

Identification of the drivers of deforestation in the Democratic Republic of Congo: case of the territory of Bolobo

Armand Okende ¹, Benjamin Beaumont ²

¹ANAGEO-DGES, Université Libre de Bruxelles, Belgium

² Remote Sensing and Geodata Unit, Institut Scientifique de Service Public, Belgium

Correspond author: armand.lokolo.okende@ulb.be

Transformative Changes for Biodiversity and Health
An Alternet Conference in Ghent, Belgium

14-17 june 2022



Introduction

Deforestation is defined as the conversion of an area of dense or degraded forest to any other land cover class or significant and permanent reduction in forest cover below the minimum threshold of 10%. It is also considered as the result of actions of deforestation and then clearing by and for human activities.

Currently, the issue of deforestation and forest degradation is at the heart of environmental issues in our study sites, located precisely in Bolobo, Botanankasa, Moseno and Tshumbiri villages.

Following this deforestation, the forests located in the studied areas that we had specified above are losing their surfaces from day to day despite their important roles in the well-being of the population.

It is therefore wise to know the causes of this deforestation, especially since the DRC is resolutely committed to determining the causes of deforestation and forest degradation at the national level.

Some previous studies have been made in this theme and have revealed the main direct and indirect causes in the DRC; unfortunately, the situation is still deteriorating, and no scientific study seems to date to have made it possible to assess the relative importance of the various causes of degradation and deforestation at the national scale, and at the scale of the different landscapes.

It is therefore essential that knowledge of the drivers of deforestation be up to date, especially that the Democratic Republic of Congo has been engaged in the process of Reducing Emissions from Deforestation and Forest Degradation (REDD+) since 2009 and validated in 2012 by the government.



Methodology

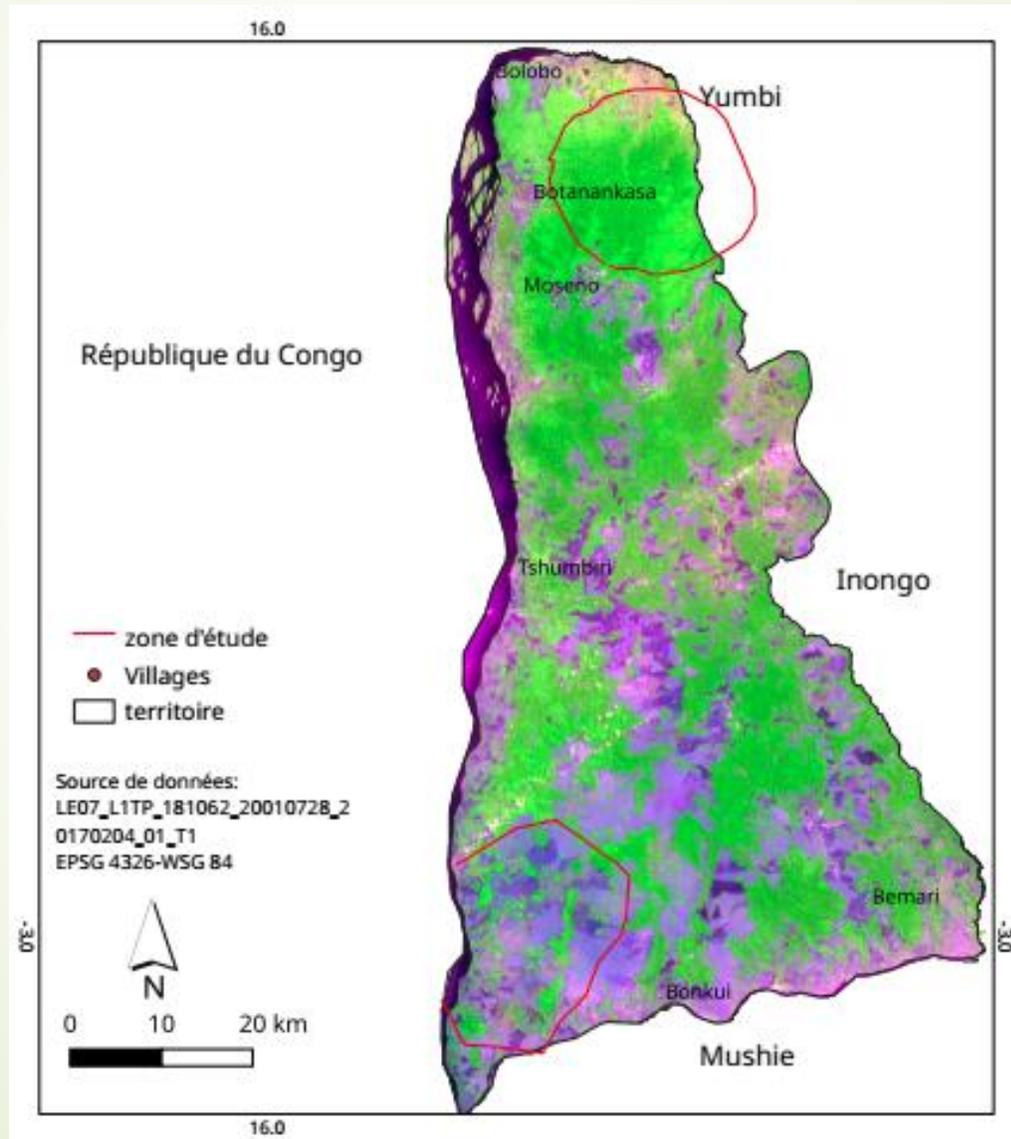
As mentioned above, our study concerned the territory of Bolobo, located in the current province of Mai-Ndombe.

The study areas (Figure 1) are divided into two, the first of which is located in the northeast of Bolobo territory, bounded by the NGAMPOKO river bordering YUMBI territory.

A second study area is located in the southwestern part of the territory of Bolobo, bordering the Republic of Congo Brazzaville whose natural limit is the Congo River, to the east by the territory of MUSHIE and to the south the territory of KWAMOUTH and the tributary KWA (Kasai).

Administratively, it has a chieftaincy, that of Bateke-north and abounds with two groups: Mbee-nkuru group and Bwema group, with a single rural commune that bears the same name (Bolobo). It is accessible by road 350 km from Kinshasa.

Fig.1. Location of study sites in the territory of Bolobo.





A systemic approach proposed by Geist and Lambin (2001) which is distinguished by the insight of its analysis and the robustness of its argumentation, with a view to understanding the direct causes and underlying factors of deforestation has been adopted.

This approach gives a systemic and generalized vision of the causal model of tropical deforestation, at the same time it also allows to explain the facts by grasping the elements and phenomena of nature, their state and their movement based on the interrelations and the interactions, behaviors and changes.

For this study, we adopted non-probability sampling where the distribution of characteristics within the population is equal. Indeed, the sampling was done by means of surveys of 4 villages for two months (February 15 to April 18, 2020).

A second survey was carried out during the month of September (from September 01 to 30, 2020) with the aim of consolidating the results obtained during the first survey by adding photos of the factors of deforestation.

In the field, the surveys were carried out by two colleagues from WWF-DRC, involved in the REDD+ project on the protection of forests in this part of the country and was accompanied by 4 guides, chosen from the local population, including one from each village according to the criteria (knowing how to read and write Lingala and French, and knowing how to speak the local language).



Results

This study made it possible to deduce, according to the perceptions of the local populations and other actors intervening in the 4 study sites, what they consider as factors of deforestation.

The analysis of the drivers of deforestation in the 4 identified sites reveals 5 direct causes of deforestation. Slash and burn agriculture, uncontrolled bush fires, fuelwood, infrastructure and urbanization, as well as livestock.

These are the activities practiced in the territory of Bolobo that cause the loss of forest areas each year. The figures below illustrate the different hierarchies occupied by these deforestation factors in the 4 study sites.

Indeed, at the Bolobo site, as can be seen in Table 9 and confirmed in Figure (2), the analysis shows that slash and burn agriculture has a proportion of 40%, followed by infrastructure and urbanization. with a proportion of 25%), 20% for energy wood, 10% for bush fires and 5% for livestock.

Fig.2. Distribution of deforestation factors in the village of Bolobo.

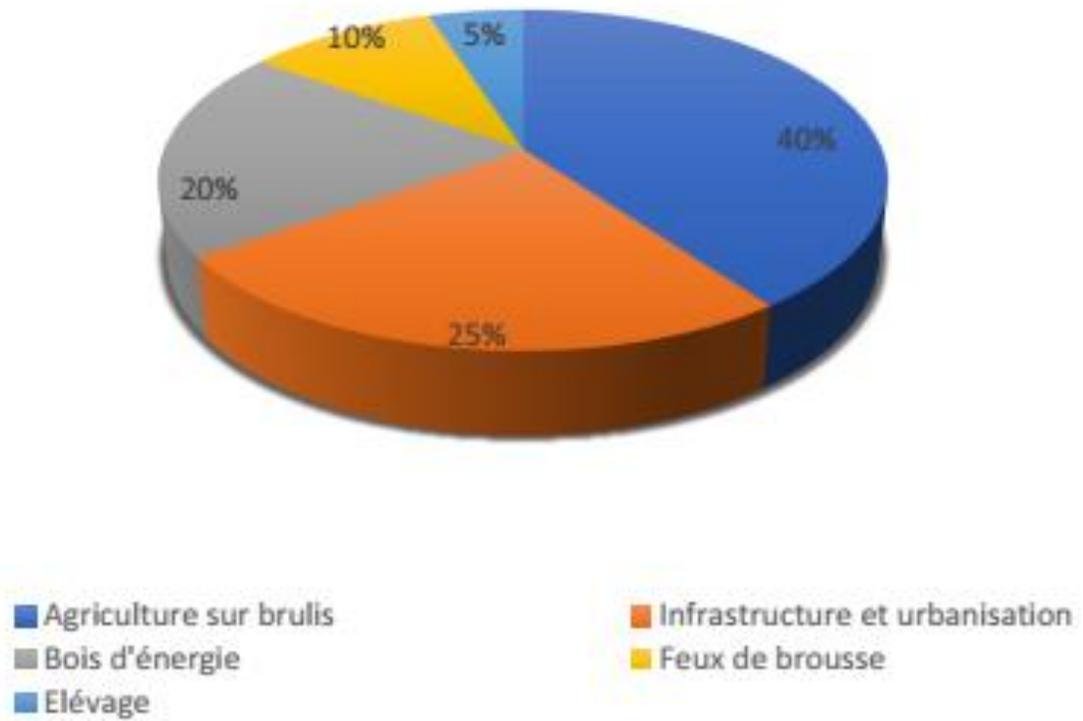
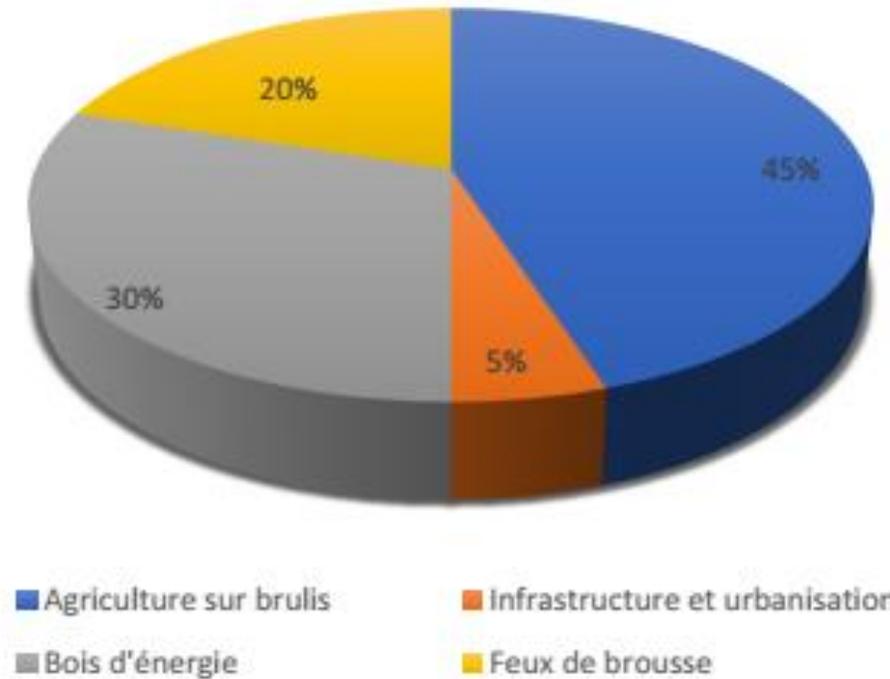


Fig.3. Distribution of deforestation factors in the village of Botanankasa.



In the village of Botanankasa (figure 3), slash and burn agriculture is the main activity with a significant share of 45%, 30% for fuel wood, followed by bush fires with 20% and infrastructure and urbanization 5 %.

Fig.4. Distribution of deforestation factors in the village of Moseno.

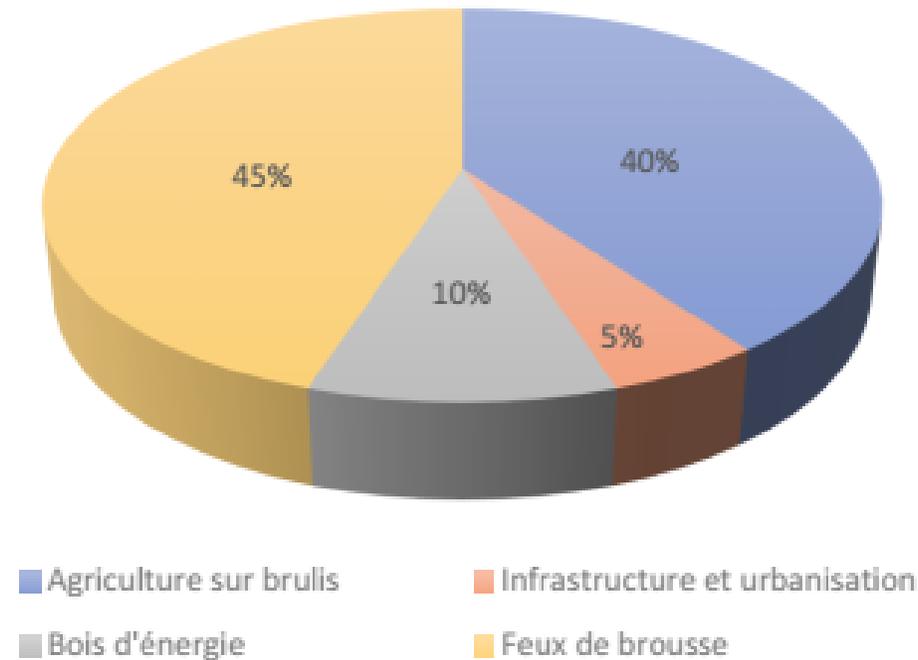
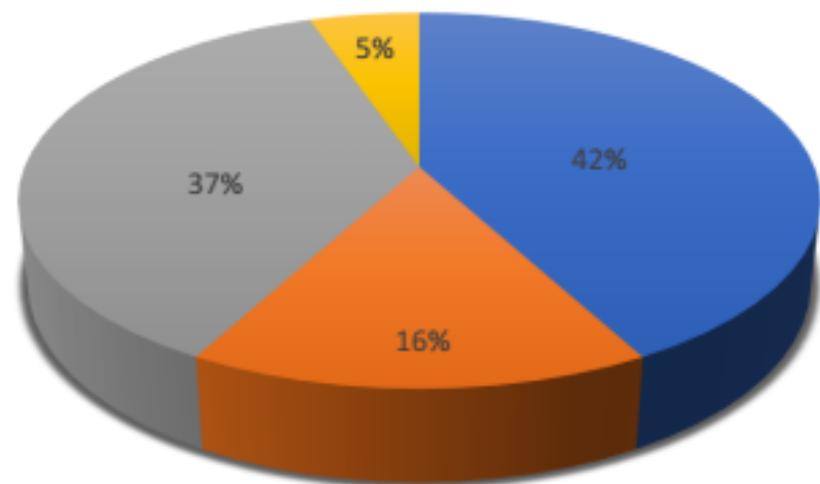


Figure (4) illustrates an opposite trend where wood fires are the main activity with a significant share of 45%, 40% for slash and burn agriculture, 10% for energy wood 10 and 5 % for infrastructures and urbanizations at the level of the village of Moseno.

Figure.5. Distribution of deforestation factors in the village of Tshumbiri.



■ Agriculture sur brulis ■ Infrastructure et urbanisation
■ Bois d'énergie ■ Feux de brousse

At the Tshumbiri village level as shown in figure (5), slash and burn agriculture is the main activity causing deforestation with a significant share of 42%, followed by fuelwood 37%, infrastructure and urbanization 16 % and bush fires 5%.

Conclusion and Outlook

Following the progress of the change in forest cover in the Democratic Republic of Congo, precisely in the territory of Bolobo, we had to ask certain questions: What is the result of deforestation. How does this happen? What are the consequences.

In view of this questioning, the aim of this study was to identify the drivers of deforestation and show their order of importance and influence in each village studied. Methodologically, the field surveys were carried out in two phases by WWF forestry technicians.

The first phase of the surveys carried out between February 15 to April 18, 2020, constituted the collection of information from the field and the second took place during the month of September (from September 01 to 30, 2020) with the aim of consolidating the results obtained.

In total there were 100 respondents, chosen according to their mastery of local languages. The surveys allowed us to see the behavior of the factors of deforestation.



It appears that the causes of deforestation are multiple and can vary from one environment to another.

To this end, slash and burn agriculture is the most cited factor in deforestation, followed by fuelwood and bush fires which cause deforestation in this part of the DRC.

This work also reveals the influence of population growth in the dynamics of changes in forest cover. Population growth, linked to poverty, intensifies deforestation and widens the cleared areas more and more to make way for subsistence agriculture.

The Democratic Republic of Congo is third in the world for its population growth in absolute terms so with this study, we will have an idea of the acceleration of the drivers of deforestation, because the country already experiences high food insecurity according to the global index.



The various results obtained during this study make it possible, on the one hand, to improve knowledge on the state of deforestation in the Democratic Republic of Congo, particularly in the territory of Bolobo, on the other hand, to provide recommendations on the current forest policy in order to ensure effective forest governance.

Finally, this work shows the interest of the study on the evolution of deforestation in the forests of the current province of Mai-Ndombe, particularly in the Bolobo territory in order to fully understand the dynamics of changes taking place.

in these forests and derive recommendations or measures for good management of the forest sector. These results constitute a basis for understanding the functioning of tropical forests.

A more generalized qualitative study on the whole territory of Bolobo and its neighboring territories could provide new and relevant information both for the general knowledge of the process of deforestation and for the more responsible management of these forest ecosystems.



Thank you for your attention!