, ivory, and rhino horn has literally exploded. Three emblematic species, the white rhino, the elephant and the northern giraffe, have been severely impacted<sup>2</sup>. It seems highly probable that the northern

<sup>2</sup> For instance, on 10th April 2004, GNP guards had an armed contact in the south west of Garamba National Park against poachers with pack donkeys. About 25 donkeys heavily laden with what must have included ivory and rhino horn and accompanied by four or five people on foot and one on horseback, were found moving rapidly north toward Sudan through the Domaine de Chasse Azande, on the western boundary of the park.

white rhinos will become extinct in the next few months, if they have not done so already. The elephant population is less than 4.000 individuals (while more than 11.000 at the beginning of the war). And a recent survey noted an apparent decline of the population of the northern giraffe.

In a recent article, de Merode & Cowlshaw (2006)<sup>3</sup> give an estimation of protected species' stocks on the urban market of Dungu in peacetime. This amounts to 63 tons/year. In this region, bushmeat comprises 25% of household sales (de Merode et al., 2004)<sup>4</sup>. The enforcement of the GNP would stop these illegal activities. Due to lack of monetary data, this opportunity cost cannot be economically assessed. It is however supposed to be significant.

#### ■ Virunga NP – Swidden agriculture

In 2002, 425 km<sup>2</sup> of the Virunga NP were used for agricultural purpose, according to WWF. Since evacuations started in 2002 more than half of the occupied land has already been recovered. With the departure of the Hima, two last areas remain to be recovered: the western coast of Lake Edward and the site of Kilolirwe, on the foot of the active Nyamuragira volcano.

It is expected that this illegally occupied surface is reduced by 150km<sup>2</sup> during the project span. This means that 3.000 hectares are back to nature conservation every year. We can assume that this agricultural surface is half composed by productive fields and half by unproductive fallows. The agricultural average net income per hectare amounts to 436\$/yr (Hatfield, 2005). Knowing that field exploitation follows a three year rotation, the financial value of a one hectare field is estimated at 1.300\$.

The annual opportunity cost for halting swidden agriculture in the VNP is estimated at 1.9 million US\$.

#### ■ Virunga NP – Fishing

Lake Edward has provided important fisheries in the past, with harvests composed primarily of tilapia (*Oreochromis niloticus*), catfishes (*Bagrus* and *Clarias spp.*), and lungfish (*Protopterus aethiopicus*). When the NP was established, displaced villagers were assigned exclusive fishing rights, to be exercised within the framework of a cooperative society. Today, three fishing concessions are still recognized by the ICCN within the VNP boundaries: Vitshumbi, Nyakakoma, and Kyavinyonge. Around 700 fishermen were initially admitted on the Lake Edward with the aim of limiting the annual fish catches up to 10.000 tons. However, the region has faced many political troubles and several thousands of people have settled on the Lake's banks during the past decades. For instance, the Kyavinyonge population has gone from 5.000 people (which is the "legal" number) to more than 20.000. For all inhabitants, fishing is an important source of animal protein. While no recent data on productivity and off-take are available for the Lake Edward, it is very likely that overfishing and depletion of fish stocks is occurring.

In the 1970s, around 10.000 tons of fish were extracted from the Lake by the Congolese fishermen. This amounted to 18.000 tons in 1989 by 1.800 pirogues and small ships (Vakily, 1989)<sup>5</sup>. The same trend is assumed since then (+30% on 1989-2006), that would expand the number of ships up to 2.200 in 2007.

<sup>3</sup> de Merode E. & Cowlshaw G., 2006. Species protection, the changing informal economy, and the politics of access to the bushmeat trade in the Democratic Republic of Congo. *Conservation Biology*, 20(4), 1262-71

<sup>4</sup> de Merode, E., Homewood, K. & Cowlshaw, G. 2004 The value of bushmeat and other wild foods to rural households living in extreme poverty in Democratic Republic of Congo. *Biological Conservation*, 118, 583-592

<sup>5</sup> Vakily, J.M., 1989. *Les pêches dans la partie zaïroise du Lac Idi Amin: Analyse de la situation actuelle et potentiel de développement*. Rapport Technique des Pêches au Zaïre. Gouvernement de la République du Zaïre, Département des Affaires Foncières, Environnement et Conservation de la Nature, et Commission des Communautés Européennes, Kinshasa/Brussels. 48 p. and Appendix.

Vakily (1989) also estimated the maximum sustainable yield (MSY) of the Lake Edward around 15.000t/yr, i.e. 8.4t/yr/ship. With the manifest overfishing since the early 1990s, it is likely that this MSY was reduced by 10%, that would now turn around 7.5t/yr/ship. Under these assumptions, present fish off-take is estimated around 16.500t/yr, with 1.500 tons in excess compared to the biological MSY.

Local price for fresh fish is around 1\$/kg. This market price is applied to the excessive 1.500 tons of fish to estimate this total opportunity cost. It amounts to 1.5 million US\$ that would be evenly distributed over the coming five years.

- Virunga NP – Fuelwood extraction

Most fuelwood consuming around VNP<sup>6</sup> comes from the Park, especially its northern sector. This generates a massive deforestation. The annual fuelwood volume extracted from the VNP is estimated at 3 million m<sup>3</sup> (Languy et al., 2006)<sup>7</sup>. This wood is generally converted into charcoal, around 8.5 million bags per year. Each charcoal bag is sold around 3\$ (field price).

We assume that the project will reduce this extraction by 20% over the next five years. Under this assumption, the total opportunity costs amounts to 5.1 million US\$.

- Virunga NP – Illegal hunting

Since the 1960s, the park's populations of elephants, hippos, and buffalos have declined dramatically, with the heaviest levels of poaching occurring in 1980s and during the past 10 years since the beginning of the country's civil war in 1996. For instance, the park's once abundant elephant population—estimated at 4.300 in the 1960s—had been reduced to a few hundred individuals by 2003. Thanks to the anti-poaching brigades' efficacy, the most recent census found that efforts to protect the park's wildlife seem to be reversing this trend of decline, and that most of the park's large mammals have increased in number since the last census in 2003. This is not however the case of the hippos that are still heavily poached. Once the world's largest hippo population, with some 29.000 individuals in 1974, it has now dropped to under 900 individuals.

Anti-poaching efforts have recently proved to be successful, except for hippos. These animals are said to play an essential function in the ecological regulation of the lake through providing food to fish population. However, the existing means to fight illegal hunting are today effective; the implementation of the project would not then produce any significant opportunity cost.

## **Economic benefits**

The establishment and enforcement of protected areas has a twofold impact on uses. On the one hand, it reduces the short-term benefits by limiting/halting the unsustainable activity (poaching, illegal fishing, illegal harvesting of timber,...): these opportunity costs have been estimated above. On the other hand, it allows an utilisation of biodiversity and natural resources that can be sustained over time. It provides an indefinite flow of benefits for local populations and other users that are willing to abide by the rules of sustainable utilisation.

The calculations of these benefits follow the same assumptions as the ones used for the costs' assessment. These benefits are derived from the enforcement of the two national parks as depicted in the component 2 of the project. Table 4 shows both the financial and the economic benefits of the ICCN's program rehabilitation of the DRC's national parks network. The total

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<sup>6</sup> More than 3 million people are living in the outlying zone of the VNP.

<sup>7</sup> Languy M., Boendi Lihamba S., Dziedzic W., 2006. *La problématique de l'approvisionnement en bois en zone limitrophe du Parc National des Virunga*. Draft

economic benefit of the project is 65.1 million US\$. The present value of projected economic benefits over 5 years is 48.1 million US\$.

**Table 4: Financial and Economic Benefits**

<b>Component 2 (national parks)</b>	<i>Financial Benefits</i>	<i>Economic Benefits</i>
<b>Garamba</b>		
Tourism in the Park	175 000	157 500
Hunting in the Game Reserves	not assessed	not assessed
Non-use value	8 850 000	7 965 000
<b>Total Garamba</b>	<b>9 025 000</b>	<b>8 122 500</b>
<b>Virunga</b>		
Tourism	18 090 000	16 281 000
Watershed protection - Drinking water	250 000	225 000
Non-use value	45 000 000	40 500 000
<b>Total Virunga</b>	<b>63 340 000</b>	<b>57 006 000</b>
<b>Total Garamba &amp; Virunga</b>	<b>72 365 000</b>	<b>65 128 500</b>
<b>NPV total project benefits over 5 years</b>		<b>48 135 812</b>

The benefits accruing from the enforcement of these two national parks in DRC belong to three categories: (1) extractive use benefits; (2) non-extractive use benefits; (3) non-use benefits. They are detailed below.

### **Extractive uses – Hunting in the Garamba Game Reserves**

The Garamba National Park and its neighbouring hunting reserves harbour important population of game animals: buffaloes, several species of kobs, hartebeest, bushpig, several antelope species... that can attract foreign or national professional hunters. Moreover, most of these species are numerous enough to expect a substantial growth in the medium term. There is clearly the possibility for hunting tourism, which includes the development of sport trophy hunting in the game reserves.

But the security situation in and around the GNP is not guaranteed, as rebels from the Uganda Lord Resistance Army re-infiltrated the Azande Hunting Area in January 2006. It is unlikely that any hunting tourism starts before two or three years. The doubts on the future political situation and the lack of economic data on safari hunting in eastern DRC prevent any assessment of this benefit.

### **Non-extractive uses – Tourism in the Garamba NP**

The Garamba NP has a real tourist potential in the medium and long terms with, among others, the presence of the white rhino population and large herds of savannah elephant (Inogwabini et al., 2005)<sup>8</sup>. Several tourists' facilities (guest-house, roads,...) are also available and will be restored by the project. The park is also well known for its african elephant domestication programme started in the 1960's, which managed to train tourist-rideable animals from the naturally wild beasts. In the 1980's the park's last remaining domesticated elephants were successfully used for tourism in the park but only one of these elephants now survives.

At this point, however, there is virtually no tourism in or around Garamba National Park. Without major reshaping of the entire security and immigration systems, tourism will not reach any significant level. In addition, the World Heritage Committee is considering removing GNP from the World Heritage List if the Northern White Rhino becomes extinct by 2007. The committee considered that the loss of the rhino would mean that GNP would no

<sup>8</sup> Inogwabini B.I., Ilambu O., Atalia Gbanzi M., 2005. Protected areas of the Democratic Republic of Congo. *Conservation Biology*, 19(1), 15-22

longer be of 'outstanding universal value', the criteria for World Heritage sites, and therefore said that it would consider removing the site from the World Heritage List next year.

With or without the white rhino, one can expect the political stabilization of this region over the medium term and, with this, the slow beginning of tourism. Our estimate assumes the coming of 50 « pioneer » tourists in 2009, 100 in 2010, and 200 in 2011. As formerly for the GNP, the average stay would be 5 day length and the average daily expense is estimated at 100US\$. We come out with an estimated total benefit of 175.000 US\$.

### **Non-extractive uses – Tourism in the Virunga NP**

Virunga NP has the highest tourist potential of any of the protected areas in DRC (gorilla viewing, chimpanzee viewing, the plains wildlife, lakes, rivers, Ruwenzori mountains, active volcanoes). In the late 1980's it was generating more than \$500.000/yr in park entrance fees. Hartfield (2005) estimates the VNP maximum capacity at 20.000 visitors/yr. However, civil strife and present pressures on the park have seriously reduced its tourism capacity. As a part of the international "Virunga-Bwindi protected forests" imitative, the VNP is today visited by around 200 foreign tourists particularly for gorilla and chimpanzee viewing. This number may rise to 3000 by 2011, partly thanks to the rehabilitation of tourism amenities by the project.

According to Hartfield (2005), who implemented the travel cost method for this, the expenditure on gorilla-viewing amounts to 1.500 US\$. A consumer surplus of 1.200 US\$ must also be added on that. Thus the average economic benefit of viewing a gorilla is estimated at 2.700\$ for a foreign tourist.

Under these assumptions, the total economic benefit of eco-tourism over the next five years is evaluated around 18 million US\$.

### **Non-extractive use – Watershed protection in the Virunga NP**

The enforcement of the Virunga NP would produce several downstream benefits of arrested or reduced degradation of the forest cover in the protected area (Weber, 1987)<sup>9</sup>. One of these benefits would be the permanent availability of drinking water for the VNP neighbouring populations. More precisely, two areas of the VNP can provide watershed protection to local populations due to the number and the direction of the rivers sited there: the northern part of the park and the southern area of the Lake Edward. However only the northern area of the VNP is covered by dense tropical forest and is considered in this analysis. This represents an area of around 100 000 hectares.

This kind of benefit is generally valued using cost-based approaches including defensive or preventive expenditure and replacement cost. Forested watersheds protection values range from US\$ 0 to US\$ 850 per ha (Pearce & Pierce, 2001)<sup>10</sup>. Lampietti and Dixon (1995)<sup>11</sup> used US\$ 10/ha/year as a median estimate of watershed protection functions. According to Hartfield (2005), these local ecological services were worth 0.7 million US\$ annually for the whole Bwindi and Virunga parks. If we use the conservative watershed protection value of 0.5 US\$/ha/yr made by Bravi (2005)<sup>12</sup>, the annual benefit of this ecological function in the northern part of the VNP is estimated at 50.000 US\$.

### **Non-use benefits – Existence value of the Virunga NP**

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<sup>9</sup> Weber W., 1987. *Ruhengeri and its resources: An environmental profile of the Ruhengeri Prefecture, Rwanda*. Ruhengeri Resource Analysis and Management (PRAM) project, Ruhengeri, Rwanda.

<sup>10</sup> Pearce D.W. & Pierce C.G.T., 2001. *The Value of Forest Ecosystems*. CBD Technical Series No. 4, Secretariat of the Convention on Biological Diversity, Montreal, Canada

<sup>11</sup> Lampietti J.A. & Dixon J.A., 1995. *To See the Forest for the Trees: A Guide to Non-timber Forest Benefits*. Environment Department Papers n°013, ESD World Bank, Washington

<sup>12</sup> Bravi C., 2005. *Total economic value of forests in DRC*. Draft report, World Bank, Washington D.C.

The non-use value is estimated by the amount one person is willing to pay for the conservation of an ecosystem though she/he does not intend to make any use of it. Existence values can be substantial in contexts where the forests in question are themselves unique in some sense, or contain some form of highly prized biodiversity. This is clearly the case of the VNP, with such emblematic species as gorilla, elephant,...

Using the contingent valuation method, Hatfield (2005) assessed the existence value of the Bwindi-Virunga forests to not-using international citizens. He comes out with an annual estimate of 186.5 million US\$ for the three parks. If we assume that only 5% of the amount is assigned to DRC Virunga National Park, this annual non-use benefit amounts to 9 million US\$.

### Non-use benefits – Existence value of the Garamba NP

Likewise, the Garamba National Park is home to four emblematic mammals: the elephant, giraffe, hippopotamus and above all the white rhinoceros. These species are generally assigned a substantial non-use value. Given the absence of relevant studies for DRC (Bravi, 2005), their existence values were approximated by the amount of international aid committed for the protection of these species and habitats through donations to the GNP.

In the latest years, a number of donors have been involved in funding the GNP, including European Union, UNESCO and large international NGOs : this financial support has added up to 151\$/km<sup>2</sup>/yr, i.e. 740.000\$/yr for the GNP (Inogwabini et al., 2005). More recent funds were put: APF has committed more than 1 million € to the kick-off phase; the EU Delegation in Kinshasa has committed a further 3.1 million €, and the Government of Italy a further 250.000 US\$ (for a 5 year period).

All these international funds put together, the GNP has got 1.77 million US\$ annually. This amount approximates the existence value granted by the international community for the GNP. It is assumed to remain constant over the coming five years.

## C. Conclusion for the economic analysis

The economic costs and benefits of the ICCN's program rehabilitation of the DRC's national parks network are summarised below.

**Table 5: Project costs and benefits**

Estimated costs and benefits (in US\$)	Amount
<b>Costs</b>	
Component 1 – Project Economic Costs	411 702
Component 2 – Project Economic Costs	3 870 000
Component 2 – Opportunity Costs	14 715 000
Component 3 – Project Economic Costs	1 530 000
<b>Total Project costs (not discounted)</b>	<b>20 526 702</b>
<b>NPV total project costs /a</b>	<b>16 918 830</b>
<b>Benefits</b>	
Tourism – Garamba & Virunga National Parks	16 438 500
Hunting safari – Garamba Game Reserves	not assessed
Watershed protection – Virunga National Park	225 000
Non-use value - Garamba & Virunga National Parks	48 465 000
<b>Total Project benefits (not discounted)</b>	<b>62 128 500</b>
<b>NPV total project benefits /a</b>	<b>48 135 812</b>
<b>NPV Project</b>	<b>31 216 982</b>

a/ using a 10% discount rate over 5 years.



The net present value (over the coming 5 years) of the project appears to be largely positive. This result is mainly due to the very substantial existence values that are assigned by the international community to the national parks of Virunga and Garamba. The expected pacification of these two regions may even increase these estimates as well as the ones for eco-tourism benefits.

On the cost side, major opportunity costs are to be taken into account, especially regarding the Virunga National Park. They are twice as high as the functioning costs of the project. This requires to be particularly careful on the operating mode of the project and to define proper management tools that may be accepted by local stakeholders.