

ECOTOURISM INDUSTRY AS A STRATEGY FOR POVERTY REDUCTION IN THE DRC: CASE OF THE BOMBO LUMENE RESERVE AND HUNTING AREA (IN SITU) AND THE KISANTU BOTANICAL GARDEN (EX SITU)***Kayembe Ilunga**

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Abstract

Background: Ecotourism organized at BOMBO LUMENE sites and KISANTU BOTANICAL GARDEN can produce wealth, reduce poverty, and increase awareness of biodiversity conservation. Objective: This study describes the presentation of these two sites, their visitor attendance, the benefit to the populations and their contribution to the country's economy. **Methods and Material:** Methods used are the following: the historical, comparative, descriptive, systemic, analytical method. The techniques used are the observation, the interview, and the documentary technique. **Results:** By comparing the two sites, we can say that ecotourism is not yet a reality with the visible effects. Nevertheless, the Kisantu site enjoys the sympathy of the people even at the national level. The one of BOMBO LUMENE is the victim of misunderstandings between the state and the population, it faces poaching, deforestation, soil degradation and cutting of firewood. **Conclusion:** It is up to the State to implement a policy of environmental protection by raising awareness to the population, an initiative of projects with a visible impact on the population to reduce poverty.

Keywords: Ecotourism, Ecotourism Industry, Tourism, Poverty Reduction, Biodiversity..

INTRODUCTION

Tourism has become a socio-economic sector on a global scale. Many countries around the world are taking part in the organization of their tourism sector to benefit from the multiple advantage obtained during its development. Tourism brings in the currencies that each country needs for a better investment in basic and health infrastructure. Today, it is the largest provider of jobs in the world. Tourism is a factor of intercultural exchange, an element of improvement of physical and mental health. Currently, it has become a means of raising awareness by national and international communities for the protection of the environment. Indeed, many isolated countries, as in the island areas, have developed thanks to their tourism while improving their GDP to the point of surpassing certain countries considered to have many and varied potential. Mining resources are depleting, but tourism potential never runs out. If they are well preserved, they can contribute from year to year to the development of countries that have paid attention to investment in the tourism sector. This is why we thought necessary to do a study in the tourism sector and in particular ecotourism as a factor in reducing poverty. Indeed, the many efforts are undertaken by the governments of several countries, the United Nations system, and other NGOs with a single goal of protecting the environment. The international community has focused attention on the future of the planet. The fear of disasters as a result of climate change is tangible. The imbalance caused by the excessive use of habitats has negative consequences on the lives of the inhabitants. Ecology is threatened by pollution, nuisance and all the human effects which have as a common denominator the destruction of ecosystems. Several natural resources that contribute to survival are destroyed and others removed from the reproductive cycle. In the fight against environmental damage, governments have erected conservation areas primarily for threatened or endangered species, whether of plant or animal origin.

These are parks, protected areas, coveted by the entire population having as main resource only the activities of fishing, gathering, agriculture and game hunting within the parks or in the immediate vicinity, such as the reserve and hunting area of BOMBO LUMENE and the BOTANICAL GARDEN OF KISANTU which are the subject of this research. The question we ask ourselves in our work is whether ecotourism practised in the sites under study can contribute to the reduction of poverty and at the same time constitute an additional means of their protection! If not, what accompanying measures are leaning towards getting there?

In our hypothesis, we recognize that ecotourism can reduce poverty and contribute to the effect of protecting ecosystems in these areas if the whole community becomes aware of it as we describe it in the integration process. Here, everyone has a responsibility in the successful outcome of this policy. The activities will ensure that security measures are strengthened. Meetings would be held to raise awareness about the partnership for ecotourism and ecosystem protection. This will result in local communities participating in the distribution of profits resulting from the exploitation. The choice of this research is prompted, as we said at the beginning, by the presence of numerous and diverse natural resources, the level of poverty that has become a scourge that gnaws at all social classes around the parks, in the face of the benefits that ecotourists bring in terms of income and the birth of a strategy to develop the climate of conservation and protection without violence. Views that emerge from this research will challenge the public authorities, the reduction of poverty through ecotourism and protecting the environment as a possible goal. The country is vast, we have chosen two sites which are the KISANTU BOTANICAL GARDEN and the BOMBO LUMENE Reserve and Hunting Area which are located respectively on road 1 and road 2 while being the first (in situ) and the second (ex situ) for the year 2018. This research will be divided from the next except for the introduction and conclusion.

Chapter 1. The basic concepts
 Chapter 2. The natural environment and methods
 Chapter 3. Results of our investigations
 Chapter 4. Discussions, strategy and recommendation.

Like all scientific work, ours also experienced many difficulties in its development:

- We can first criticize the novelty of the subject dealing with tourism in its particular aspect of income in an environment where the sector is not developed.
- The very approach to tourism revenues that had to be sought through the overall incomes of respondents requiring maximum analysis.
- Fewer books on tourism to facilitate the documentation of enrichment of this work, especially in the DRC.
- Methodologically, the level of interviewees and their knowledge of tourism caused some concerns.
- Finally, the introduction of the basic concepts to draw conclusions from; obliged us to cover up a significant number of experts, some of whom are very unavailable.

We have overcome these obstacles as an executive at the National Tourism Board for many years.

DEFINITIONS OF BASIC CONCEPTS

Tourism

Definition of the concept of Tourism: From an etymological point of view, all scientists agree on the origin of the word tourism. This one is derived from the English word-*the tourism*-(voyage)which was itself borrowed from the French term Tour (circular movement bringing it back to the starting point.¹)

In French, the following definitions are:

Tourism:

- The act of travelling for pleasure.
- All the activities implemented to carry out this type of trip.
- Industry for the purpose of the tourist: person traveling for their pleasure.

Countless definitions, descriptions or schematic representations relating to the explanation of the concept of tourism are included in the scientific literature relating to tourism. Here are a few of them:²

The first definition accepted worldwide was that given by the Swiss WHUNZIKER and KRAPP in 1942.

"Tourism is the set of relationships and phenomena generated by the travel and stay of people outside their home, as the stay does not constitute a permanent residence and it does not come from a professional activity."³ The Aiest has also taken up this definition of WHUNZIKER for that matter, it is among the founders of this association.⁴

The explanatory factors for the development of Tourism

- Expanding the image of the world
- Increased free time
- Opening borders
- The high level of life in the West
- Thedemocratization of education⁵

School holidays have amplified the volume of tourism and also given rise to tourist periodicities.

The United Nations Conference on Global Tourism has adapted other definitions:

1. *Visitor*: each person visiting a country (country not their usual place of residence) for various reasons except to work there for remuneration, and without interest to visit that country
2. *Tourist*: temporary visitor for a minimum of 24 hours with the main reason: relaxation, reunion, or meetings
3. *Excursionist*: Ditto but for less than 24 hours, including cruise trips.

The 1991 and 1993 conferences in Ottawa, Canada, on the harmonization of static definitions, had approved a number of additive definitions.

These include:

- Indoor tourism
- Receiver tourism
- Issuer tourism
- National tourism
- Internal tourism

ECOTOURISM

Definition of ecotourism: Ecotourism is defined as a set of tourism activities carried out in the natural environment while respecting the environment and contributing to the development of the local economy. It contributes to the maintenance of species and natural habitats. It thus values all the cultures and specificities of local communities.⁶ Currently, developing around the world are many ecotourism activities. In fact, 2002 was declared the International Year of Ecotourism. Governments, international associations, tourism actors, both public and private, overseen by the United Nations Environment Programme (UNEP) and the World Tourism Organization⁷(UNWTO) and the entire United Nations system have reflected on the new dimensions of this type of tourism.

Indeed, many definitions have been attributed to ecotourism considering the diversity of its own forms, by operators and also in relation to the range of possibilities. However, there is no universal definition of ecotourism, but it is possible to measure its general characteristics. Ecotourism brings together all forms of nature-oriented tourism in which the main motivation for the trip is to observe and appreciate nature as well as traditional cultures that prevail in natural areas. It includes a part of education and interpretation. It is generally

⁵ GUIBILATO, Tourism Economics, Brussels, Ed. Delta and SPES, 1980, P.11

⁶ TENSE WHELAM, Ecotourism, Managing the Environment, Ed. Horys, Paris 1995, P. 19

⁷ Ditto P. 6 and 7

¹ Groote P. Tourism, Ed. Amsterdam, Brussels, 1999, P. 18

² Vellos F. International tourism, Ed. Economica, Paris 1996, P.62

³ Groote P. Tourism, Ed. Amsterdam, Brussels, 1991, P. 15

⁴ Aiest: International Association of Scientific Tourism Experts.

organized for small groups, by small specialized local businesses. There are international operators of varying sizes, which organize, manage, or market ecotourism tours, usually for small groups. Ecotourism has the advantage of not being accompanied by the negative effects on the natural or socio-cultural environment that it preserves, because it is at the centre of curiosity.

The ecotourism activity has the following positive points to its credit:

- Protecting natural areas;
- The contribution of economic benefits to host communities, organizations and administrations that ensure the preservation of natural areas;
- Creating jobs and income resources for local people,
- Encouraging the awareness of the inhabitants of the locality, the country as well as the visitors, of the need to preserve natural and cultural capital.

Through ecotourism activities, confusion may arise linking ecotourism to sustainable tourism at once. This is not the case, and this is how the principles of sustainable tourism were established by the UNWTO in 1988.⁸ Sustainable tourism is defined as a way of managing all resources to meet aesthetic and social economic needs and to preserve cultural integrity, ecosystems, biodiversity and life support systems.⁹ A clear distinction must be made between the concepts of ecotourism and sustainable tourism. The very term ecotourism refers to a component of the tourism sector, while sustainability principles must apply to all types of tourism activities, operations, businesses and projects, both old and new. Intelligently practiced ecotourism can be a durable and relatively simple remedy. It provides jobs and income to local people, much needed foreign exchange for national governments, without threatening the existence of natural resources. It is time to define the industry and the ecotourism industry in particular. Firstly, an industry is a set of economic activities that produce material goods through the transformation of raw materials.¹⁰ The industry is also defined as any economic activity organized on a large scale or a large chain. We are talking about the automotive industry which is an industrial chain of manufacturing vehicles with a well-defined lack by combining several factors: materials, techniques, and labour. In all industrial activities, the sector has a crucial role in the development of final products. The sector describes activities that upstream and downstream participate in the process of transforming raw materials into a finished or final product consumed on the market.

The ecotourism industry: In the tourism sector, since the good is not observable at first, the delimitation of the sector is more difficult, but the sequence of activities responds to the vertical logic that allows any natural resource to be the subject of tourist consumption. The tourism industry defines itself and is structured in relation to the development of a tourism product that itself meets the needs and preferences expressed by tourists. The tourist product is consumed in its components one by one. The time dimension, the complexity of the product and its location are important. So, there is a set of by-products (accommodation, transport, catering, environment) to find the

original offer and the derivative offer. The ecotourism industry combines the raw material that is transported and goes to the consumer in tourism. It is the tourist (consumer) who goes to touristic resources (raw material) as we said above. Thus, this activity of travelling tourists constitutes a large part of transformation and thus of creating added value in the tourism sector.

Ecotourism markets: Currently, most ecotourism-loving tourists come from Europe, North America mainly from Canada, Japan and to a lesser extent from China. In these countries, financial resources are available for leisure and visits to developing¹¹ countries. In general, an ecotourist enjoys outdoor living. Most of them are retirees, professors or researchers in search of discoveries of nature's scarce resources. This ecotourist has experience of a trip he made abroad. Ecotourists are generally wealthy. A study of American tourists found that 25% had an income of more than \$90,000 per year and 27% earned between \$30,000 and \$50,000. Another survey found that ecotourists are inclined to spend more than other tourists, at least in Latin America where national parks are their main reason for travel to these countries. They spent more than 15 days with an expense of \$10,000 better than other tourists.

- The most targeted activities are:
- Hiking
- The photo safari
- The observation of nature
- Camping
- Climbing in the mountains
- Fishing
- Botany
- The hunt for trophies

Countries such as Tanzania, Kenya, China etc. are the destinations of ecotourists

Why is ecotourism such a wave? Some studies show that many ecotourists come from urban or suburban settings. It is for them a natural need to regain contact with nature. For others, as a result of the monotony of everyday life, they may aspire to the challenges and strong emotions that a wild environment has for visitors. Already, the presence in the form of television, or other media, images and other echoes demonstrates the promotion of natural areas. This thus gives sensitivity to the devastating effects of deforestation, killing rare species or bushfires over vast areas. Similarly, sites are visited to keep a memory before it is destroyed. The success of ecotourism yields tantalizing results. These include saving threatened ecosystems, creating jobs, money and encouraging aboriginal people to help and educate visitors. More often than not, the project to protect endangered species fails. Because the local communities lack an economic alternative to the exploitation of the protected area. However, the home would have to provide direct endowment for community development projects.

Integrating the local community into management: One of the biggest flaws of projects in general is to exclude local people while in the development and implementation of the plan and dispossess them of their traditional lands. There is resentment towards the rich tourists who supplant them. Worse

⁸ World Tourism Organization Notebook, Madrid 1991, P.15

⁹ OMT Notebook, Ditto P.21

¹⁰ Dictionary Petit Robert.

¹¹ WHELAM T. Ecotourism, Ed. New Horizons, Paris 1993, P.51

still, because of economic constraints, this population easily overexploits the resources of the protected area because of firewood, meat, arable land; exotic items, all livelihoods were often taken away without any valid substitutes. However, the high birth rate of the middle creates an increasing number of mouths to feed.

Conflict between the state and the surrounding community of the site:

The creation of parks in countries has always been a state decision. Populations are not associated with it. Land is torn from them with promises of probable but not often achieved modernizations. They are removed from their land without threat. This situation creates multiple problems including wild land clearing, mining drilling in search of coltans, gold and other riches inside the parks. Another difficulty is managing the benefits of tourism revenues. Indeed, almost all of the income generated by tourism does not go into the coffers of local communities, even if they have offered hospitality to tourists hikers. They may get a few crumbs. Some travel organizations are accompanied by their provision and staff and rarely get help from Aboriginal people on their tours:

Surveys conducted in touristic areas operated by foreign tour operators reveal that very few have used local labour or local travel agencies, including guides, drivers and interpreters. These come from large cities and not from the community visited. Sometimes even the country's economy benefits, but the substantial benefits of local economies do not exist. In general, 50% of tourism revenues remain in the host country, for example, under tourist taxes; it is rare for these revenues to reach local communities or even to the administration of protected areas which is the basis of these revenues.

The management of protected areas: Parks have become a fashion in the world today. The DRC by example counts 8, Gabon has a program to conserve 1/3 of the territory to protected areas. Is that possible? There are now 7,000 protected areas around the world.¹² Often, this protection remains at the levels of good intentions and very theoretical due to lack of funds and local support. More often than not, parks are in a deplorable state because of a lack of resources for their proper management and protection. Bilateral and multilateral partners and men of good will are most often called upon. Government decisions stop at the conservation of space and the acquisition of land without providing adequate funding for infrastructure, equipment, personnel and management. This is why access to parks for foreigners has a higher price than for nationals

Construction of reception infrastructure in parks and protected areas:

The main question is:

How to build in national parks and other nature reserves without affecting ecosystems? Ecologically, maximum capacity is reached when visitor attendance and behaviour begin to affect wildlife and cause ecosystem degradation. These include mating disorders and soil erosion. In terms of aesthetics, the threshold is reached when tourists cross in large numbers. The results of these crossings are often seen in the

absence of wildlife, destruction, erosion, deforestation and the fact that the pleasure is wasted. Finally, the massive arrivals of site visits can be the basis of the destruction, either the site becomes fragile and the balance of its ecosystem is broken. One study found that a high rate of arrivals of ecotourists has an impact on the use of firewood, cooking, mountain lodges and campfire. A simple expedition in the mountains burns in two less 8m³ of wood while a traditional fireplace consumes 5 in a year.¹³ The high number of visitors leads to the proliferation of reception facilities due to the proliferation of roads, car parks and concessions in protected areas often built at the expense of the aesthetic qualities of the parks. In Rwanda, a visit to a mountain hut costs \$800 to \$900 for foreigners and less than \$100 for nationals. This trend means that ecotourism becomes a hobby reserved only for the rich, the general public will not be able to discover wildlife.¹⁴

Better tourism education: Given the awareness of tourists and the local population, respect for each other's culture must be observed. Indeed, the organization of the trips and the local correspondents must prepare the visitors for the visit and those visited at the reception.

The necessary information must be available to avoid culture clashes. Here are the main principles:

- Wildlife and their habitat will not be disturbed
- Tours organised in natural sites will be long term
- Waste disposal will harm neither beauty nor environmental balance
- The experience gained by the tourist during his trip will reinforce his aspect of the environment and the value of protection
- Tours will contribute to the protection of nature and enhance the integrity of the places visited
- The sensitivity of other cultures will be respected

Well-thought-out ecotourism is the instrument of sustainable development and includes a kind of safeguards. It can certainly make an important contribution to the well-being of local people as well as visitors and the environment in all its aspects. In conclusion, tour operators and conservation organisations in both the destination and the country of origin should encourage eco-tourists to make concrete progress on the idea of protecting the environment and its biodiversity.

BIODIVERSITY AND ECOSYSTEM

Biodiversity or "biological diversity" is a term for the variety and diversity of the living world. In its broadest sense, the word is almost synonymous with "life on earth."

The ecosystem is all living and non-living elements that constitute a natural environment and interacting with each other. The environment is the set of elements (biotics and abiotic) that surround an individual or species and some of which directly contribute to a need, or all natural (physical, chemical, biological) and cultural (sociological) conditions that may affect living organs and human activities. Practical reasons include three levels of biodiversity: gender biodiversity, species biodiversity and ecosystem biodiversity. This distinction makes it easier to measure biodiversity. But

¹² TENSE WHELAM, *Ecotourism, Managing the Environment*, Ed. New Horizons, Paris 1991, P. 9

¹³ TENSE WHELAM, *Ecotourism, Managing the Environment*, Op. Cit.

¹⁴ COMESA Report on the Sub-Region Tourism Market, 2002

there is no consensus on the best way to assess it. In practice, the diversity of species is taken as a reference point for biodiversity studies. It is, in fact, of global importance for diversity at higher levels of organization.

Species diversity: Species are, in a way, the standard for measuring life sciences. Most studies for conservationists and biologists are focused on them. But despite the importance of the term "species," there is no unambiguous definition of the word. This uses a number of criteria for their classification (called taxonomies) into various groups.¹⁵

Specific diversity: To measure the diversity of species in a given territory, it is necessary to count all the species that live there. Similarly, it is possible to estimate the number of species in a region or country. It is a specific asset. The size of the territory is also a determining factor; for example, the larger an island, the greater its cash wealth.

Species endemism: Every region has species of its own, called endemic species i.e., limited to a certain area. The islands possess a lesser specific wealth, but a greater endemism of the continent. To assess the relative importance of these two values is to compare the respective contribution of islands and continental areas to biodiversity. If within a species, individuals with the greatest diversity compared to other members disappear, the prospects for evolution will be reduced, even if the entire species does not become extinct. Indeed, when the diversity within a species becomes less, the spectrum of action of natural selection decreases. The loss of genetic diversity in a given species is called genetic erosion, and more and more scientists are concerned about it.

Difficult species assessment: The number of species recorded each year seems limited only for the speed of taxonomists to study new individuals. Man has always contributed to a significant reduction in biodiversity. The decline of these animal and plant populations, the extinction on the scarcity of certain species and the simplification of ecosystems are clear evidence. Experts estimate that human activities have raised the species extinction rate from 1000 to 10,000 times higher than the natural rate. Biodiversity regression can be assessed in two ways: either by observation or by predictions, based on current knowledge.¹⁶

Recent assessment of threatened species: It is estimated that a habitat with a 10% reduction in overall area loses about half of the species it originally had. This species-to-area ratio allows us to anticipate the extinction rate of a species. For this reason, there are real concerns about the consequences of deforestation and changes in the rainforest, where most species live. Many people, organization and concept have tried in recent years to identify animal and plant populations, and have tried to invent the trend. The solutions are to protect or even replenish natural environments if they have been destroyed, and to repopulate them by reintroducing endangered species. These actions can handle a lot of time.¹⁷

Cash Management Effort: The common goal of all efforts is to manage the natural resources of our planet more effectively, to limit the damage caused by human activities while

supporting the development of the most disadvantaged people. A convention on biological diversity was signed for this purpose in June 1992 laws of the Rio UN conference on environment and development as the summit of the land. It has been applied since the end of 1993 and has 168 signatory concepts (out of 188 member states) in 2006.¹⁸ The general objectives of this convention are to preserve biodiversity, make sustainable use of it, and equitably share the facts of genetic research (culture and biotechnology). Species are of great ecological importance. Some of them "key species" are essential to maintaining an entire community of other species. Key species include decomposers, top predators, pollinators, etc. The presence of large trees generally promotes biodiversity because they provide a range of resources to other plant or animal species.

SUSTAINABLE DEVELOPMENT AND POVERTY REDUCTION

Sustainable development: Sustainable Development is a model of economic and social development aimed at ensuring the sustainability of the earth's natural heritage. The basic principles of sustainable development are based on the implementation of rational use and management of resources (natural, human and economic), aimed at meeting the fundamental needs of humanity appropriately.

The necessary conditions for sustainable development are:

- The preservation of the general balance and the value of natural heritage,
- Equitable distribution and use of resources between all countries, all regions of the world,
- The decrease in waste production
- Streamlining energy production and consumption.¹⁹

Sustainability can also be defined by integrated management: global management that considers all the relationships and interactions between systems.

Governance: it involves rational approaches to decision-making, based on indicators and developments.

The long term: reflection of actions and projects on a maturity of more than 4 or 5 years.

Reducing poverty: Firstly, poverty is understood as not meeting basic needs. These have resulted in a series of difficulties to eat to his hunger, to live decently, to move, to send children to school, to get dressed, to get married normally etc. These difficulties are, of course, the essential hallmarks of poverty and which lead to marginal phenomena (of inadequacy), as people have become vulnerable; alongside development of witchcraft, desertion of the marital or family roof.²⁰ In the late 1970s, A TEVOEDJERE spoke of poverty as a wealth of people. By this he meant that poverty (not extreme misery) could be a powerful lever for development, and that awareness of poverty could lead people into finding ways and means to get out of it.²¹ But more than two decades later, this optimistic reading of poverty is not appropriate when we

¹⁸ RAVENBERG, Ditto. P. 173

¹⁹ UNEP Report 2006, P. 27

²⁰ YUNIS E. Tourism, factors preservation and development sustainable natural and cultural resources Ed. Harmattan, Paris 1998, P. 25

²¹ TEVOEDJERE, A, poverty, wealth of peoples, Ed. Economica, Paris 1979, P.90

¹⁵ RAVENBERG Op cit, P.162

¹⁶ Ditto P.163

¹⁷ RAVENBERG, OP quote. P. 17

consider the continuing deterioration of the socio-economic conditions of populations in most of the world, highlighted in the various UNDP reports on human development.²²

Fighting poverty: The term in fashion today gives the impression as if it is only today that societies have discovered that they must fight poverty, while the effort of any society is to promote the well-being of its members. The approach here is often based on the economic and material aspect of poverty, in defiance of the mental, psychological, social and cultural mechanisms that contribute to the worsening of poverty. The proliferation of organizations and microcredits or others such NGOs is a new phenomenon. The structural adjustment programmes imposed by the BRETTON WOODS institutions have not finished producing their devastating effects.

Tourism and worsening poverty: Before being seen as a powerful factor in the fight against poverty, tourism was also identified as a factor in the degradation and destruction of ecosystems. This is evident in the influx of visitors to protected areas and other sites. As a result, uncontrolled growth in tourism can have a deleterious effect on the environment and natural resources. Conversely, poverty itself is a major cause and consequence of environmental degradation and the gradual depletion of resources that threaten countries. But this flip side does not deprive tourism of the character that makes it an unlimited resource provided of course to preserve the quality of the sites.

Tourism as a factor in socio-economic development: If Tourism has become a target in the Arab countries, it is because the terrorists want to tackle anything that brings wealth or development, for example in Egypt.²³ Whenever the terrorists wanted to cripple economic activity in Egypt, they targeted seaside resorts, such as that of CHARM EL SHEIK, a mecca for Egyptian tourism.²⁴ Considered as a socio-economic sector, it is exceedingly difficult to delineate tourism, unlike the transport sector, agriculture, banks or a specific sector of industry. Tourism plays a major role in various economic sectors. Indeed, tourism development generates many advantages thanks to multiplier effects on employment, income, the extension of infrastructure, roads, bridges, buildings, hospitals etc. Some areas of growth are strongly energized by the influx of new tourism impulses. Tourism can thus be seen as a generator of new life. Tourism is an export item. It is characterized by the fact that the end consumer comes to the exporter to pick up the goods and services on the spot instead of having them delivered at home. Moreover, the presence of foreigners in a country is generally perceived as generating significant social consequences through the consumption of unknown values and lifestyles. Finally, like any economic sector, touristic activity with its many economic and production departments, tourism brings immense opportunities that can be summed up in terms of increasing national incomes, demand for food and accommodation, and creating jobs (direct, indirect and induced). Tourism plays a significant role in the socio-economic transformation of a country and the improvement of the lives of its people, it intervenes in a significant way in the development process of a nation.

The fight against poverty through tourism: In the case of the DRC, tourism's contribution to sustainable development and the fight against poverty is part of the global problem of the paradox repeatedly highlighted by an extremely poor population sitting on fabulous wealth. Question will therefore arise on how tourism will bring about sustainable development and limit poverty when the benefits generated by other resources (mining, oil, forestry, etc.) have not been able to, since this sector has not been the main concern of the public authorities for years. Entirely new concepts, sustainable development and the fight against poverty have, in fact, seemed alien to tourism. This is because it was seen as a simple industry that can, like any other, contribute to the socio-economic development of a country as a whole. Faced with the continual deterioration of their living conditions, populations living on the margins of protected areas and zones use their means of survival in these sites: firewood, game, search for precious stones, and field work in the immediate perimeters of the sites. However, the training and education provided to them must be able to make them aware that these activities, far from contributing to the fight against poverty, are more likely to install them there. A destroyed region can no longer attract foreigners to tourism heavily dependent on the environment and deforestation of protected areas including very fragile coastal areas. Thus, education plays a critical role in instilling the notion of sustainability in the next generation whose survival conditions will have been prepared by the current one. Tourism in particular appears to be one of the most potential sectors of economic activities to ensure sustainable development for society, whatever it may be. This is provided that the development of tourism, its planning and management are done using rigorous criteria and techniques of sustainability with a long-term vision.²⁵

The concept of sustainability applied to tourism means ensuring that the economic benefits of tourism are not achieved by causing ecological damage or alterations in local cultivation patterns. Also, the structure of the social fabric of populations living near protected areas is a key factor in their capacity for initiative, their level of training, and the means of organization in cooperatives or in associations. These are essential elements of the success or failure of a tourism activity that has direct repercussions on the territory and its inhabitants. Consequently, an organized population that knows how to take care of itself is a population better equipped to fight poverty. Ecotourism practised in protected areas and zones requires the training and qualification of local communities, which are tailored to the needs of each individual. It is clear that this training on ecotourism and education in the broadest sense opens up new horizons for these populations. Training is an essential means of combating poverty, with definite ripple effects on other aspects and sectors of life. On the other hand, the arrival of foreigners whose attraction and interest in the architecture and way of life of traditional villages is a way for local people to offer all kinds of goods (local handicrafts, paintings, sculptures and all kinds of trinkets that attract many visitors) at prices higher than those generally practiced. The financial resources generated by this influx enable these populations to obtain equipment and everyday consumer goods, which contribute to human development, according to the criteria set out by UNDP in its various reports.²⁶ In

²² UNDP: Human Development Report 2000

²³ VELLAS, F, Global Tourism, Ed. Economica, Paris 1996, P.90

²⁴ VELLAS, F, Op cit. P.90

²⁵ RAVENBERG HASSENZAHN, The Environment, Ed. From BOECK, Brussels 2009, P.350

²⁶ WACKEMANG, Cities and Environment, Ed. Elipse, 1970, P.90

addition, the development of sites and other protected areas is a pretext for governments and other partners to set up village facilities and social infrastructure (drinking water, electricity, health centres, recreational areas, etc.) whose deprivation constitutes a major indicator of poverty. Some of the infrastructure provides employment opportunities for people (indirect employment). After this review of the literature, we move on to analyses of environments, materials and methods.

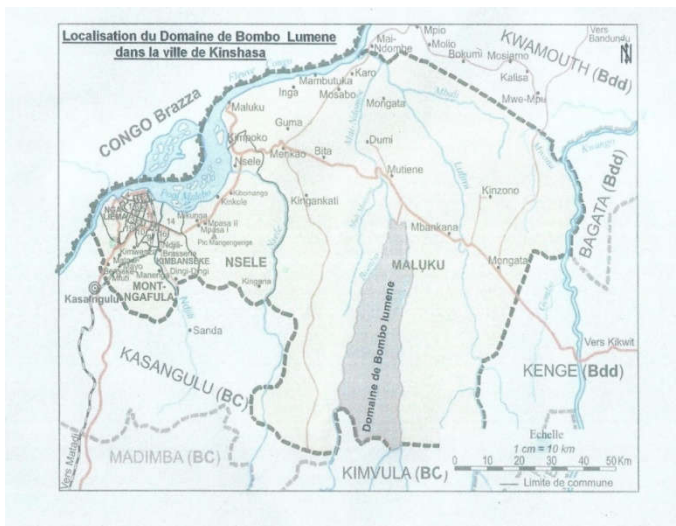
ENVIRONMENTS, MATERIALS AND METHODS

Before we begin our study, we will first give a complete description of our two sites including their location, history, climate, socio-economic situation etc.

Presentation of the Bombo Lumene site

The natural environment

Location



Map 1. the city of Kinshasa with the hatched part representing the area and the hunting reserve of Bombo Lumene

The BOMBO LUMENE site is located in the commune of MALUKU, one of the twenty-four municipalities of Kinshasa. The BOMBO LUMENE Reserve and Hunting Area covers 350,000 hectares. It is about 130 km from Kinshasa. The LUFIMI and MUTI-MUTIENE rivers form the eastern and western boundaries of the estate, respectively. The southern border is located at the height of Kasangulu village in central KONGO province. To the north, National Highway 2 marks the end of the domain. The BOMBO and LUMENE rivers and several ponds constitute the water resources of the site. (See map)

Relief: The BOMBO LUMENE site is located on the BATEKE plateau. The relief is not very undulating. There are the trough-shaped depressions with the edge of which the slope varies between 1 and 5%. The area is particularly well drained thanks to the permeability of the sandy subsoil, with the exception of marshes.

Climate: According to the KOPPEN classification, the climate of the domain is of type AW4. The climate is tropical humid, it is characterized by two seasons one of which is rainy for 8

months and another dry for 4 months occurring more between the second half of September.

Temperature: Average annual temperatures range from 25 to 26 degrees Celsius between March-April and 19 to 22 degrees Celsius between July and August. The thermal differences between days and nights are in the range of 9 to 10 degrees Celsius. Winds are weak but continuous.

Precipitation: The rains are characterized by their short durations. There is also a small dry season that occurs in February. The average rainfall is 1500mm/yr. Humidity is around 95% at the end of the night in the rainy season and 60% in the hot hours during the day in the dry season.

Vegetation: It is dominated by a shrub savannah interspersed with fairly narrow forest galleries. Indeed, in the humid tropical climate as well as the moisture conditions of the soil, we meet grassy and shrub formations with tree species that develop. In general, the vegetation cover is of the Guinean-Congolese grassy form of shrubby forest bamboos that are not very extensive. Forest galleries occupy the banks of streams, valleys and slopes, thus benefiting from atmospheric humidity favourable to hydrophilic forest species.²⁷

Hydrography: The Bombo and Lumene rivers and several ponds constitute the water resources of the site, the hunting area is traversed by four major rivers including the LUFIMI which constitutes the eastern boundary of the domain, the Bombo and the Lumene that flow on either side of the part erected in reserve. The extension of these two rivers to the northwest of the estate forms a branch that meets the MUTI-MUTIENE river to form the MAI-NDOMBE river

Human Aspects

Aboriginal population: The area where the Hunting Reserve is located is a place of retreat for the people of Kinshasa to the extent that fields, farms, woods and bushes constitute an important activity of the inhabitants of this city during this period when jobs are scarce. The standard of living excludes certain strata in need of housing and the financial means to retreat to this place where they take care of the fields and farms. Also, this area has TEKE land heirs who have villages all around the site. The most important villages are: MBANKANA, MUNTIENE, DUMI, INZOLO, BUANTABA, NGA, LIMBINO, KIVUNDA, KINTAI, KUTAKINSUMI, BOKUMI (I), BOKUMI (II), KINGUNU, YUO, NGAMBINI, YOSO, MBELE BILAMBI, LINTURI, MBIENA, KINSIA, BITAMB. As the space is on Route 2, people from Kwango province and Kwilu province arrive to find occupation as well. So, the population is dynamic and subject to a permanent change in departures and arrivals.

Table 1. Current population estimates for 2020

Villages	Populations	HOUSEHOLDS
BOMBO LUMENE Station	10.000	20
MBANKANA	20.000	16.000
DUMI	9.000	5.000
BUANTABA	1.500	1.000
OTHER VILLAGES	800	500
Total	31.400	22.520

Source: Maluku Population Service

N.B.: the villages are scattered, so there is an increase in population and as well as departures, because most of the inhabitants come from Kinshasa or the former province of Bandundu. Those from Kinshasa or the former province of Bandundu approach the capital in search of jobs and good social conditions.

Socio-economic activities

Agriculture: Agriculture forms the basis of the local economy. On the one hand, it offers the necessary food products such as cassava and maize. The inhabitants have an emotional relationship with the land, as it is considered the inheritance of the ancestors. The shift from self-sustenance to the market economy also favours the practice of agriculture.

Charcoal production: The production of charcoal is intended for sale and part for household consumption. Unfortunately, the raw material comes mainly from the reserve.

Hunting, market gardening and fish farming: Hunting is a secondary activity, also carried out within the site. It provides not only meat to the inhabitants but also income, just like the products of fishing. Hunting is part of the Teke culture but is prohibited within the reserve. Today, hunting activities are decreasing due to the scarcity of wild animals. Market gardening and fish farming are also practiced along the rivers of the estate. The harvest is done in a traditional way and is intended more for consumption than for marketing.

Breeding: The breeding of pigs and hens dominates the PERI URBAN landscape. On the one hand there is a village-type farm characterized by animals circulating freely between dwellings. On the other hand, a semi-industrial farm with animals in enclosures and fed with food bought in the city.

Crafts and small business: Crafts and small business are practiced by a large number of people within the site. The handicrafts are dominated by basketry, (making mats, grabats, straw hats, vine baskets, etc.) and by the manufacture of mortars and pestles. Wood, palm leaves and bamboo are the raw material of craftsmen. Now let us talk about the reserve and the hunting grounds of BOMBO LUMENE.

Bombo Lumene Reserve History

The BOMBO LUMENE Reserve and Hunting Area were established in 1968 and 1976, respectively. The hunting areas are officially managed by the Ministry of Environment, Nature Conservation and Tourism. The ministry has ceded this management to the Congolese Institute for the Conservation of Nature, which has a dual mission. The first is to ensure the protection of flora and fauna in nature reserves and the second is to promote scientific research and develop nature-friendly tourism. (See map: development plan)

Reserve Organization

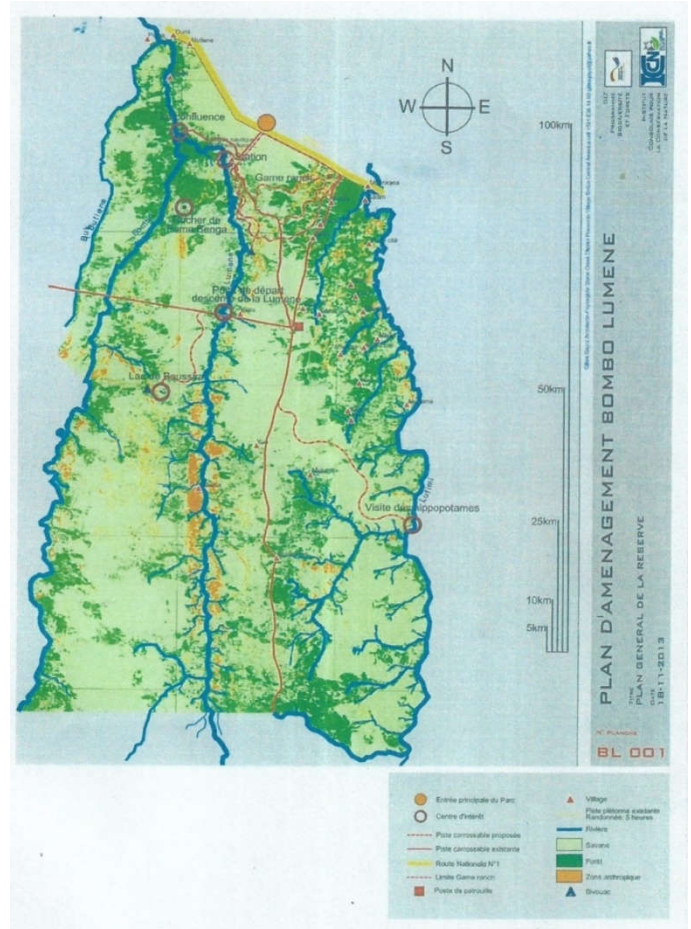
This area has its administrative organisation consisting of technical staff including:

- The Chief curator,
- The assistant curator,
- The senior duty officer,

- The radio operator.

The second category of staff consists of:

- A command chief,
- A camp leader,
- Guards in charge of patrols and tourist protection under the authority of curator or non-commissioned officer on duty.



Map 2. BOMBO LUMENE Development Plan

Operation of the Reserve: The domain is located in a space where power structures are hybrid and multiple, as they juxtapose state services and traditional authority. Very few explicit agreements determine the respective roles of customary chiefs and representatives of the state (ICCN); administrative rules that separate the responsibilities of different protagonists contain areas of shadow where prerogatives overlap, hence, there is a conflict in the cohabitation between the managers of the Bombo Lumene estate and the indigenous populations. The latter feels robbed of their food supply resources, no longer have the freedom to hunt and farm in the area. Farmers have not integrated themselves into tourism activities, especially since tourism has not generated jobs or infrastructure useful for social development. However, tourism is presented as an ideal means of development by most of the relevant international institutions, the WTO, UNWTO, UNDP, UNEP. Tourism has the advantage of being consumed at the place of production; the presence of tourists offers opportunities for local people or services, with particularly strong benefits for agriculture, fishing and handicrafts. This theory is only one dream for the population of this area.

Bombo Lumene Reserve Tourism Offer

Table 2. Mammals 2018

Non-current	Scientific name	Lingala
Potamochoere	<i>Potamochoenus porcus</i>	Ngulu
Hyppopotamus	<i>Hippopotamus amphibius</i>	Ngubu
Yellow-backed cephaloph	<i>Cephalophus sylvicultor</i>	Mukundi
Guibhamache	<i>Tragephalus scriptus</i>	Nkoy
Sitatunga	<i>Tragelaphus spokei</i>	Mbudi
Savannah buffalo	<i>Syncerus caffer</i>	Mpakasa
Gambian rat	<i>Eminu cristomys</i>	Nkumi
Pale tricker squirrel	<i>Xerus rutilus</i>	Nsini
African civet	<i>Viverra civette</i>	Lobodi

Source: ICCN 2018 Business Report

As can be seen in Table 2, the domains contain many species sought by ecotourists

Table 3. Some Species of Avian Fauna

Current name	Scientific name
The weeping tour	<i>Streptopelia decipiens</i>
The vineuse tourelle	<i>Streptopelia vinacea</i>
Englouvent	<i>Capinuius climacurus</i>
Common guinea	<i>Numidaneleagris</i>
Martin fisherman huppe	<i>Alcedo aristata</i>
Ibis hagedask	<i>Bostrychia hagedask</i>
Cuepien	<i>Mesrops persious</i>
Eagle fisherman	<i>Hafiaectus volfer</i>

Source: December 2018 Domain Activity Report

Based on Table 3, the rarest species are still found in the field. The Bombo Lumene, Mai-Ndombe and Lufumu rivers are teeming with several fish. (Table 4 below)

Table 4: Some species of ichthyological fauna

Scientific name	Lingala
<i>Gnathonemus petersil</i>	Pimpa
<i>Glarias sp</i>	Ngolo
<i>Momyrus macrodon</i>	Mbongo
<i>Hepsetus odoe</i>	Mbenga
<i>Babus foreaui</i>	Eyala
<i>Sphyraena gogrammus</i>	Mpoka
<i>Phenocogrammus sp</i>	Mungusu
<i>Tilapia sp</i>	Mabundu
<i>Campylomomyrus sp</i>	Linyongo libiso

Domain activity report December 2018

4. Reptilian wildlife

- *Varanus niloticus*
- *Bitis anetas*

5. flora

- *The crossopteyx febrdfuga*
- *Amona sevegalensis*
- *Strychnos cocculoides*
- *L'oudetia de meassi* (Grassy savannah)
- *Vapacco heudelelotus* (Forest Gallery)

Accommodation and equipment

a) Chalet

Regarding accommodation, the site includes a Guest House consisting of a chalet that can accommodate two couples. There also a four-bedroom cottage. In addition to all this accommodation, the site offers the possibility for tourists to organize tent camping.

- Tents for tourists
- Hunting Torch
- Protective accessories
- Binoculars

Table 5: Some site attendance statistics

Month	Men	Women	Children	Total	Non-paying	Paying
January	75	55	10	140	16	124
February	35	31	12	78	11	67
March	32	18	13	63	24	39
April	72	86	16	174	60	114
May	57	22	10	89	15	74
June	32	25	9	66	8	58
July	51	20	12	83	12	71
August	47	37	17	101	31	70
September	19	15	3	37	4	33
October	20	16	9	45	5	40
November	87	35	10	132	14	118
December	26	22	4	52	8	44
total	553	382	125	1,060	208	852

Source: Domain Administrative Service 2018

Comment on the attendance chart: Depending on the period of the year, we notice that the number of visitors in relation to the importance of the site represents nothing. The visitors are mostly students, researchers but tourists who can visit and spend a lot are not many. (See Table 5)

Ecological problems at the site: The ecological problems of the site boil down to the disappearance of its fauna and flora. Different practices have a strict impact on the environment of the site.

The important problems are:

- Intensive poaching sponsored by village and expatriate hunters.

At the time, hunting was practiced by local communities for food purposes; this practice was accentuated for commercial reasons: sale of game including antelopes, buffaloes. Several hunts are organized without a vehicle hunting licence, night hunting and hunting of protected species.

- Deforestation is a second major work currently weighing on Bombo Lumene. In the savannah area, this activity strikes present forest formations, which are the refuge of a biodiversity of great interest. Practised on a large scale, deforestation calls into question the future of all plant formations whose natural regeneration is by no means guaranteed.

- The use of uncontrolled bushfires by neighbouring populations is quite common and destroys all life in its path. The uncontrolled farming of arable land also contributes to environmental degradation.

- Many private investors perceive the estate as a "vacant and masterless" space and where the absence of structured state services invites the wildest achievements (motorcycle circuit, rally, etc.).

Various factors help us understand the reasons for this environmental degradation. These include:

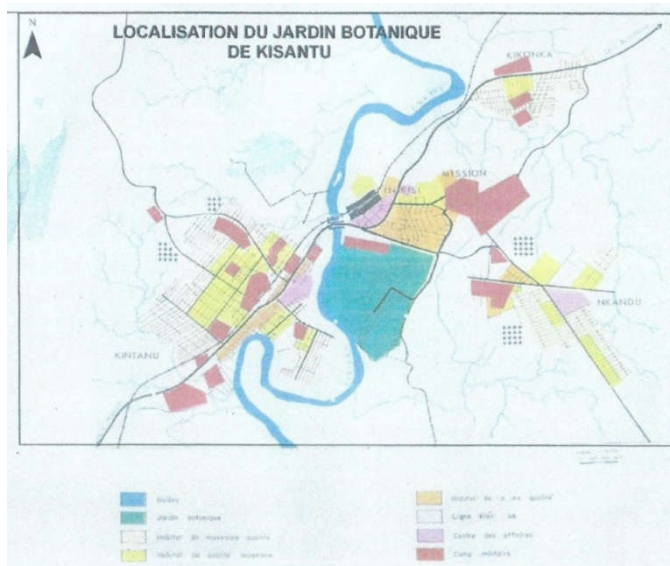
- The critical economic situation in the country, the provinces and all localities. We must mention the increase in precariousness that generates human pressure in the site.

This pressure is exerted by the indigenous peoples and the people of Kinshasa.

2. Ignorance and non-compliance with environmental protection rules. The populations take natural resources without worrying about the prohibitions. The duality of powers does not promote the enforcement and control of existing laws.
3. The means used for resource development often do not consider the fragility of the ecosystem. In this situation the fundamental question remains, how to meet human needs without destroying ecosystems.

PRESENTATION OF THE CITY OF KISANTU AND THE BOTANICAL GARDEN

The location: The urban centre of Kisantu is the capital of the Lukaya district, Ngeba sector, Madimba territory, Kongo-Central Province, located 120 km from Kinshasa. It has an area of 1,079 km². It is bounded to the north by the Province of Kinshasa, to the south by the Republic of Angola, to the east by the province of Kwango and to the west by the Republic of Congo. (See map)²⁸



Map 3. The location of the Kisantu Botanical Garden

The Relief: The urban centre is dominated by low hills and valleys, and it has a humid tropical climate. We can also note the presence of two seasons, the rainy and dry season. The temperature varies between 20 and 30 degrees depending on the season.

Hydrography: The Inkisi River is the only one that waters the Kisantu Urban Centre. There are still a few small streams that are born, especially in the rainy season. Moreover, given its position, the Inkisi River leaves its bed during the heavy rains and floods the neighbourhood, the ponds form in the swamps next to the streams.

Vegetation: Apart from its part that runs along the Inkisi River, which is covered with rushes, most of Kisantu is covered with fruit trees.

Demographics: The population of Kisantu belongs to the Kongo ethnic group. In addition, Congolese from other

provinces and foreigners are added. Thus, in 2010 the population was estimated at 668,132 inhabitants, in 2011 it was 677,740 inhabitants in 2012, it reached 708,877 inhabitants to date it would be at least 1,000,000ha.²⁹

The administrative division

Kisantu is divided as follows:

1. The city of Kisantu with 5 districts
2. The Agglomeration of the station with 4 districts
3. The Nkanu Agglomeration with 5 districts
4. The Kinkonka conurbation with 3 districts
5. The agglomeration called N'sele city which depends on the district of cataracts.

ECONOMIC ASSETS

a) Socio-economic activity

Agriculture is the essential financial source. The fields provide a number of products for subsistence and sale. The main crops are cassava, maize, peanuts, beans, sesame and squash. In other words, the majority of the population engages in agricultural activities and others in the informal sector. Another important category is made up of traders, civil servants and agents of public and/or private enterprises etc.

b) Tourism data

The urban centre of Kisantu is a beneficiary of the Kinshasa-Ocean tourist axis on Route 1 in the Province of Kongo-Central. Many industrial companies add to the beauty, like the sugar factory of Kwilu Ngongo, cement factory of Lukala...

Kisantu's tourism resources:

- The Kisantu Botanical Garden
- Calvary: a place of pilgrimage for many Catholic Christians
- The monument of Father VANHENSCTHOVEN
- Kisantu Hospital
- Cathedral
- Art objects.

c) Hotel industry

The city also has hotels including the Emmaus Centre, the Belle Vue Hotel and Hotel Pégál apart from the others of acceptable standard. Now let us talk about the site under study, which is the KISANTU BOTANICAL GARDEN.

THE SITE OF THE KISANTU BOTANICAL GARDEN

The Kisantu Botanical Garden, created in 1900 by Brother Gillet and located in the territory of Madimba, is a jewel dazzling with greenery and freshness. It has nearly 2,5000 plant species from different tropical regions of the world. Its surface area is 220 ha. There are nurseries, a seed collection, an arboretum of nearly 200 desert species and an herbarium of about 5,000 specimens. These different plants from Africa and elsewhere are gathered here for the pleasure of the Games, the

²⁸ The archives of the Lukaya Civil and District Office

²⁹ Source: Lukaya District Population Service

belly and for the happiness of science. We meet pepper, vanilla, eucalyptus, Carmel, clove, camphor, palms of all species, Ficus, water lilies and so many others. The grass introduced at the beginning of the 20th century conquered the lawns, embankments of roads and football fields throughout Congo. (See map)



Map 4. Site of the Kisantu Botanical Garden

Historical overview: The KBG was founded during Belgian colonization in 1900 by a Jesuit brother Justin Gillet. Arriving in Congo and interested in botanical issues, he began to describe the species and collect the herbariums. In 1927, the 1st catalogue of plants: 780 grouping together 1775 species; introduction and acclimatization of interesting plants: citrus, fruit, mangos teen trees; rice, potato, soda, yams and various varieties of cassava. In 1943, Gillet continued his work until his death. From 1946 to 1960, the scientific institution of Kisantu was at its peak. More than 5,000 specimens have been collected, twice as many as being found in the most important botanical gardens in Europe.

- 1953, Creation of the International School of Gardening and Horticulture to train young people.
- Creation of the arboretum: more than 200 species of tropical wood in Congo.
- Construction of the museum, pergolas, greenhouse of succulent plants.

In 1972, President Mobutu financed the new infrastructure for the comfort of tourists (fence of the garden, paving of the internal road and construction of a restaurant and bar) the surface of the garden increased from 100 to 225 hectares. In 1976, the Jesuits ceded the garden, which became the property of the Congolese state under the management of the IZBG, the Institute of Zoological and Botanical Gardens of Congo. Begins the decline, the government does not maintain the infrastructure. In 2004, Kisantu's rehabilitation programmes began with the help of the National Botanic Garden of Belgium and the World Fund (WWF). Since 2009, the European Union ECOFA and JBNB programme have been monitoring technical and scientific activities. In 2018, the Kisantu Botanical Garden will once again become the property of the ICCN with the disappearance of the Institute of Zoological and Botanical Gardens of Congo.

The curiosities of the Kisantu Botanical Garden

1. 85th Anniversary Monument
2. Museum
3. Library

4. Shop
5. Training centre
6. School of Horticulture
7. Herbarium
8. Greenhouse
9. Collection of aquatic plants
10. "Forgotten Vegetables" Collection
11. Pergolas
12. Tropical Rainforest
13. White tree
14. Bromeliad Collection
15. Orchid collection
16. Dinosaur tree
17. Walking tree
18. Brother Gillet us Cave
19. Nursery
20. Restaurant: picnic area
21. Arboretum
22. Palm tree collection
23. Paillotte Saint Therese picnic area
24. Reforestation plot.

The botanical garden protects and conserves plant species. The greenhouse, collections and arboretums are home to many endangered species. It helps prevent their extinction, and together with other institutions and botanical gardens, protects wild plants in their natural habitat. Nationally scientists study the plants and fungi of Congo using dry specimens of the Information-rich Herbie. My living plant collections offer a unique panorama of the plant kingdom.³⁰

Administrative organization

The reserved area of the Garden is managed by about 100 people divided into several groups.

Administrative staff: It consists of a secretary, an accountant and the head of personnel to which must be added the cashier.

Technical staff

It includes:

- The chief curator
- The assistant curator
- Guides

Supervisory staff

It consists of:

- Command of custody discipline
- Security patrols.

Integration problem: The estate is located in a space where there are many provincial structures. Very few explicit agreements determine the respective roles of indigenous leaders and representatives of the state. There is also a conflict in the cohabitation between the Garden managers and the local population. The population do not really feel integrated into tourism activities that do not generate jobs or revenue for their social development. The situation is the same as at the Bombo Lumene estate.

Ecological problems: The difficult economic situation that the country has been experiencing for several years has created a

³⁰Source: Dephant Bien Vemie at JBIC, Bas Congo/DRC, www.kisantu.net

set of movements that has an impact on the garden. The human pressure within the site is noticed by the extraction of resources for the inhabitants. The pressure is both urban and rural on the resources and the means used often do not consider the fragility of the ecosystem. This being the case, we move on to the research methods and material section

MATERIALS

Material used: Each field work requires a few materials to facilitate the collection of data. For our research we used phones to make appointments with the site authorities. In the field we used our computer to record data in the sites. Our Samsung-branded tablet made it easy for us to shoot. To get to Bombo Lumene, we used motorcycle taxis to connect the villages to the site as the distance is at least 6 km.

METHODS

Methodology: This section focuses on the methods used to conduct our research. It analyses the data collected from our respondents by presenting it in the various tables for better interpretation. The methodology adopted to maximize the chances of doing this job well consists of three methods supported by a few techniques.

The Analytical Method: This method has been of considerable support, especially in the collection, exploitation and interpretation of the data.

Historical Method: Having worked on sites that are well known throughout the DRC, it was also easy to use this method to locate the sites in their respective origins.

Comparative Method: The various data from two sites studied prompt us to use this method in order to identify the different characteristics notably demographic, economic, tourism and ecological.

TECHNIQUES

Survey technique: To do this work we used the technique of surveying the populations of these two sites.

Documentary technique: To enrich this research, we used books, magazines, official documents, reports published by the two observation institutions.

PRESENTATION OF THE SAMPLE AND THE SURVEY

To appreciate the situation, during the research made our own direct observation in the sites as an appropriate technique to carry out our work successfully.

Presentation of the study population sample: For G. de LANDSHERE, sampling involves selecting a limited number of individuals, objects or events whose observation makes it possible for us to draw conclusions applicable to the entire population within which the choice was made.³¹ As REUCHILIN says, the entire population cannot be examined in particular because it is very numerous in relation to the

material resources available to the researcher. This is what offers the researcher the opportunity to take a particular process by studying a part of the population whose results will be extrapolated to the whole.³² With respect to our study, we had to make use of occasional sampling, which involves taking individuals who present themselves and are available as a subject to provide the useful information to the valid study. We spoke to targeted people working around the Kisantu Botanical Garden and in Bombo Lumene. On both sides we spoke with 129 individuals who were able to provide the information sought.

Presentation of the survey questionnaire: In order to better analyse the mechanisms of poverty reduction through tourism activities in the sites under study, we used a questionnaire. This questionnaire better captured people's expectations through opinions on activities. As GRAWTZ points out, it is generally accepted that the questionnaire is the means of communication (...) between the investigator and the respondent. It includes a series of questions relating to the issues on which the respondent expects information about.³³ The questionnaire for this research includes 22 questions that we administered to 129 people. This questionnaire had to contain three types of questions: open-ended questions, closed questions, as well as questions with possible repetition.

Results Analysis: In order to strip away the collected data, we used the content analysis method, a method capable of carrying out a total and objective exploitation of informational data. According to BERLSON, this content analysis is a research technique for objective, systematic and quantitative description.

Respondent Identification: Before analysing the mechanisms of poverty reduction through tourism, it is essential to identify our respondents, thus determining the sex, age, marital status, level of education, level of knowledge about the tourism industry and their daily levels of expenditure from the revenues derived from this activity. This will constitute our third chapter.

PRESENTATION OF RESULTS AND DISCUSSIONS

Bombo Lumene Reserve & Hunting Area and Kisantu Botanical Garden

RESULTS OF INVESTIGATIONS

Surveys Identification: We chose the same number of people. This will make it easier for us to compare the two sites.

a. Sex of respondents

Table 6. Sex of the respondents in Bombo Lumene (BBL) and Kisantu Botanical Garden (KBG)

No	Sex	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Male	70	84	54	65
2	Female	59	45	46	35
Total		129	129	100	100

Our field surveys, 2018

³² REUCHILIN cited by BIDIKEBELA; unemployment and social integration in Kinshasa, refers faculty of social science, Unikin 2008, P.30

³³ GRAWTZ Mr. Social Science Research Methods, Ed. Dalloz, Paris 1974, S.34

³¹ LANDSHERE, Introduction to Education Research, Ed. Armand colin, Paris 1975, P.183

In our surveys, we interviewed men much more than women. This is 65% of men in Kisantu compared to 35% and 54% of men in Bombo Lumene compared to 46% of men in Bombo Lumene.

b. Respondents' ages

**Table 7. The ages of respondents at both sites
Breakdown of respondents by age**

No	Age	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	20 - 30	10	21	8	16
2	31 - 40	30	40	23	31
3	41 - 50	80	45	62	35
4	51 - more	9	23	7	18
Total		129	129	100	100

Our field surveys, 2018

According to Table 7, the study affected 62% of respondents over the age of 40 in Bombo Lumene compared to 35% in Kisantu.

c. Civil status

Table 8. Civil status of respondents

No	Civil status	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Married	85	48	66	37
2	Single	30	77	23	59
3	Divorced	10	2	8	2
4	Widows	4	2	3	2
Total		129	129	100	100

Our field surveys, 2018

Since the Botanical Garden of Kisantu is located in a large city, there are a large number of people already trained and who become so, compared to Bombo Lumene. Also, by survey or coincidence, Kisantu has 47% of the respondents with university education, while Bombo Lumene has only 22% and 62% of the secondary level. It also has an impact on the understanding of species conservation and the notion of tourism. (Table 8)

d. Business

Table 9. Work

No	Professional activities	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Officials	17	10	13	8
2	Traders	20	26	16	20
3	Fishermen	12	1	9	1
4	Breeders	15	3	12	2
5	Farmers	30	5	23	4
6	Other	35	46	27	36
7	Without	-	38	-	29
Total		129	129	100	100

Our field surveys, 2018

Many people in Kisantu are involved in professional activities and trade. These activities are mainly trade-related but undocumented. This represents 56% of the respondents while for Bombo Lumene the activities are more based on agriculture, farms, logging and embers for sale or survival, or 63% (see Table 9).

e. Household size

Table 10. Breakdown of respondents by household size

No	Household size	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	1 - 4	40	68	32	53
2	5 - 8	60	34	46	26
3	9 - 12	29	10	22	8
4	12 - more	-	17	-	13
Total		129	129	100	100

Our field surveys, 2018

According to Table 10, several households have between 1 to 4 members and 5 to 8.

f. Site knowledge

Table 11. Do you know the site?

No	Site knowledge	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Yes	129	128	100	99
2	No	0	1	0	1
Total		129	129	100	100

Our field surveys, 2018

In both sites, respondents know the sites and their contents very well, they know that there is flora and fauna, and they are aware of this existence at 80% on the other hand and others in view of Table 11

g. Site content

Table 12. Site Population

No	Site content	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Plants	30	126	23	97
2	Animals	30	1	23	1
3	Fields	30	1	23	1
4	House or residence	39	1	31	1
Total		129	129	100	100

Our field surveys, 2018

According to No. 12, all agree as the results indicate that there are plants, animals, fields, dwellings and the population within the site. It is true that it is allowed in some places for the population to make fields, but as the need increases more and more, the area becomes a free zone in which any presumed can without the knowledge of the guards, make a field, cut down the trees, and make the embers.

h. Respondents' opinion on the merits of the site

Table 13. Well-founded site

No	Well-founded	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Nature conservation	17	80	13	62
2	Hunting and fishing	30	-	23	-
3	Agriculture and livestock	24	-	17	-
4	Tourist tour	10	49	8	38
5	Nothing	50	-	39	-
Total		129	129	100	100

Our field surveys, 2018

In Table 13, opinions differ. We note that by the KBG, the population knows the reasons well while in Bombo Lumene 50% think NOBODY knows the reasons for the conservation of these ecosystems.

i. People's activities in (around) the site

Table 14. Site-related Activities

No	Activities	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Wood sale	10	15	8	12
2	Fish sale	4	5	30	4
3	Selling fruit and vegetables	10	7	7	5
4	Communication credit	5	3	4	2
5	Photo	-	4	-	3
6	Meal	-	3	-	2
7	Exchange	-	2	-	2
8	Subject of others	-	40	-	32
9	Nothing	100	50	78	38
Total		129	129	100	100

Our field surveys, 2018

The 78% of the population of Bombo Lumene has no interest in the site. It has no profit in Kisantu, and there is sale of many woods and good activity. (Table 14)

Table 15. Profit from the site

No	Profit	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Easier to sell	5	12	4	9
2	Good business	10	12	7	9
3	Money flows	5	11	4	9
4	Region value	14	90	11	70
5	Nothing at all	95	4	75	3
Total		129	129	100	100

Our field surveys, 2018

As Table 15 shows, the population of Kisantu finds a source of pride that this garden is available in their city. At 70%, the respondents approve of the value of the garden and the entertainment when there are visits. However, in Bombo Lumene, 75% earn nothing and find no reason for pride. They like the site to be divided into fields and closed. They do not see visitors on the site.

Table 16. Breakdown of respondents' opinions on the disadvantages of tourism activities at BBL and KBG sites

No	Consequences	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Prostitution	-	11	-	8
2	Banditry	-	13	-	10
3	Impoliteness	-	4	-	3
4	Price increase	19	35	15	27
5	Disorder	-	6	-	5
6	None	110	60	85	47
Total		129	129	100	100

Our field surveys, 2018

In view of Table 16, in the Botanical Garden, attendance is high compared to Bombo Lumene. Thus, there is no shortage of social phenomena. The arrivals of the groups push up the prices of items but in Bombo Lumene, the site is far from the road, the population suffers nothing.

Table 17. Satisfaction of respondents for site attendance

No	Satisfaction	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Happy	24	125	15	97
2	Disgruntled	50	4	39	3
3	No positions	55	-	42	-
Total		129	129	100	100

Our field surveys, 2018

In view of Table 14, 97% of the population of Kisantu is happy with the site while 39% in Bombo Lumene reject the site and 42% are without positions.

Table 18. Breakdown of earnings Uses of money received from activities related to tourist arrivals

No	Expenditures	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Garment	15	21	12	16
2	Rent	-	16	-	12
3	Savings	-	11	-	8
4	Meal	-	19	-	14
5	Care	-	20	-	16
6	Commerce	2	23	2	18
7	Schooling	-	14	-	11
8	All needs	-	85	-	4
9	Nothing	112	-	86	-
Total		129	129	100	100

Our field surveys, 2018

According to Table 18, 97% of the population of Kisantu like the site while 86% in Bombo Lumene hate it. According to them, it should serve as fields, cutting wood and farming, etc. Even landlords have no love for this space, which they constantly try to sell or exploit by encouraging poaching. Thus, the sums collected are used for clothing, rent, savings while in Bombo Lumene, such money does not exist.

Table 19. Amounts collected from Sites Amounts earned through sites

No	Income bracket	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	50.000 – 100.000	17	31	13	24
2	150.000 - 200.000	-	29	-	22
3	250.000 – 300.000	-	29	-	22
4	350.000 – 400.000	-	40	-	32
5	Nothing	112	-	87	-
Total		129	129	100	100

Our field surveys, 2018

These amounts vary depending on the arrivals. When, there are many visitors, in Kisantu for example, the sum can reach 50,000 and sometimes 250,000 Fc.

N.B.: \$1 - 1,300 Congolese francs.

Table 20. Survey of revenues elsewhere Other sources of the respondent

No	Cut	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	100.000 – 200.000	19	36	15	28
2	200.000 – 500.000	50	57	39	44
3	500.000 – 1.000.000	60	32	46	25
4	1.000.000 – 5.000.000	-	4	-	3
Total		129	129	100	100

Our field surveys, 2018

According to Table 20, many Congolese live in the informal. At the Bateke plateau where the BOMBO LUMENE Reserve and Hunting Area is located. There are many activities and people go there to do business, like fields, farms, woodcutting etc. Thus, people have financial means from other sources, 15% have more than 100,000 Fc, 46% have 500,000 Fc. Similarly, in Kisantu, there are 44% who have between 200,000 and 500,000 and 3%, 1,000,000 Fc.

N.B.: \$1 - 1,300 Congolese francs.

Problems caused by the presence of sites

Table 21. Site Problems

No	Trouble	Actual		Percentage	
		BBL	KBG	BBL	KBG
1	Takes up a large space	90	14	70	11
2	Disturbance	10	2	08	1
3	Poverty	29	6	22	5
4	Too many visits	-	107	-	83
Total		129	129	100	100

Our field surveys, 2018

In Kisantu, 83% of the population complain about visits, 5% complain because visits cause poverty, things are expensive and 1% complain about the inconvenience. In Bombo Lumene, 70% complain about the space occupied by the site which is their ancestral land where you have to make fields and embers. The state must take responsibility.

Regarding the future of the sites:

The population of the city of Kisantu prefers to increase products, restock and add other activities. They insist on maintenance and reforestation. In the Bombo Lumene site, on the other hand, 80% of the population preferring to divide the estate; believe that it is time to make a distribution with the villagers for the fields and farms. This population is hostile to conservation activities. It does not find any interest in this matter. On the one hand, the population of Kisantu accepts the existence of garden and on the other hand in Bombo Lumene the tendency to conserve does not pass. It is more for the distribution of space to villagers or the abandonment of conservation.

A. Measuring the impact of ecotourism on the income of the Kisantu population

Table 22. Income obtained outside of tourism activity

Income bracket	fi.	xi.	Fixi
100.000 – 200.000	36	150.000	5.400.000
200.000 – 500.000	57	350.000	19.950.000
500.000 – 1.000.000	32	750.000	24.000.000
2.000.000 – 5.000.000	4	350.000	14.000.000
Total	129	4.250.000	63.350.000

Our calculations, 2018

To find the average income of the population surveyed, we use the formula:

$$X = \frac{\sum fxi}{N}$$

Knowing that X is the average income for the respondent.

Xi average income per class.
 fi. The size of the income bracket.
 N as sample size.

We have $\frac{63.350.000}{129} = 491.080$ Fc

Therefore, we conclude that, apart from tourism activities, each respondent achieves on average 491,080 FC in various activities (trade, agriculture, livestock, wages, etc.)

Searching for tourism income

Table 23. Income from Tourism

Slices in Fc	fi.	xi.	Fixi
50.000 – 100.000	31	75.000	2.325.000
150.000 – 200.000	29	175.000	5.075.000
250.000 – 300.000	29	275.000	7.975.000
350.000 – 400.000	40	375.000	15.000.000
Total	129	900.000	30.375.000

Our calculations, 2018

The average income earned by the population through the Botanical Garden can be represented by the social report.

$$\frac{30.375.000}{129} = \$235,070$$

Therefore, the respondent's overall income will be:
 491.080 + 235.070 = 730.150 Fc.

The share of tourism is 32% and 68% other activities.

➤ **Jobs**

The Kisantu Botanical Garden site currently employs 100 agents in all categories. The distribution is 62 men and 38 women. Of this entire staff, 61% of the participants are locals and 39% come from elsewhere.

Table 24. Attendance

Visitors	2018	%
Adults	7.250	40
Children	7.944	44
Students	2.949	16
Total	18.143	100

Our field surveys, 2018

Of all visitors, 6% are foreigners and 94% are nationals.

➤ **Recipes**

Out of 19,295 visitors to the Kisantu Botanical Garden, 4,221 or 21% are non-paying and 79% paying.

B. Measuring the impact on poverty of ecotourism in Bombo Lumene

Table 25. Results of the monthly income per class survey in Bombo Lumene

No	Returns to Fc.	Actual
1	100.000 – 200.000	19
2	200.000 – 500.000	50
3	500.000 – 1.000.000	60
4	2.000.000 – 5.000.000	-
Total		129

Our field surveys, 2018

Table 26. Average income per person

Income bracket	fi.	xi.	fixi
100.000 – 200.000	19	150.000	2.850.000
200.000 – 500.000	50	350.000	17.500.000
500.000 – 1.000.000	60	750.000	45.000.000
2.000.000 – 5.000.000	-	-	-
Total	129		65.350.000

Our personal calculations, 2018

Hence the Formula $X = \frac{\sum fxi}{N}$

Thus, the average income of the population surveyed:

$$\frac{65.350.000}{129} = 506.589 \text{ Fc}$$

➤ Income from tourism

Table 27 Tourism Income

Income brackets	fie.	xi.	fixed.
50.000 – 100.000	-	75.000	1.275.000
150.000 – 200.000	-	175.000	-
250.000 – 300.000	-	75.000	-
350.000 – 400.000	-	375.000	-
	112	-	-
Total	129		1.275.000

➤ average income: $\frac{1.275.000}{129} = 9.883,7 \text{ Fc}$.

Total average income = the amount of income of the respondent in other activities and income from tourism.

So, $506.590 + 10,000 = 516,590$

The share of tourism in income is ridiculously small, at 2% of total income.

This result further justifies the statements of the population who find no interest of the site in their daily life. The impact of tourism is zero.

➤ Tourism contribution on jobs in Bombo Lumene

The Bombo Lumene site employs 30 agents in all categories, including 4 women. 10 agents are hired locally but they are in the class of gamekeepers and guides.

Attendance: In view of the year 2018, the site received 1,060 visitors so 12% of children, 52% of men and 36% of women.

Recipes: Of 1,060 visits, 85% or 80% paid and 20% did not pay.

DISCUSSION, STRATEGY AND RECOMMENDATIONS

Discussion

Geographically speaking, the two sites of our research are in different locations, which justify the results.

1. Appreciation of the sites

From a tourist point of view, Bombo Lumene is larger and has specific natural products where all forms of tourism can be practiced. The Kisantu Botanical Garden is located in an urban centre next to the busy road.

In summary:

Kisantu Botanical Garden:	Bombo Lumene Reserve :
- Highly active national roadNo. 1.	- Inactive place
- A modern city	- Remote villages
- Trade and business	- Agriculture, livestock, and farm
- Easy access	- Difficulty accessing
- Presence of hotels and restaurants.	- Population away from the site
- Population accustomed to visits	- Indifferent population
- Comprehensive population	- Difficulty living together
- Integrated site	- Non-integrated site
	- Lack of cohabitation

In the impact comparison, there is a big difference between the two.

Table 28. Income

Income	BBL	KBG
Excluding tourism	98%	68%
Tourism	2%	32%
Total	100%	100%

The income from tourism is slim, 2% in BBL and 32% in Kisantu. (Table 28).

1. Attendance

The Bombo Lumene site receives fewer visitors compared to Kisantu. The figures are incompatible, 19,295 in Kisantu and 1,060 in Bombo Lumene for the year 2018.

2. Jobs

In terms of jobs, the Kisantu Botanical Garden has affected more jobs than Bombo Lumene. Moreover, the Kisantu Botanical Garden has 94% of local workers compared to Bombo Lumene which has assigned only 26% to the natives.

3. Recipes

In terms of revenue generated by the two sites, we find that the Kisantu Botanical Garden made \$42,000 compared to only \$12,000 for Bombo Lumene. This constitutes an inquiry of the public authorities and operators on the two variables, poverty reduction and nature conservation. These reasons will protect ecosystems and raise awareness of the value of the biodiversity of our sites; this helps to avoid deforestation and its consequences especially since the forest nowadays plays an important role in the environment as a whole, a concept on photosynthesis.

2. Strategies

To achieve our objectives especially in the sites under study, the strategy is:

- Create a climate of dialogue between local communities and state bodies in charge of the domains.
- The community's initiative of the value of natural and traditional resources in other ways than through overexploitation and destruction.
- Job diversification
- Opening schools and objects stores can generate income from villagers' cooperatives.
- Promote the sites.

3. Some recommendations

- Organize agroforestry schools
- Expanding existing infrastructure
- Considering villagers' claims
- Improved wage conditions for workers and guards in parks and protected areas.

Conclusion

By comparing the two sites, Kisantu seems to be more marked than the Bombo Lumene hunting reserve area where agriculture, livestock and trade of coal exists which threatens the existence of the site causing especially problems of cohabitation. Guards are regularly confronted with problems of

poaching as they encounter hunters or woodworkers. On the other hand, in Kisantu, as the site is a few meters from Road 1 where there are many other activities, Kisantu becomes a business centre. The people are not too interested in the destruction of the site; they understand and want the site to be repopulated and known internationally despite some minor problems with a minority of individuals. However, the site does not even meet the expectations of this population. We want site managers to promote and market around the world to attract a greater number of visits as there are still ecotourists around the world looking to visit unexplored ecotourism sites such as the Bombo Lumene Reserve and Hunting Area and the Kisantu Botanical Garden. The location of these two sites is similar to all sites and areas under conservation. There are always these difficulties in managing and integrating revenue from the sites with the community. This invariably leads to the revolt with effects as following: poaching, deforestation, destruction, etc. The best thing would be to involve the community and share the benefits properly.

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