

# Analysis of the Causes of Deforestation and Degradation of the Forest of Katakoko Village

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### ABSTRACT

We conducted a study on the causes of deforestation and forest degradation in KATAKO village. Our problem had revolved around the following questions: what is the most active activity in the village KATAKO? Where are the fields of the population of the village KATAKO? What are the causes of deforestation and forest degradation in KATAKO village? What are the socio-economic impacts of anthropogenic activities in the KATAKO village forest? Does the population of KATAKO village know the ecological consequences of deforestation and forest degradation in their environment? To better understand the different issues of our investigation, we formulated the hypotheses according to which: the activity most exercised by the population of the village KATAKO would be the itinerant agriculture on brulis; the fields of the population of KATAKO village would be located in the forest; the causes of deforestation and forest degradation in KATAKO village would be shifting cultivation and logging; the socio-economic impacts of human activities in the KATAKO village forest would be the subsidy to the needs of the families and the payment of the costs of studies; the population of KATAKO village would notice the climatic disturbance as one of the ecological consequences of the deforestation and the degradation of the forest in their environment. To achieve our objectives, we used the retrospective method based on the documentary technique and the prospective method, which had focused on the technique of questionnaire survey, carried out in three stages including a pre-survey, the choice of sampling and the counting. Sampling was determined by interviewing 50 randomly selected people in KATAKO village. After analysis, the following results were obtained: the activity most exercised by the population of the village KATAKO is itinerant agriculture on brulis with 48%; 92% of the respondents prefer to install their fields in the forest; 44% of respondents say that deforestation and forest degradation in the village of Katakoko are caused by itinerant agriculture on brulis; 52% of respondents say that anthropogenic activities in the forest allow them to provide for their families; 40% of respondents admitted that deforestation and forest degradation in KATAKO village is causing climate perturbation.

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## 1. INTRODUCTION

Environmental protection has become a major concern of the international community in recent decades. Many anthropogenic acts have adverse consequences on the environment, but there is one whose consequences quickly affect the whole world: the disappearance of tropical rainforests, which worries so much in the countries of the North as in the countries of the South<sup>3</sup>.

Considered as the lungs of the planet by many experts, these forests offer, through the mechanism of photosynthesis, a mass production of oxygen necessary for life. The enormous biodiversity of this ecosystem is also a stock of useful wealth for the people who live there and for the rest of humanity<sup>3</sup>.

The Democratic Republic of Congo (DR Congo) is a vast country, located in the heart of Africa, largely covered by forest. It covers 155.5 million hectares (99 million hectares of which are dense rainforest), 67% of the national territory, or 10% of the world's forests and nearly 50% of Africa's tropical forests; it is the second largest tropical forest in the world<sup>1</sup>.

Lumbering as practiced in the DRC seems to have more negative impacts on the exploited species and on the existing forest. These forests are threatened by illegal logging that does not comply with the reduced impact logging (NEIR) standards on the forest environment or the minimum logging diameters (EMRs) set by the forest administration, by different careers of precious materials, by slash-and-burn agriculture provided by a galloping and idle population in rural areas, and by wars that provoke influxes of refugees<sup>2</sup>.

The increase in population and human activities in this environment leads to the degradation and fragmentation of the forest, causing many other very harmful and irreversible problems of the biosphere, including: the warming of the atmosphere, the change climatic problems that pose serious problems for the population who can no longer control the agricultural calendar, thus leading to a significant reduction in the production of most food and vegetable crops, erosions, floods, the remoteness of certain species, and plants and animals, even the disappearance of some, and this must be of utmost concern to the whole of humanity<sup>1</sup>.

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Maniema is no exception, from day to day, many hectares of forests are destroyed by human activities for subsistence and commercial purposes. However, the mismanagement of the largely uncontrolled exploitation of the forest threatens this precious resource.

Thus, following this exploitation considered irresponsible of the natural resources, causing the deforestation and the degradation of the forests in Maniema, we were interested in unearthing the causes of these phenomena in the village KATAKO, finally to sensitize the local population for a responsible management of their natural resources. This problematic also pushes us to carry out analyzes on the impact of this deforestation and this degradation of the forests on the physical, social and economic environment of this country, considered as environment of study for our researches.

From what precedes, our problematic revolves around the following questions: what is the activity most exercised in the village KATAKO? Where are the fields of the population of the village KATAKO? What are the causes of deforestation and forest degradation in KATAKO village? What are the socio-economic impacts of anthropogenic activities in the KATAKO village forest? Does the population of KATAKO village know the ecological consequences of deforestation and forest degradation in their environment?

To better understand the different issues of our investigation, we formulated the hypotheses according to which: the activity most exercised by the population of the village KATAKO would be the itinerant agriculture on brulis; the fields of the population of KATAKO village would be located in the forest; the causes of deforestation and forest degradation in KATAKO village would be shifting cultivation and logging; the socio-economic impacts of human activities in the KATAKO village forest would be the subsidy to the needs of the families and the payment of the costs of studies; the population of KATAKO village would notice the climatic disturbance as one of the ecological consequences of the deforestation and the degradation of the forest in their environment.

The overall goal of our work is to analyze the causes of deforestation and forest degradation in KATAKO village.

In relation to the problematic of our research subject, we assign ourselves the following specific objectives: to determine the activity most exercised by the population of KATAKO village; to know the location of the fields of the population of the village KATAKO; identify the causes of deforestation and degradation of the KATAKO village forest; highlight the socio-economic impacts of human activities in the KATAKO village forest; check if the population of KATAKO village knows the ecological consequences of deforestation and forest degradation in their environment.

We have been motivated by the increasing scale of deforestation and degradation of the Maniema forest, of which shifting cultivation is the main factor; and by the environmental problems caused by deforestation (an increase in heat, a decrease in plant and animal diversity, etc.).

This investigation shows several interests: in terms of nature conservation, our work will serve to inform the politico-administrative authorities and the population of KATAKO village about the dangers of deforestation and the degradation of the forest on their environment, to plan an action of rational management of this forest especially that this one is constantly subjected to the anthropic action; scientifically, this work can serve as a data bank for researchers who want to have information on human activities

and consequences in the KATAKO village forest; socio-economically, our study will allow us to highlight the important place occupied by the forest in the socio-economic sector of the village KATAKO.

The present research was carried out in the Democratic Republic of Congo, in the province of Maniema, precisely in the village KATAKO which is the chief town of the Bangengele Chiefdom, located in the territory of Kaïlo. It is spread over the timeframe from January to May 2017.

## 2. MATERIALS AND METHODS

### 2.1. MATERIALS

The following materials were used for the realization of this work:

#### 2.1.1. Biological material

We used the 50 respondents living in Katako village.

#### 2.1.2. Technical material

To collect our data, we made use of the following materials:

- the bike, which served as a means of transport to reach our respondents;
- a survey questionnaire submitted to our respondents for the collection of field opinions;
- a computer for data entry and processing;
- a modem for browsing the Internet;
- a field notebook, a pen, a ream of papers.

### 2.2. METHODS

In relation to the objectives of our work, we have resorted to the following methods:

- retrospective method: based on documentary technique, which makes it possible to make an indirect observation in the sense that it concerns the study and analysis of written documents, including works, archives, memoirs and other unpublished documents compared to the study<sup>7</sup>. It will allow us to consult the various documents related to our subject of study;
- prospective method: based on the questionnaire survey technique, the survey is based on a questionnaire-based survey in order to find reliable information about the environment in relation to the lifestyle<sup>7</sup>. In relation to our subject, this technique will focus on a questionnaire that addresses the causes of deforestation and forest degradation in Katako village.

#### 2.2.1. Determination of sampling

Sampling was determined by interviewing 50 randomly selected people in Katako village.

#### 2.2.2. Criteria

For this investigation, the following criteria were observed:

- be a resident of KATAKO village;
- have a communication facility.

#### 2.2.3. Specification of variables

For a good understanding of the question, the following variables have been retained:

- the most exercised activity;
- the location of the fields;
- The views of the population on the causes of deforestation and forest degradation in KATAKO village;
- the socio-economic impacts of human activities in the KATAKO village forest;
- the level of knowledge of the population on the ecological consequences of deforestation and forest degradation in the village of Katako.

#### 2.2.4. Statistical treatment of results

To process the data, we made use of the calculation of percentage and of the counting of the data, which consisted of

raising the frequencies observed with the different questions and representing them in the form of the tables or figures, after having converted them in percentage, by using the

following formula: 
$$Fr = \frac{Fo}{N} \times 100$$

Fr = Relative frequency

Fo = Observed frequency

N = Total number of observations

### 2.2.5. Software used

Concerning the realization of our work, Excel 2007 and Word software were used to draw tables, histograms and sectors.

### 2.2.6. The encountered difficulties

The major difficulties encountered in our research period are:

- [1] the insufficiency of the intelligence documents that can help us to enrich our work;
- [2] the poor reception by the respondents;
- [3] the misunderstanding of the respondents to answer our questions;
- [4] the low level of education of the respondents.

## 3. PRESENTATION AND DISCUSSION OF THE RESULTS

In this chapter, we will present and interpret the results of our field investigations in different tables and figures below.

### 3.1. The most active activity

The table below shows the activity most practiced by the population of KATAKO village.

**Table 1. The most active activity in the village KATAKO.**

Activity	Observed frequency	Relative frequency (%)
Itinerant agriculture on brulis	24	48
Small business	15	30
Breeding	4	8
Peach	3	6
Lumbering	4	8
Total	50	100

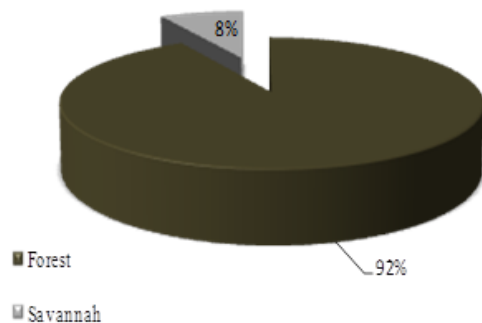
The examination of the results recorded in Table I, shows us that in our study environment, the most active activity is itinerant agriculture on brulis with 48%, followed by small businesses with 30%, by breeding and lumbering with 8%, and finally by fishing with 6%.

Our results are similar to that of NDONDA Jean luis (2009), who in his study found that 92.6% of the Congolese population cultivate agriculture as a source of income<sup>5</sup>.

These similarities in the results can be explained by the fact that our study environments are rural, where there are no jobs, that is how the population works the soil to meet their needs.

### 3.2. Location of the fields

The figure below presents the opinions of the population on the location of their fields.



**Figure 1. Notice on the location of the fields.**

The analysis of the results recorded in the figure above shows that out of 100% surveyed: 92% of the respondents prefer to install their fields in the forest, while 8% work their fields in the savannah.

These results show that the majority of the population of KATAKO village is putting pressure on the forest for their farming facilities. This is also one of the causes of deforestation and forest degradation in our study environment.

### 3.3. Opinion of the population on the causes of deforestation and degradation of the village forest KATAKO

The table below presents the opinions of the population of KATAKO village on the causes of deforestation and the degradation of their forest.

**Table 2. Opinion of KATAKO village population on the causes of deforestation and forest degradation in KATAKO village.**

Causes	Observed frequency	Relative frequency (%)
Itinerant agriculture on brulis	22	44
Lumbering	17	34
Construction of houses	8	16
Infrastructure construction	3	6
Total	50	100

With regard to the above table, we note that out of 100% of the respondents: 44% of respondents say that deforestation and forest degradation in KATAKO village are caused by itinerant agriculture on brulis, while 34% say lumbering, while 16% inculcate the construction of houses, and finally 6% speak of the construction of infrastructure.

Our study is supported by a study conducted by le GUEN Jacques (2010), who found that in the 1990, nearly 70% of deforested areas were converted to agricultural land<sup>4</sup>.

These similarities in results can be explained by the fact that population growth has led to a considerable increase in the demand for food products. To meet this demand, the population is obliged to resort to the forest, which is the only ideal environment for agriculture because trees contribute to the regeneration of soil fertility.

### 3.4. Socio-economic impacts of human activities in the KATAKO village forest

The table below presents the opinions of the population on the socio-economic impacts of human activities in the KATAKO village forest.

**Table 3. Socio-economic impacts of human activities in the KATAKO village forest.**

Socio-economic impact	Observed frequency	Relative frequency (%)
Subsistence of the family	26	52
Payroll costs	14	28
Construction of houses	10	20
Total	50	100

The analysis of the results recorded in Table 4 shows that out of 100% of our respondents: 52% of the respondents say that the human activities in the village forest KATAKO allow them to support their families, 28% speak pays a fee for the studies of their children, 20% say that it allows them to build their homes.

These results show that the population of KATAKO village benefits from human activities taking place in their environment in all their forms.

This is also one of the causes of deforestation and forest degradation in our study environment. Our results show that the village forest is successfully fulfilling these socio-economic functions, but the rate of deforestation and forest degradation in KATAKO village will one day make this forest no longer able to meet the needs of this population.

Our results corroborate with those of YAMBA OHEKA (2016), who found that 55% of respondents say that logging allows them to support their families, 25% of respondents say that it allows them to pay the fees for the studies of their children and 20% say that it allows them to build houses <sup>6</sup>.

### 3.5. Level of knowledge of the population on the ecological consequences of deforestation and forest degradation

Table 4 presents the level of knowledge of the population on the ecological consequences of deforestation and forest degradation in KATAKO village.

**Table 4. The level of knowledge of the population on the ecological consequences of deforestation and forest degradation in KATAKO village.**

Impacts	Observed frequency	Relative frequency (%)
Climate perturbation	20	40
Global warming	11	22
Violent winds	5	10
Erosions	4	8
Rarity of animal species	4	8
Floods	3	6
I do not know	3	6
Total	50	100

The table review above shows that out of 100% of the respondents: 40% of respondents confessed that the deforestation and forest degradation of the village KATAKO cause climate disruption, 22% of respondents talked about global warming, while 10% of the respondents estimated the high winds, 8% of the respondents respectively for erosions and the scarcity of animal species, and finally 6% of the respondents respectively for those who talk about floods and those who are unaware of the situation.

This result shows that the entire population of KATAKO village knows the ecological consequences that deforestation and forest degradation can cause in their environment.

Our results corroborate those of OSOMBA FATAKI (2015), who found that 42% of respondents said that logging is causing climatic disruption in Kailo territory; 28% said it causes species scarcity; 18% said it causes species disparity and 12% said it causes global warming <sup>8</sup>.

From the above, we can say that the level of knowledge about the ecological consequences of deforestation and forest degradation in KATAKO village does not influence the population to sustainably exploit the forest.

## 4. CONCLUSION

A study has just been conducted on the analysis of the causes of deforestation and degradation of the forest of KATAKO village.

Our specific objectives were to determine the activity most exercised by the population of KATAKO village; to know the location of the fields of the population of the village KATAKO; to identify the causes of deforestation and forest degradation in KATAKO village; to highlight the socio-economic impacts of human activities in the KATAKO village forest; to check if the population of KATAKO village knows the ecological consequences of the deforestation and the degradation of the forest in their environment.

After analysis, the following results were obtained: the activity most practiced is the itinerant agriculture on brulis with 48%; 92% of the respondents prefer to install their fields in the forest; 44% of respondents say that deforestation and forest degradation in the village of Katakoko are caused by shifting cultivation on brulis; 52% of respondents say that human activities in the forest of Katakoko village allow them to provide for their families; 40% of respondents admitted that deforestation and forest degradation in KATAKO village is causing climate perturbation. Our assumptions have been widely verified and confirmed.

From the foregoing, we recommend organizing awareness-raising activities against deforestation and forest degradation; the participation of all Congolese in the sustainable management of our forests; and the deepening of our study not other researchers in order to discover other realities.

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