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Impacts of the COVID-19 pandemic on a Non-Governmental Organization: the case of Sabine Plattner African Charities (SPAC) and the Odzala-Kokoua National Park, Republic of Congo

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I declare that this document is an original work of my own authorship and that it fulfils all the requirements of the Code of Conduct and Good Practices of *Instituto Universitário de Lisboa*.

*“ Ici, nous vivons un jour à la fois. Peu importe ce que nous
mangeons demain, car nous ne savons pas si nous y
arriverons.”*

Local Mbomo inhabitant, Republic of Congo, June 2021

The importance of living each day as if it were your last but
applied to a reality where it is even more likely that each day
can be your last.

To Miguel,
my partner in life.

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Abstract

In the Republic of Congo, the first positive case of COVID-19 was confirmed in March 2020, forcing the government to take measures to protect the community, preventing the rapid spread of the disease. This study was carried out in the Odzala-Kokoua National Park, in northern Congo, to assess the impacts caused by the pandemic on the charity organization Sabine Plattner African Charities (SPAC). Semi-structured interviews were conducted with 29 respondents from 3 stakeholder groups: SPAC, Congo Conservation Company (CCC) and Mbomo Community (located on the outskirts of the Park). The impacts of the pandemic were studied in the 3 projects developed by SPAC: Conservation & Research, EduConservation and Early Childhood Development. Impacts were analyzed from various perspectives, with the main impacts being identified at the level of education and work. Perceptions towards the virus were also evaluated. Compared to the Ebola pandemic, which caused severe direct health impacts, the COVID-19 pandemic caused less fear in the community, and the impacts were mostly indirect, due to prevention measures and changes in economic activities. A SWOT analysis was carried out for each of the three main groups of stakeholders. The vaccine was accepted and desired by all groups of respondents. Regarding conservation, there were no negative impacts in the Park caused by the pandemic. Cooperation of human communities with ecosystems and organizations has very positive results for conservation in the face of a pandemic situation.

Keywords

SPAC; Conservation in Africa; COVID-19 pandemic; SWOT analysis; Local communities

Resumo

Na República do Congo, o primeiro caso positivo de COVID-19 foi confirmado em março de 2020, obrigando o governo a tomar medidas que protegessem a comunidade, evitando a rápida propagação da doença. O presente estudo realizou-se no Parque Nacional de Odzala-Kokoua, no norte do Congo, permitindo avaliar os impactos causados pela pandemia na organização de caridade Sabine Plattner African Charities (SPAC). Foram realizadas entrevistas semi-estruturadas a 29 entrevistados de 3 grupos de stakeholders: SPAC, Congo Conservation Company (CCC) e Comunidade de Mbomo (localizada na periferia do Parque). Estudaram-se os impactos da pandemia nos 3 projetos desenvolvidos pelo SPAC: Conservation & Research, EduConservation e Early Childhood Development. Foram analisados os impactos em várias perceções, sendo que os principais foram identificados ao nível da educação e do trabalho. As perceções sobre o vírus também foram avaliadas. Em comparação com a pandemia do Ébola, que causou graves impactos diretos na saúde das comunidades e da vida selvagem, a pandemia COVID-19 causou menos medo na comunidade e os impactos foram na sua maioria indiretos, devido a medidas de prevenção e mudanças nas atividades económicas. Foi realizada uma análise SWOT para cada um dos três grupos principais de stakeholders. A vacina foi aceite e desejada por todos os grupos de entrevistados. Em relação à conservação, não houve impactos negativos no Parque causados pela pandemia. A cooperação das comunidades humanas com os ecossistemas e organizações provou causar resultados muito positivos para a conservação em situação de pandemia.

Palavras-chave

SPAC; Conservação em África; Pandemia COVID-19; Análise SWOT; Comunidades locais

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List of Acronyms

| | |
|-------------------|--|
| APN | African Parks Network |
| CCC | Congo Conservation Company |
| COVID-19 | Coronavirus Disease 2019 |
| ECD | Early Childhood Development |
| PCR | Polymerase Chain Reaction |
| RC | Republic of Congo |
| SARS-CoV-2 | Severe Acute Respiratory Syndrome Coronavirus-2 |
| SPAC | Sabine Plattner African Charities |
| SWOT | Strengths; Weaknesses; Opportunities and Threats |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNICEF | United Nations International Children's Emergency Fund |

Chapter 1

Introduction

1.1 The impact of pandemics in environmental conservation in Africa

In December 2019, a new disease, designated COVID-19, was identified in Wuhan, China. According to the World Health Organization, this disease is caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), which is a new virus in humans that causes respiratory diseases. All over the world, people are concerned about the COVID-19 pandemic in their lives, and how it can impact them and their health and that of friends and family.

Due to the priority focus on the COVID-19 pandemic, some themes were put in the background. For instance, there is the risk of local development being jeopardized by the halting of strategic planning for the future. That is the case of communities that have shifted to

an economy based on nature tourism, after accepting restrictions to their former ways of life, and which are now suffering the economic impact of tourism decline, while still being bounded by restrictions on the use of natural resources (Spenceley, 2020).

Before the pandemic, more than a third of all tourism GDP in Africa in 2018 was attributed to wildlife (Corlett et al., 2020). The pandemic had mixed impacts on conservation and the environment. Some of the documented positive signs include the return of wildlife to places where it used to live, feed or nest. Air pollution and carbon dioxide emissions have also declined globally (Corlett et al., 2020). It has also reduced pressure from tourism on ecosystems, and wildlife have bounced back. Protected areas appear to be safe, and, in many places, biodiversity is benefiting from human disturbance reduction (Corlett et al., 2020). However, the reduction in the number of visitors to the countries also led to serious economic problems for many who depend on Africa's tourism industry (Ma et al., 2020). As a result, and as a means to compensate the lost revenue, there has been an increase in the exploitation of natural resources and hunting of wildlife (Lendelvo et al., 2020).

Habitat fragmentation is an important dimension and consequence of human activities in tropical environments, which not only affects wildlife but also poses an increased risk of human exposure to wildlife pathogens and has been indicated as a key factor influencing the risk of disease spread. Viruses like HIV, Nipa, Influenza, SARS and Ebola are examples of human impacts on natural systems (Corlett et al., 2020).

The Ebola disease has affected the Republic of Congo very negatively and is serious and often fatal in humans. Ebola mortality rates in African countries ranged from 25% to 90% (World Health Organization, 2021b). The virus was primarily transmitted to people from wild animals and spreads in the human population through person-to-person transmission. It is also a very worrying problem in wild animals.

According to the Spillover2 model, transmission of the Ebola virus occurred from monkey to monkey (Bermejo et al., 2006). The contamination could have occurred during encounters between monkeys, for example, in the vicinity of fruit trees, or in contact with infected carcasses (Nielsen, 2009). Congo Conservation Company is responsible for managing the 3 existing lodges in Odzala Kokoua National Park. Mboko and Lango and Ngaga, which in addition to being a tourist lodge is also the research station for the region. At Ngaga's camp, there are groups of gorillas monitored and studied daily. This population of tracked gorillas in Odzala-Kokoua National Park in the Republic of Congo was monitored two years before and six years after the Ebola outbreak in 2004. The population size was 380 gorillas under study before the Ebola outbreak, having dropped to 40 after the outbreak. Ebola outbreaks in central Africa have killed up to 95% of individuals in affected populations of lowland gorillas (Genton et al., 2012).

In 2006, the Ebola epidemic that hit Odzala-Kokoua e Lossi National Park, a gorilla

sanctuary established in 2001 by the local community, took the lives of a total of 5,000 western lowland gorillas inhabiting the area, within a perimeter of almost 5,000 km². In 2008, the International Union for the Conservation of Nature (IUCN) considered, the western lowland gorilla (*Gorilla gorilla gorilla*) to be in critical danger. The Ebola virus has had a major impact on conservation, but also on local communities (Bermejo et al., 2006). Given the social structure of gorillas populations, and more specifically the western lowland gorilla, Ebola which is transmitted by contact with bodily fluids, is a serious threat to gorillas (Caillaud et al., 2006). This social structure is something to be seriously considered when it comes to COVID-19 transmission.

In March 2020, the first case of COVID-19 appeared in the Republic of Congo, more specifically in Brazzaville. Governments and local authorities were forced to take action. The way the government responded to the pandemic was mainly through contingency measures to prevent the spread of the virus (World Health Organization, 2021a). The Republic of Congo has to the 30th of November 2021 counted 18.905 infections and 354 deaths related to the coronavirus registered in the country since the beginning of the pandemic (Reuters, 2021). The most critical period, with the government declaring an emergency state and the general lockdown of the population was between the 1st of April of 2020 until the 30th of May of the same year (Congo Government & UNICEF, 2020). Several measures were applied by the country, namely traveling was restrained, and conditional on having a strong reason to enter or leave the country. For some time, and especially in Brazzaville, schools closed, and children and families were forced to stay at home. The number of people in public spaces was also reduced, with the use of masks being mandatory in closed establishments. All these measures apply to a large extent to the situation in the capital of the Republic of Congo, in Brazzaville (World Health Organization, 2021a). The impacts of the measures imposed by the government were felt mainly in the most populated cities and areas, namely Brazzaville, where most positive cases and deaths caused by COVID-19 in Congo were registered. However, the measures were implemented by the government for all areas of the country, namely in the most remote areas such as towns and villages (Ntoumi & Velavan, 2021). The measures implemented by the government harmed populations all over the country. However, the more remote areas are subject to another type of challenges, namely the lack of close health care in case of illness. (Ranscombe, 2020).

1.2 People and nature in Odzala-Kokoua National Park

Odzala-Kokoua National Park is located in the Republic of Congo and is one of the oldest

national parks in Africa, being founded in 1935 during the French colonial period, being then designated a UNESCO Biosphere Reserve in 1977 (Stolton & Dudley, 2015). Situated in the heart of the second largest rainforest in the world, spanning 13.500 km², Odzala-Kokoua is home to a vast diversity of wildlife, including western lowland gorillas (*Gorilla gorilla gorilla*), forest elephants and approximately 444 species of birds. It is home to around 100 different species of mammals and harbors one of the most diverse primate populations on the continent. It is located in the heart of the Congo basin, a place that is the source of life not only for millions of animals but also for about 75 million people (Congo Conservation Company, 2020). The Odzala-Kokoua National Park is source of multiple ecosystem services that are crucial for the well-being of local communities. This includes provisioning services, such as food, wood and medicinal plants, as well as critical regulation services, such as the regulation of the hydrological cycle and carbon storage and sequestration in the basin of the Congo river, that are dependent on the large forest area that is even considered the Amazon of Africa (Doumenge et al., 2021). Finally, cultural services are also very important, the park supports populations of many charismatic species, notably the gorillas, and offers unique areas for nature-based tourism. This includes an ecotourism project called Congo Conservation Company that manages three lodges in various areas of the park, totally immersed in nature.



Figure 1.1 | Location of Odzala-Kokoua National Park (Source: Google Maps).

About 10.000 people live in the surroundings of Odzala-Kokoua National Park and are increasingly involved in sustainable development projects around the park. In the Odzala-Kokoua area, a community project, Odzala Foundation, was created by a partnership between African Parks Network (APN), the Congolese Government, and members of the Mbomo community, comprising three eco-development zones, in which agroforestry and consumptive

use are allowed and where there is support for communities in this regard (African Parks, 2018).

African Parks Network is a non-profit conservation organization, based in Johannesburg, South Africa founded in 2000 in response to the decline and degradation of 19 protected areas in eleven countries in Angola, Benin, Central African Republic, Chad, Democratic Republic of Congo, Malawi, Mozambique, Republic of Congo, Rwanda, Zambia and Zimbabwe. The aim goal is to address African Governments' management difficulties and the lack of funding affecting African protected areas. APN's main objective is to help in the conservation of wildlife and the Natural World in 30 parks in Africa until 2030 (African Parks, 2020).

African Parks Network began managing the Odzala-Kokoua National Park in 2010, after signing a 25-year agreement with the Ministry of Forest Economy, Sustainable Development and Environment of the Republic of Congo. APN works in partnership with local governments and communities. In the Republic of Congo, it works closely with Sabine Plattner African Charities (SPAC) and the Congo Conservation Company (CCC), two organizations whose primary focus is conservation, community development and education. SPAC is a non-profit organization that focuses on protecting nature, with an emphasis on the rainforest in the Congo basin, through education and community involvement in northern Republic of Congo, Central Africa. Together with these entities, activities are developed in order to protect national parks and their wildlife. African Parks Network concept of conservation includes regional economic development and poverty reduction in order to guarantee the park's sustainability in ecological, social and financial terms

APN sees it as important to create park-based jobs and to involve the communities in the protection of parks and thus in the protection of a sustainable means of livelihood and a source of income. Community projects are held as part of local development plans, just as the construction of schools and providing educational support, local environmental education programs, where nearly 76.000 children are supported in education. APN also get involved with development organizations in the region, such as SPAC, for community and environmental projects. In 2017, access to healthcare services was created in mobile clinics established by African Parks Network, which provided healthcare to around 66.000 people across Africa (Sprecker, 2021).

The decrease in tourism from the COVID-19 pandemic had an impact in some parts of the world, namely in Africa. Many natural parks closed to tourism, as was also the case with the Odzala-Kokoua National Park, in order to reduce the risks to wildlife and to local communities and inhabitants (Spenceley, 2020).

Tourism in Congo does not seem so far to have harmed conservation, mainly due to have a small and recent presence in this country. The fact that people still confuse the Democratic

Republic of Congo with the Republic of Congo drives many tourists away from the country. In terms of flights there are not many options or very direct flights. In addition, there is also the difficulty of travelling from Brazzaville, where the main airport is, to Odzala-Kokoua Park. Before the pandemic, transport to the park was made by light aircraft or by bus (a trip that takes approximately 15 hours, on poor roads).

1.3 Research question and objectives

The objective of this study is to explore and characterize the impacts of the COVID-19 pandemic on the conservation projects developed by Sabine Plattner African Charities (SPAC) in the Odzala-Kokoua National Park (Northern Republic of Congo) and assess potential opportunities that emerged from this crisis. I tried to understand how the pandemic has affected the conservation-related activities and the local communities around Odzala Park, and how to prepare for dealing with future pandemic situations.

General goals:

- i) Impacts of the covid-19 pandemic on SPAC;
- ii) Impacts of the covid-19 pandemic on the Odzala-Kokoua National Park.

Specific goals:

- i) Explore and characterize the impacts of the pandemic on water conservation projects; SPAC in Odzala-Kokoua National Park according to the perception of interviewed;
- ii) Try to understand how the pandemic affected conservation activities (SPAC, Park) according to the interviewees' perception;
- iii) Trying to understand how the pandemic affected local communities around the Park according to the perception of the interviewees, namely in the areas of
- iv) health, education, working conditions, economy, conservation and tourism;
- v) Conduct SWOT analysis based on respondents' perceptions for each group of stakeholders;
- vi) Explore feelings about COVID 19 and vaccination;
- vii) Obtain lessons for future situations.

My propose is to contribute with new knowledge by collecting local testimonies and examining the perceptions of local community members and members of the conservation organizations.

By assessing and analyzing the perceptions of each person interviewed, of the main stakeholder groups and of the community. I aimed to understand how these communities are dealing with the COVID-19 pandemic and the main challenges they are facing were aligned with the information needs of SPAC. The identification of information needs was conducted through a series of meetings with Dr. Paul Telfer, the former Director for International Conservation Communication and Public Relations for SPAC and Dr. Magdalena Bermejo, current Director of SPAC Conservation & Research. This study was developed with the support of the SPAC organization, where I developed the topics and questions and checked together if they made sense and were relevant to the interviewees in question.

Through this study of how local communities and SPAC employees experienced the pandemic, including their fears, doubts and perceived opportunities, and by producing a final set of final set of recommendations and suggestions on what could be done to improve current response to the COVID pandemic and to respond to future situations. Moreover, I also aim to contribute with relevant information on the perceptions of SPAC employees and of the local community in relation to various topics related to the pandemic and in relation to the acceptance of the vaccine.

This latter contribution would be particularly important because people often do not feel completely comfortable to talk about these issues with their employers but may have the opportunity to express their views through a scientific and confidential study, where I became a facilitator of the process. Here, the trust factor was mainly because he was a neutral person, outside of employers and people that respondents are used to dealing with on a daily basis. The fact that it was emphasized at the beginning of the interview that the identity of the people will not be revealed brought comfort to the interviewees in their answers.

This thesis is structured as follows: I first describe, in Chapter 1, the study area and contextualize my case study, explaining how the different organizations are related to each other. Chapter 2 then provides a description of the methodology. Chapter 3 focuses on this project's findings organized according to investigate the perceptions of impacts on health, education, working conditions and operations, economy, conservation and tourism as well as explore the feelings on COVID-19 and its vaccination and evaluating the strengths, weaknesses, opportunities, and threats of each stakeholders. I then discuss my findings in Chapter 4, reflecting on the impacts of the COVID-19 in Odzala-Kokoua National Park and on the activities of SPAC and related organizations, providing recommendations to address current and future challenges. The latter part of this chapter focuses on the main conclusion of the study and provide guidelines for extending this presented work in the future.

1.4 Personal Motivation

As a sociology graduate, I have always been interested in social behavior and human attitudes. A passion for the environment and wildlife and aiming to understand their coexistence with human beings led me to the thesis. Our current pandemic context further encouraged me to explore the link between this new reality and sustainability. Being passionate about the African continent, the opportunity arose to conduct a study to assess the impact of the COVID-19 pandemic on the activities carried out by SPAC. After a trip to Tanzania in 2017, specifically in the Serengeti National Park, I realized that I wanted to somehow contribute my work to conservation. It was then that, after a long search for several national parks in Africa, I came across the Odzala-Kokoua National Park, in the north of the Republic of Congo and the Congo Conservation Company. It was after a first conversation with CCC that I established contact with Dr. Paul Telfer. Paul's goal was to do research on COVID-19 and conservation to see how it affected SPAC and its projects during this period. I realized our expectations were aligned, during a brief literature search, I became interested in working on the theme of the impact of the COVID-19 pandemic on conservation and community in Africa.

As pandemics and diseases greatly impact conservation and on local communities, it seemed very pertinent to me to assess this relationship with the COVID-19 pandemic and better understand how it will be possible to deal with in future situations. After this conversation with Dr. Paul Telfer, I was given information on SPAC's need and interest in evaluating the impacts that the COVID-19 pandemic in terms of conservation and impacts on its activities and on those involved, namely the CCC and the Mbomo community. In collaboration with Dr. Paul Telfer, I was then given the role of researcher for this project, SPAC had the need to assess the impact that the COVID-19 pandemic had/has on its projects, both on people and on conservation.

Chapter 2

Methodology

2.1 Study area and case study

The Republic of Congo belongs to a bioregion called Northern Congo Plain Forests. The size of the ecoregion is 43.509 hectares and is home to four countries - Cameroon, Gabon, Republic of Congo and Central African Republic. Temperatures are tropical, with annual average maximum of 27° to 30°C and minimum annual average of 18° to 21°C. Humidity is high throughout the year. This ecoregion contains a vast expanse of tropical rainforest rich in biodiversity and is one of the last remaining tropical rainforests in the world. These forests are among the richest in non-human primates in Africa and are home to the largest population of gorillas in the world (Vande weghe, 2017).

After crude petroleum and refined copper, respectively 63% and 24% of Congo exports, rough and sawn wood are the 3rd and 4th more represented goods with a combined 4% share

of the exports value (OEC, 2019).

In the Congo basin, there are about 10.000 species of tropical plants, more than 400 species of mammals, 1000 species of birds and about 700 species of fish. In addition, it is also home to the largest population of lowland gorillas, with around 7000 individuals (Cesareo et al., 2012).



Figure 2.1 | Biodiversity in Odzala-Kokoua National Park. *Cercopithecus nictitans* on the left and *Oriolus Larvatus* on the right (Inês Caetano, 2021).

The ecoregion's human population is generally less than five people per km², and large swaths of the Congo forest are nearly devoid of people (Martin & Burgess, 2020). The Congo forest also contributes to the reduction of global warming and the greenhouse effect in the world with the amount of plant species it shelters, as it absorbs large amounts of carbon dioxide (Cesareo et al., 2012). These two large ecoregions are the lowland forests of northwestern Congo and the lowland forests of northeastern Congo. This forest stores about 22 billion tons of carbon and is also among the richest primates in Africa, home to the largest population of lowland gorillas in the world (Vanden Abeele et al., 2021).

Numerous environmental education and conservation projects have been developed in Odzala-Kokoua National Park, which will be mentioned throughout this work, with the aim of protecting this ecosystem and always conveying the message that changes in ecosystem services have strong impacts on human well-being (Reid et al., 2005).

The main organizations involved in nature conservation of Odzala-Kokoua in the Republic of Congo are African Parks, Sabine Plattner African Charities, and Congo Conservation Company. Each has its own responsibility, but all have something in common, which is protecting and conserving the park of Odzala-Kokoua by involving the local population, as happens in other protected areas in Africa (Lindsey et al., 2020).

More than 30% of Congo's population lives on less than \$1.25 a day, with an 12,000 people living in towns and villages on the outskirts of Odzala-Kokoua Park, relying solely on nature's resources to survive (Pyhala et al., 2016). Living in these rural areas often means living close to wildlife, as is the case in the village of Mbomo, the village under study. This proximity sometimes brings some conflicts between human beings and animals, especially when animals invade the communities' land. During interviews and in informal conversations held during his stay in Congo, he was mentioned several times that in the village of Mbomo, elephants often destroy the crops of the communities, on which they depend for food. Odzala National Park, currently with the support of African Parks, has been developing projects that try to balance this relationship and prevent both wildlife populations and communities from being harmed.

There is a compensation project in the Park for human-wildlife conflicts, with monetary compensation for the communities if any animals destroy their fields (African Parks, 2020). For example, it is common for elephants to destroy crops of the Mbomo community, which gives rise to conflict. In partnership with SPAC, several projects are also developed, whose goal is to inform and help the population economically in some of the most atypical moments, namely the pandemic.

The future of Odzala depends on the communities that live around the park and are essential to its conservation and preservation. For this reason, and because communities also depend on the park's well-being to survive, focus is given to various community projects, both on the side of African Parks and SPAC, and even together. The organizations, as well as the Congo Conservation Company, work with the Mbomo community in development projects in and around the park, and a large part of the organizations' team is made up of Mbomo



Figure 2.2 | Crossing the Likouala-Mossaka river to take the path to Odzala-Kokoua National Park (Inês Caetano, 2021).

residents. The park of Odzala also has a team of African Parks-trained eco-guards in various areas of the park, to protect it from possible poachers. About twenty elephants are monitored with satellite collars so that they do not get close to the villages and communities, thus avoiding conflicts. Protected areas are essential not only to protect parks and biodiversity but also because they are a source of livelihood for many people (Hockings et al., 2020).

One of the objectives of the organizations in Odzala-Kokoua National Park is to develop community development projects, involving the community of villages around the Park, creating sustainable livelihoods, such as sustainable agriculture. The aim is thus to create alternative livelihoods for people living on the outskirts of the park. Three organizations have conservation and development related goals in and around the national park.

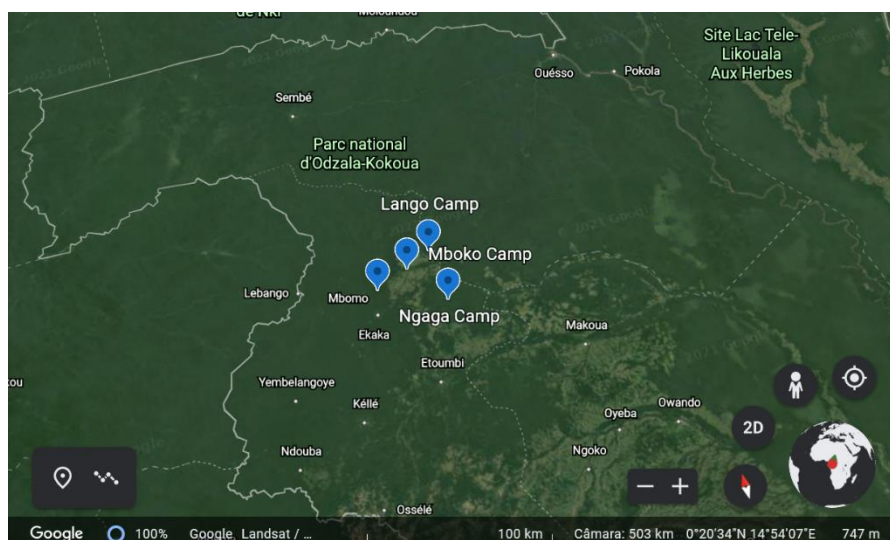


Figure 2.3 | Camps of Odzala-Kokoua National Parks (Source: Google maps).

The park headquarters is also in the village of Mbomo, which is where SPAC has a community center. Finally, CCC runs three lodges, two of which are inside the park (Mboko and Lango), while the third lodge (Ngaga) is outside the park in the peripheral zone. The SPAC research team is based at the CCC lodge at Ngaga, but the SPAC team is not part of CCC (see Figure 2.5 below). All organizations have a community focus, as all entities shown on the chart (Figure 2.5) include community members on their staff in either the CCC or SPAC or APN. The management of this National Park by APN is divided between:

- Biodiversity conservation;
- Research;
- Community Development;
- Logistics;
- Finance and Administration.



Figure 2.4 | Lodge and rooms at Ngaga camp (Vande weghe, 2017).

Sabine Plattner is a private citizen who is doing work in conservation in and around the park (in support of the Park Management). She created in 2008 two separate structures, on the one hand, the Congo Conservation Company (CCC) which is a private tourism company and on the other hand, Sabine Plattner African Charities (SPAC), which is a charity, a non-governmental organization that does education and research in support of conservation. SPAC acts in three different projects: Early Childhood Development (ECD), EduConservation and Conservation & Research (located in Ngaga camp). The CCC is responsible for managing the camps, both locally and from the Brazzaville office where most of the goods and necessary equipment are sent. The focus of the work of these organizations is the community of Mbomo, which despite being far away from the country's capital and main resources, is well supported by these organizations.

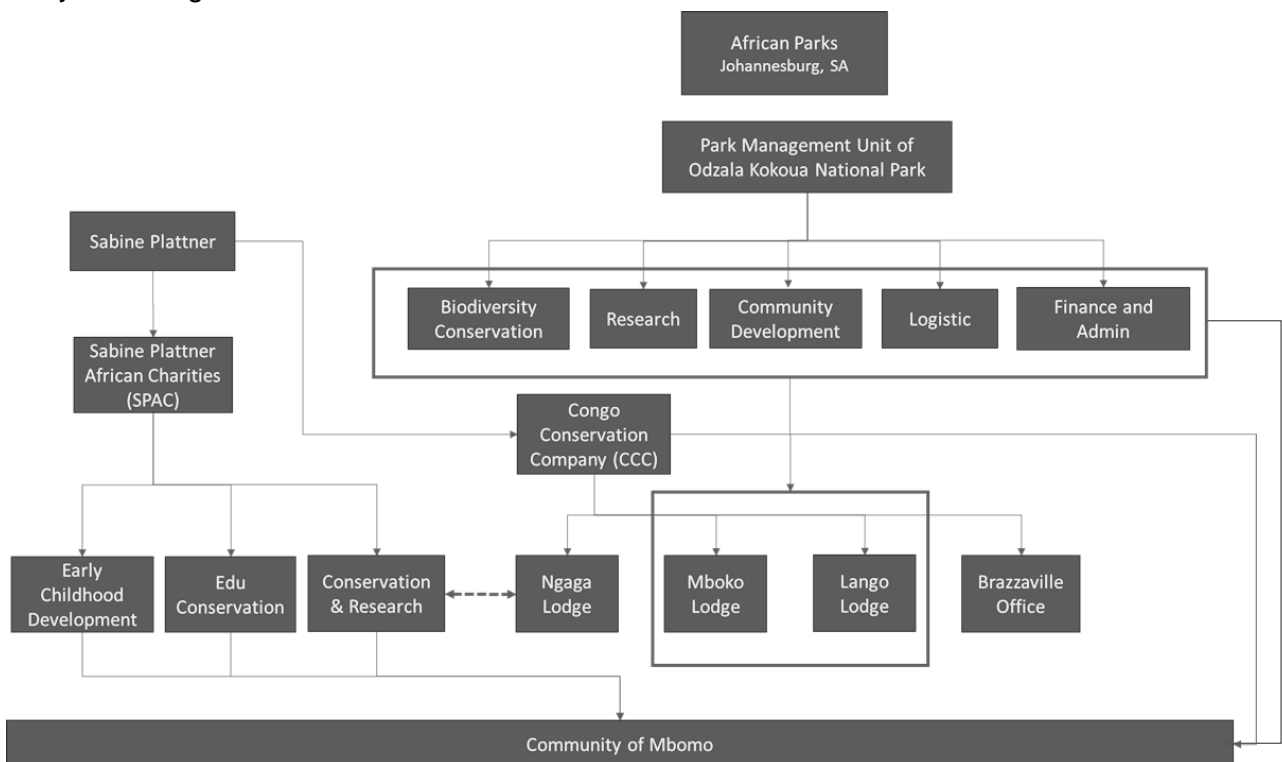


Figure 2.5 | Organogram of different organizations related to Odzala-Kokoua National Park.

2.2 Stakeholders

2.2.1 Sabine Plattner African Charities

Sabine Plattner is a German teacher from Freiburg, Germany, where she taught for several years. Having developed throughout her life an admiration for the African continent, she decided to create a project about the natural world, that aspired to ensure a balanced coexistence between humans and nature, specifically through education as a way to contribute to protecting/conserving African rainforests. Sabine founded the Sabine Plattner African Charities Organization in 2008, focusing on child welfare, early childhood development, primatology, and research. In addition to her charity work, Sabine has set a goal to protect the rainforests in the Congo Basin, specifically Odzala-Kokoua National Park (Vande weghe, 2017).

Sabine Plattner African Charities has a few distinct projects whose aim is to protect the natural world with a focus on communities and their well-being. The organization is divided into three different projects, all of them working on behalf of the local community and the environment. *Early Childhood Development*, a program that allows children to grow and develop to their full potential, always with environmental education present in their daily lives.

Ngaga, the camp where the gorilla research project is based, was founded southwest of the Odzala-Kokoua National Park with one of the main groups of gorillas under the guidance of the Conservation and Research team and was the first of the camps in the Congo Republic Basin portion built in early 2000. The research in Ngaga worked on an approach with support from SPAC and later from the Congo Conservation Company, bringing community, science, and tourism together in favor of conservation.

The *SPAC Conservation and Research Project* emerged in 2009 and is led by scientists Dr. Magdalena Bermejo and Dr. Germán Illera, who pioneered the study of western lowland gorillas and whose one of their goals is to understand the interactions between lowland gorillas and the communities that live around the Odzala-Kokoua National Park.

Dr. Magda, Dr. Germán and their team of trackers, employed by SPAC Conservation & Research work closely together to monitor gorilla populations. Every day, teams of trackers and researcher prepared to be close to the gorilla groups, to go out into the forest to monitor and analyze their behavior. This contact is always made with the premise of respect for the animals, for this reason they often do not know, or ignore, that they are being observed by the trackers, and there is no close contact with the animals. The work is always done with great respect for the animals, at a distance considered safe for them, but so that they feel that trackers are a common figure, proceeding with their common behavior without feeling

observed by them. Specific groups are studied and followed, with planet names being given to the groups. As a research station, Ngaga camp places a high value on education. Several local students are received each year to study the gorillas together with the teams. Data collection is done in many ways, not just gorilla observation. There are about 60 gorillas, which make up 3 main groups, which are followed daily. These 3 groups are given the names of Planets: Jupiter, Neptune and Pluto, these being the groups that are used to the presence of the trackers and researchers. In addition, to the monitoring of these groups, camera traps are also placed throughout the forest to identify the different groups behaviors. Non-invasive sampling methods were also used to characterize the genetic variation of gorillas.

After the Ebola outbreak in Congo between 2000 and 2002, the team was afraid of human contact with the gorillas, and it was always mandatory to wear masks and undergo medical



Figure 2.4 | Sign in the road to Ngaga camp informing about gorilla presence (Inês Caetano, 2021).

examinations before contacting with the animals, as gorillas are quite susceptible to catching diseases from humans.

In early 2020, when the first cases of COVID-19 appeared in Africa, tourism in Odzala was suspended. This measure was taken so that to ensure that the region's remote human populations and vulnerable gorillas were isolated from any contagion threats from guests.

Dr. Magdalena Bermejo and Dr. Germán Illera became the voice of communities around Odzala during the devastating Ebola outbreak that killed many people but also many animals between 2002 and 2003, taking the lives of some 5000 gorillas, meaning a loss of about 95% of the western population of the Lowland Gorilla species in the park. The International Union for Conservation of Nature (IUCN) has classified the Western Lowland Gorilla as a Critically Endangered species. These gorillas have suffered exceptionally high levels of mortality from hunting, poaching and diseases such as Ebola.

SPAC EduConservation emerged at a World Parks Congress that took place in 2014, where Sabine Plattner was keynote speaker and highlighted the need for conservationists to support the enrichment of school curricula with educational content aimed at protecting nature. Thus, SPAC in partnership with Leadership for Conservation in Africa (LCA) created the EduConservation project.

The program's objective is to impact young people during the years of schooling, continuing this learning until adulthood, passing from generation to generation. To achieve this goal, it was found necessary to develop the educational content and adapt it to the country and the specific circumstances of each place. To assist in this journey, an activity book was developed by the EduConservation project that included nine main topics related to nature conservation for students in the Republic of Congo, Senegal and Morocco. This Activity Booklet has been developed in collaboration with local Ministries of Education for secondary schools. EduConservation focus now shifts to resource development for primary schools through conducting informative assessments and developing resources for selected countries. It became important to develop manuals with structured and adapted content, for which local professionals, educators, biodiversity specialists, scientists and environmentalists gathered to develop resources.

During the pandemic, SPAC EduConservation created a project for children aged 3 to 12 who were confined to their homes, unable to go to school. The story was based on Ouanda, a young adventurer who discovers and is interested in knowing more about the different animals in the protected areas of the Republic of Congo. The Activity Sheets are published weekly in the Les Dépêches de Brazzaville newspaper, to be easily accessible to families and therefore children. It was a SPAC EduConservation project applied in the Brazzaville area.

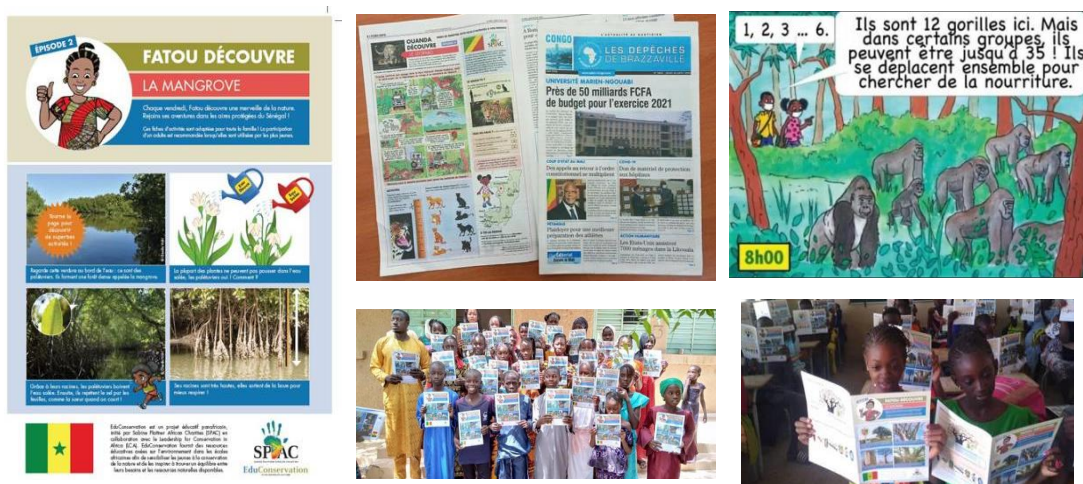


Figure 2.5 | EduConservation's journal initiative on social networks (EduConservation, 2020).

To make this project possible, it was essential to work in collaboration with the countries to which the content is intended, and specifically with their national education departments and with the contribution of their national environmental departments. The material is focused and produced for the support of the teacher in the classroom, recognizing their role, thus making it possible to adapt concrete and well-defined methodologies in the education of children and young people. His project developed and distributed around 20,000 activity books to secondary schools in the three pilot countries, Congo, Senegal and Morocco, with the training of 300 teachers.

SPAC Early Childhood Development is a project that aims to provide an effective Early Childhood Development program for children. This project allows children to grow and develop in some African regions, with all the necessary conditions. Sabine has always considered education to be essential. Activities include emotional, cognitive, sensory, physical, social and communication development from age three to school age, with age-appropriate play and games. These community centers of children up to 3 years of age are established in very remote parts of Congo, where there are currently no schools or resources for children of these ages. In some villages, mobile classrooms are placed so that it is possible to teach the classes.

The purpose of the Early Childhood Development Project, created in 2013, is to promote a sense of environmental responsibility in children from an early age. This promotes the theme of the environment in the family. Children at home often talk to their parents about what they have learned and talk to each other. The focus areas of this project are the Odzala-Kokoua and Nouabalé-Ndoki national parks in the remote northwestern regions of the Republic of Congo. The main community center, Sanza Mobimba, in Mbomo village, on the outskirts of Odzala-Kokoua National Park, was founded in 2013. Building on the success of the Sanza



Figure 2.6 | Activities in Sanza Mobimba (SPAC, 2020).

Mobimba center, five satellite community centers were established in neighboring villages Odzala - Kokoua National Park.

In addition to the ECD projects presented above In Sanza Mobimba, Mbomo Village, the Youth Program for Children from the local primary school takes place in the afternoon. This program consists of SPAC members going to school for extra-curricular activities, where they encourage students to tell stories, french, mathematics, health and hygiene. Teachers who travel to the local school also promote discussions about the environment and conservation.

The ECD program, which is used across all community centers as well as mobile classrooms, includes emotional, cognitive, sensory, physical, social, and communication development from age three to school age. The SPAC ECD team considers this period to be crucial for children's development and the ideal time to instill important values. Teaching is done in a collaborative and interactive way with children. They are involved in age-appropriate activities, in order to instill in them certain values and learning that they are essential for their lives but in a fun way for them. Reading, storytelling and social interaction activities are carried out with the children to awaken their interest in learning more.

All programs developed are adapted to the reality and cultural identity of children in remote regions of Congo. More than 300 children aged between three and six years, participates in activities developed by the centers and around 45 children participate in the Youth Program in Sanza Mobimba with children between 3 and 5 years old. The centers have 24 Congolese staff and a Congolese administrator in Brazzaville.

To inform the communities around the park about COVID-19, SPAC Conservation & Research in partnership with African Parks and some key community members (such as the *notable* that is the local community leader in Mbomo Village) organized a circle with the name of Green Deal Space, also referred as Green Circle, which regularly occurred at the entrance to Odzala Park, next to the headquarters of African Parks. This circle brought together the entities described above, and various members of the community, such as teachers, parents of school children, a doctor, the police and the *sous-préfet*. The aim was to inform people about the virus, how it is transmitted, what harm it can bring to people and wildlife. In addition, in this circle, masks, disinfectants were also made available and the important measures that each person should take to prevent contagion were explained. This initiative brought a lot of value to the population, as it was a way of having a nearby entity, available to help, to clarify doubts and to support whatever they could.

2.2.2 Congo Conservation Company

Sabine believed that it would be important to give work to the people of the region, balancing a healthy living between the inhabitants of the villages around the park and the wild animals. It was in this sense that the Congo Conservation Company emerged, from its contribution to local communities. Sabine has created a sustainable work environment, with the objective of supporting the socioeconomic development of these regions and where the main objective is the conservation of the region, focusing the world's attention on the value of these ecosystems through ecotourism. The Congo Conservation Company has 3 lodges, all located in the Odzala National Park: Mboko, Ngaga and Lango. Odzala Discovery Camps has been run by CCC in the pristine ecosystem of Odzala-Kokoua National Park since 2012. Through these tourist developments, conservation has been valued by communities in and around the region as a result of job creation and investment in the area. Together - community, research and tourism are working towards a stronger future for the Congo Basin and all its inhabitants. Community, research, and tourism go hand in hand for the future of the Congo Basin and its inhabitants.

In early 2000, the Congo Conservation Company's first camp, Ngaga, was built. This camp, located southwest of the Odzala-Kokoua National Park, was built to research and study one of the gorillas focus groups under the guidance of the primate research team stationed in the area. With support from SPAC and CCC, the Ngaga research found a new approach bringing communities, science and tourism together for conservation. Only later were the Lango and Mboko camps built in the Odzala-Kokoua National Park.

The Congo Conservation Company is an ecotourism company based on Brazzaville, with three lodges in the Odzala-Kokoua National Park. This company was created with the objective of helping the region's development through tourism, by creating jobs and develop the economy. Ecotourism emerged in the 1980s, with the aim that tourism proceeds flow towards conservation, sustainable development, and conservation (Stronza et al., 2022). Ecotourism values the appreciation of nature and the enjoyment of places, without harming or altering the balance of the environment and thinking about the well-being of local communities. Ecotourism also aims to give tourists the opportunity to enjoy nature, always promoting education and environmental conservation. This is the role of the CCC in Odzala-Kokoua National Park.

CCC and SPAC, both created by Sabine Plattner, are focused also on environmental education as a primary mean of conserving nature in the Odzala-Kokoua Park (Stronza et al., 2022). Ecotourism developed in the right way can bring advantages to the country, such as the case of the Democratic Republic of Congo, a country whose political and social situation was and remains very adverse and continues to cause the death of people and animals, including gorillas. This was a case where tourism developed around mountain gorillas helped to create agreements to protect this endangered species (Strong-Cvetich & Scorse, 2008).

2.2.3 Community of Mbomo

Mbomo is a rural village located in northern Congo, on the outskirts of Odzala-Kokoua Park and home to around 7000 people. Etoumbi is the closest small town to Mbomo, it is 63.2 km away. Brazzaville, the capital where the main hospitals and services are located, is 723 km away from Mbomo. Mbomo is a remote village, without electricity and potable running water, where there is one central market for the population to go to buy food, a police station, schools, including Sanza Mobimba and one hotel. On the streets you can see wild animals that often enter the village, including elephants, causing some conflicts between the villagers and these animals or hyenas. The families are quite large and manly composed by youth members and live in small houses built with mud and straw. In order to survive, women travel for miles every day in search of mixed amounts of water, water that is not drinkable and often causes health problems for those who consume it, as is the case with cholera. It is common to see plantations and small vegetable gardens, mainly of *saka saka*, the leafs of *manioc* a very famous vegetable and much appreciated by the inhabitants of the Republic of Congo, where communities grow



Figure 2.7 | Houses in the village of Mbomo (Inês Caetano, 2021).

their food. Some families also have goats that are raised to later serve as food for the family. It is not rare to see dilated stomach in children as a result of malnutrition, problem that the locals refer as being reducing since SPAC is present in the community. It was observed that the women started to have children very early, as soon as their puberty started, fact that was referred by the locals, who also mentioned that often a man has children with more than one woman. These relationships occur in the form of successive monogamy.

The daily activities of the community are associated mostly with subsistence, being the market, the central place of the village and the river stream the place to wash clothes. Despite most of the people in the village spoke the regional first language *Lingala*, a second language was also used, *Mboko*. On the other hand, some were able to speak French, the official language of the Republic of Congo.



Figure 2.8 | Women washing clothes in the river stream in Mbomo (Inês Caetano, 2021).

2.3 Data Collection

I conducted the field research during two full weeks, between June and July 2021 in the Odzala-Kokoua National Park area. During my stay, I was first in Brazzaville, where I carried out some interviews, namely with the person responsible for the EduConservation project and the person responsible for Early Childhood and Congo Conservation Company. Some of these interviews took place at SPAC offices in Brazzaville. I then left for northern Congo, where I conducted interviews with stakeholders to answer my research questions.

2.3.1 Fieldwork Preparation

There was some preparatory work to be done before going to Congo. Initially, I started by visiting the organizations' websites, namely the National Park of Odzala-Kokoua, and its location, wildlife, temperature and other specifics. I also visited the official website of Sabine Plattner African Charities, where I researched about the different projects and areas of activity and the African Parks and Congo Conservation Company. To better understand the current situation in the country, among other information, I visited the official website of the Congolese

government and portal for Portuguese communities. I also searched the web for information regarding the pandemic situation in the Republic of Congo.

Finally, I visited the social networks of the projects and Odzala Park, which posted content recurrently and where I could find out a little more about my study area before going to the field.

Before going Odzala Kokoua National Park I had about seven meetings with Dr Paul Telfer and Dr^a Magdalena Bermejo as well as recurring email exchanges. We discussed several issues, namely the direct relationship existing between the stakeholders involved in the study, specifics of the Odzala Park and the community, work to be developed by SPAC and objectives with the study. With the support of Dr Telfer and Dr^a. Bermejo, I defined who should be the interviewees for the study, I presented the questions that I considered to make sense to put in the interviews and the interview script. In the last phase, before the trip to Congo, when I went to the Consulate of the Republic of Congo in Portugal (Almada), I asked the consulate workers several questions, namely the social/political situation, the country's security and more pertinent religious and cultural information.

2.3.2 Ethics and Fieldwork during a pandemic

Some restrictions were taken by the government of the Republic of Congo as containment measures. One of them was the presentation of a negative test on arrival in Congo, followed by a mandatory 10-day quarantine, however this measure was rarely complied with.

Due to the pandemic, during the field study there were some particularities and measures that were necessary to adopt, namely respect for social distance, the use of masks during interviews. Interacting with people with masks and interviewing them was strange on the one hand, as no one wore masks, but on the other hand and for the sake of safety but also ethics, as this is a study on the pandemic, it was an essential measure to be taken. However, the interviewees never wore a mask, only the medical doctor at Hospital de Mbomo at our request.

During interviews and informal conversations, I took ethical issues into account. In the course of the conversations, when I was closer to the people, I made a point of wearing a mask, disinfecting my hands frequently and keeping my distance (Peek & Tobin, 2020). I informed my interlocutors of the goals of the research; that the content of the interviews would be anonymized; that they could withdraw from the interview at any moment.

I also paid attention to respecting the customs and traditions of the community, paying attention to the clothes I wore. During interviews and informal conversations, I always tried to be careful in the subjects I touched on and paid attention to, so as not to hurt anyone with a question that could be more intrusive. The well-being of the person being interviewed was always taken into account, trying to have a good experience and a good conversation with me,

making the moment positive for both parties. I informed my interlocutors about the research objectives; who could withdraw from the interview at any time. Prior to the interviews, I inform the interviewees about the anonymity and confidentiality of the study and the identities of the participants.

2.3.3 Observations and informal conversations

Informal conversations were undoubtedly an additional and a very important source of information, taking place during meals, coffees, etc. These conversations were not audio-recorded due to the context in which they took place, however I took notes on these conversations after the fact and my interlocutors knew I was also collecting data during those interactions. These conversations taught me more about the different organizations in the study, how they work and how they articulate with each other and in their day-to-day work. These conversations carried out in an informal context also helped to refine the subsequent interviews and to seek additional information during the interviews, subsequently also helping with data analysis.

The collection of field notes during interviews, observations, and informal conversations were very important to my study. I collected as field notes, personal notes that I wrote while observing behavior or information that was given to me. Feelings, reactions from people I spoke with or observed, curiosities I found interesting, personal reflections (Peek & Austin, 2021). Observation was crucial to my fieldwork as it allowed me to check reality beyond what I was told. It allowed me to learn beyond the conversations and information I was given, in interactions and social processes with local communities (Peek & Austin, 2021).

2.3.4 Interviews

The interviews were semi-structured, following an interview guide combining closed questions and open-ended questions covering research topics, presented to SPAC. Some questions were adapted to the groups interviewed, with some being different from group to group. The questions used are listed in Chapter 5 Appendix A. The qualitative method was used mostly, but also the quantitative method.

I opted for a semi-structured interview technique because there is freedom for new questions that may eventually arise during the conversation and it is this topic that often allows you to come up with some very interesting information not thought of before (Austin, 2021). Before going to the field, it was important to know and investigate more about the context and reality of the places where I was going. This phase was also very important to create an outline

of questions that suited the reality of the people I would talk to, taking into account the cultural context (Alaniz & Papadopoulos, 2020).

A total of about 9 scripts were prepared one script for each of the following groups of respondents. About a total of 65 questions were used to carry out the study. These people belong to different groups, exactly SPAC, CCC and Mbomo Community. The number of questions varied from group to group, as the questions were adapted for each group of respondents. Data collected through recorded interviews with prior authorization from all participants were recorded with 1 recorder and 1 mobile phone recorder, in addition to the collection of notes in a block. The interviews were carried out whenever possible in quiet and comfortable places for the interviewee. At the beginning of the interview, the following presentation and explanation of what would be developed was made, explaining that the conversation would be recorded and that the names of the people interviewed would not be revealed.

During the interviews, it was very important to build empathy with the interviewees. I always tried to be sensitive, not to assume any information before it was given to me, and I carried the interviewees at ease, informing them that their names will not be revealed. Being humble and a good listener, thanking people for their participation and for their time spent in the conversation were some of the tips I used (Peek & Tobin, 2020).



Figure 2.9 | Interviews being conducted with SPAC members (Inês Caetano, 2021).

All interviews were recorded in audio, with support from a recorder and a backup mobile phone recorder. All interviews were recorded with the knowledge and permission of the interviewees. The average duration was 30 minutes per interview. A total of 29 people were interviewed, 6 of which were women and 23 men. The discrepancy between the number of women and men is due to the type of social structure existing in Congo. During the fieldwork I was able to verify that the role of the woman is essentially the housework and taking care of the children. With some exceptions, the majority are men who work outside the home

My interviewees include:

- SPAC members;
- CCC members;
- People from the Mbomo community who live within and around the park and which includes:
 - The medical doctor responsible from Mbomo medical centre;
 - The President and Manager of the local market;
 - The school Director, teachers and parents of SPAC school students;
 - The *Notable* (village chief);
 - The local Gendarme and the chief of the Police.

Table 2.1 | Descriptive data of the interviews.

| Stakeholder | Total time of interviews (minutes) | Average duration (minutes) | Number of interviewees (Male/Female) |
|-----------------|------------------------------------|----------------------------|--------------------------------------|
| SPAC | 400 | 36 | 11 (9/2) |
| CCC | 262 | 37 | 7 (6/1) |
| Local Community | 203 | 18 | 11 (8/3) |

The level of impact and fear of the people about COVID-19 who were interviewed was quantitatively evaluated using a scale. A scale from 0 to 10 was used during the interview where 0 meant no fear and 10 meant a lot of fear. People from SPAC were interviewed, namely 2 employees who support the organization in whatever it needs, i.e., people who do a little of everything, one of them was the one who took me through the village of Mbomo to meet the people I would talk to and interview them, was a great facilitator throughout the field research, as he was someone that everyone in Mbomo village knew, and when they saw me with him, they trusted me too. However, he was not present at the time of the interview, this only happened in the two Lingala interviews. In addition to these two collaborators, members of the SPAC teams, namely SPAC Conservation and Research, were interviewed with those responsible for the project, two students who were doing research in the Ngaga camp and with the trackers (they are those who go into the jungle to track the gorillas). I also spoke with parents of children from Sanza Mobimba school (SPAC school for children aged 3 to 5), with one of the main stakeholders of the Educonservation project and the person responsible for the Early Childhood Development project employees and staff of the lodges including lodge managers. In the Mbomo community, members of the Municipal market responded to the

interviews, a health professional from the Mbomo hospital, the Notable (elder of the village of Mbomo, this means someone who is responsible for the village, someone trusted by everyone, is treated almost like the King of the village), principal and teachers of the primary school of Mbomo and with the Police and Gendarmerie also of the village of Mbomo.

The interviews were conducted in 3 different languages: English, French and Spanish. Two of the interviews required a local person to translate from *Lingala* to French. The questions were not too complex, so that it was possible to facilitate understanding by the interviewees and later in the analysis of the interviews.

2.4 Data Analysis

After the interviews were recorded and field notes were taken, the stage of processing the collected data began. For the treatment of these collected data, Word Online was the tool chosen as a support, where all recordings of the interviews were uploaded in mp3 format and where I also transcribed the interviews from audio to text through online word. This process was done automatically, where it was enough to put the audio and the interviews were transcribed to a word file. The interviews carried out with all respondents were transferred to a document in word format. Subsequently, it was necessary to translate all interviews into English, as the vast majority were conducted in French and one of them in Spanish. After all interviews had been translated, it was necessary to organize all the information collected. For this step, all data were organized in an Excel spreadsheet, where the questions asked and the respective group/person who answered a given question were divided, to make the next phase easier. the spreadsheet was organized with all the answers answered by each respondent where the key information of each answer given was placed. These processes greatly facilitated the next phase, the review process. I categorized the collected data according to different categories of perceptions of the pandemic on:

- Impacts on health;
- Impacts on education;
- Impacts on working conditions and operations;
- Impacts on the economy;
- Impacts on conservation;
- Impacts on tourism;
- Feelings about COVID-19;
- Feelings about the COVID-19 vaccination.

The perceptions were selected according to the impacts mentioned during the interviews and considering the questions asked in the interviews. In SPAC group, I interviewed eleven people, including the Director for International Conservation Communication and Public Relations; the Director of SPAC Conservation and Research; the manager of the research team; two Trackers; the Director of SPAC Early childhood Development; 2 Member of Staff; 1 member SPAC EduConservation; 2 students in Ngaga. The perceptions of the people interviewed above were analyzed by first coding the data into the different topical categories listed above. i.e., the impacts on health, on education, on working conditions and operation of the conservation and development projects, on the economy, on conservation and on tourism as well as the feelings about COVID-19 and associated vaccination.

To further analyze these data and present them in a way that can be useful to SPAC and its operation, I further used a SWOT framework. A SWOT analysis is a strategic technique where the acronym SWOT identifies the Strengths, Weaknesses, Opportunities and Threats of a organization, in this case applied to SPAC. I will present a SWOT analysis on how SPAC dealt with the COVID-19 pandemic, referring to each stakeholder, so that it is possible to analyze and define a plan of recommendations trying to take advantage of the weaknesses and transform them into opportunities. SWOT analysis is an easy-to-understand strategic planning technique, as it is a simple diagram where information about each topic must be placed. It is possible to apply it in several different situations. In this work I applied it to the SPAC organization. It is intended to specify the organization's risk objectives and the projects it faced and faces, before and during the COVID-19 pandemic. This type of analysis identifies which internal and external factors are favorable and unfavorable to achieving these goals and how they should be considered. This analysis technique was invented in the 1960s by Albert Humphrey, a management consultant at Stanford University.

The first two points (S, W) are more dedicated to the organization internally and depend on the organization itself. Strengths is dedicated to what the organization stands out most in relation to others, the most positive points. Weaknesses relate to topics that should be improved and others that should be avoided in order to make the organization stronger. The last two topics, opportunities and threats, are dependent on external factors, and thus more difficult to control. Here we are talking about external opportunities, for example in terms of the market, which can be positive for the organization internally. Threats are anything that can happen outside the organization but that affects it negatively, meaning that it does not depend entirely on the organization. This analysis is very helpful in setting goals and identifying key obstacles. It makes it possible to have a more concrete vision of how to mitigate weaknesses by turning them into opportunities (Doumenge et al., 2021; Fernandes et al., 2015).

Chapter 3

Results

3.1 Perceptions

The tables below result from the analysis and categorization of the interview data (SPAC, CCC and Community of Mbomo), evaluating the responses from different perspectives, regarding the context presented in 2.4 Data Analyses.

3.1.1 Perceptions of COVID-19 impacts on health

There were no cases of deaths from the new coronavirus in the community of Mbomo and Odzala Park. What, according to my interviewees most impacted communities and the organizations, were the contagion control measures imposed by the government to address the health situation across Congo.

Regarding the perception of impacts of COVID-19 on health (Table 3.1), based on the interviews conducted, there was a decrease in patient attendance at the hospital because of fear of contracting the virus, that is, people were very afraid of getting the virus, despite feeling that it did not exist, which seems contradictory.

Table 3.1 | Perception of impacts on Health.

| | |
|---------------------------|---|
| SPAC | <ul style="list-style-type: none"> • Precarious conditions of the hospital in Mbomo |
| CCC | <ul style="list-style-type: none"> • Precarious conditions of the hospital in Mbomo |
| Community of Mbomo | <ul style="list-style-type: none"> • Afraid of getting sick and having to go to the hospital in Mbomo because of the hospital's precarious conditions. • Very low number of beds available in the hospital • The Hospital have self-protection measures, however there are no means of treatment (medication and ventilators) • Green Deal Space and support for donating masks and soaps |

One of the conclusions drawn from the interviews conducted with the community was that the hospital is equipped with protection material but not well equipped for treatment purposes. In a conversation with hospital managers and some patients, I found that the hospital is seen as not prepared to receive Covid-19 patients, since it had no contingency measures in place or a treatment plan for patients. While there were masks and disinfectants available, there were no ventilators or medications to treat the disease. In case of positive testing and worsening of the disease, it was mentioned that there were conditions for treatment. However, when I asked what these conditions were, masks and disinfectants were mentioned. It seems, then that treatment conditions do not exist at the hospital in Mbomo, only prevention measures.

People consider that the local hospital only has very precarious conditions for treating covid-19 patients. Both the numbers of beds and medication are extremely limited, and human resources are also very few. All of this leads the population to feel uncomfortable and reticent about health care in the village of Mbomo, which is why they have a phobia of getting sick and

having to go to the hospital for medical care in general. Additionally, as during other pandemics, such as Ebola, parents have taken their children and women to more remote villages where they stay with their grandparents to protect them from infection.

The fact that humans are increasingly closer to habitats and wildlife, increases the probability of transmission of viruses from animals to humans such as COVID-19, Ebola, harming human health and putting it at risk biodiversity. There will have to be a great deal of respect and awareness for wildlife so that there is a balance and it is possible to conserve and mitigate the inherent dangers for the communities and animals.

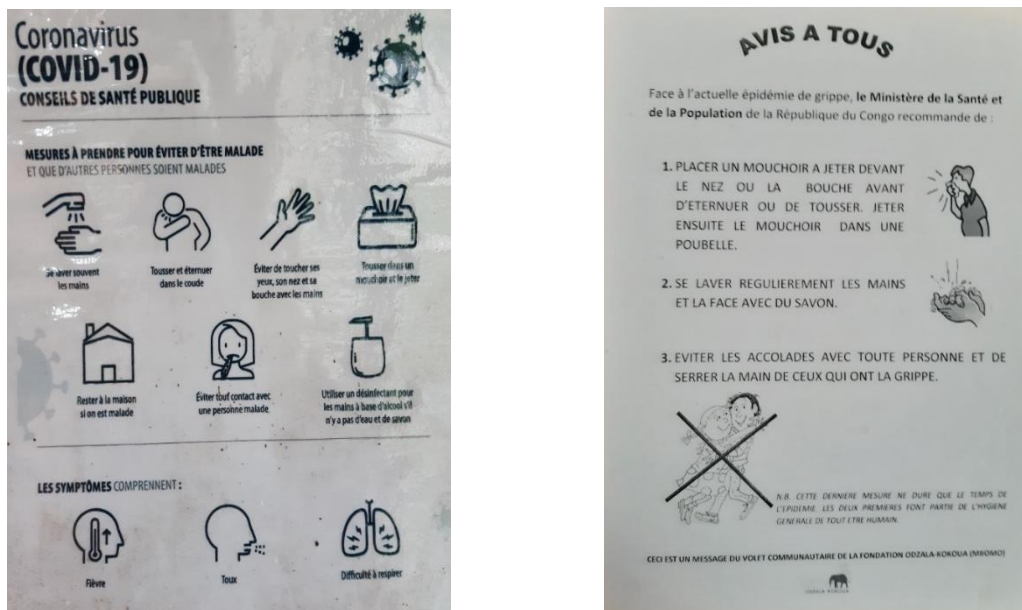


Figure 3.1 | COVID-19 informational fact sheets (Inês Caetano, 2021).

The Impacts of SPAC's Green Deal Space were also mentioned throughout the interviews and material was considered essential for the protection and information of the community for COVID-19. To inform the communities around the park about COVID-19, SPAC Conservation & Research in partnership with African Parks and some key community members (such as the notable that is the local community leader in Mbomo Village) organized a circle with the name of Green Deal Space, which regularly occurred at the entrance to Odzala Park, next to the headquarters of African Parks. This circle brought together the entities described above, and various members of the community, such as teachers, parents of school children, a doctor, the police and the *sous-préfet*. The aim was to inform people about the virus, how it is transmitted, what harm it can bring to people and wildlife. In addition, in this circle, masks, disinfectants were also made available and the important measures that each person should take to prevent contagion were explained. This initiative brought a lot of value to the population, as it was a way of having a nearby entity, available to help, to clarify doubts and to support whatever they could.

The Green Deal Space brought together key community members such as teachers, parents' committees, members SPAC and African Parks, notable, to update on the pandemic situation in the country and region. It was an initiative that began during the COVID-19 pandemic, with the objective of supporting and enlightening the population. The recurrence of these encounters depended on the pandemic situation. Initially it happened once a week.

It served as a welcome and a haven for the Mbomo community. According to some interviewees from the Mbomo community Protective masks, disinfectant gel and soaps were also provided and placed at the entrance of various establishments in the village of Mbomo. During these meetings, questions about the pandemic were clarified, and help provided hand. This initiative was very positive and mentioned as very important by and for the community. Also, prevention information maneuver was shared by SPAC Conservation and Research in the person of Dr^a Magdalena Bermejo together with African Parks. The Green Deal Space helped implement critical measures (gel, soap) and sensitizing the community about the protective measures and good practices to prevent COVID-19 (social distancing and use of masks).

3.1.2 Perceptions of COVID-19 impacts on education

Table 3.2 | Perception of impacts on Education.

| EduConservation and Early Childhood Development | |
|--|--|
| SPAC | Schools closed from March 19 to September 21, 2020 hurt students' academic performance. The program was not fulfilled. |
| CCC | Not Applicable. |
| Community of Mbomo | <ul style="list-style-type: none"> • The children's parents were worried because they had nowhere to leave the children during the period when schools were closed. • Schools closed from March 19 to September 21, 2020 hurt students' academic performance. The program was not fulfilled. |

Several contingency measures have been imposed by the government regarding education. The schools remained closed between March 19 and September 21, 2020, which significantly affected the students' academic performance, as the school program was not fulfilled, and the final exams were not held. Upon returning to school on September 22, 2020, the number of students per class was reduced, masks were mandatory as well as social distancing and hand disinfection whenever possible.

About perceptions of impacts on education, schools in Mbomo were closed for some time, so the children were 8 months without followed study (classes). The children's parents believe that the closure of schools mainly harmed their lives, as they often needed to go to work and had nowhere to leave the children.

Unable to fulfill educational program and hardness of recovering the subjects that were in fault. Teachers found themselves unable, mainly in terms of time, to be able to give all the material that was established for the school year. In schools, contingency measures were taken, such as wearing a mask, social distancing, however there was a certain moment of the pandemic when schools closed, which brought great difficulty for teachers to be able to comply with the program and give the material to the students.

Based on the testimonies of the interviewed teachers, a decrease in the results of students was also registered, which is also considered predictable considering the situation and the situation in which they found themselves.

SPAC school was closed, reducing the availability of education to the children who were at home during the closing period. Some of the parents interviewed report that having closed

schools made their lives very difficult because many of them had to go to work and had nowhere to leave their children. All parents consider the Sanza Mobimba school essential for their children, giving them the opportunity to learn safely and with a healthy lifestyle, while also learning about wildlife and the importance of taking care of the environment, more specifically of the added value that the park is.

Educational program was not fulfilled. This was one of the concerns expressed by teachers who, because of the closing of schools, made it impossible to complete the entire program. Teachers reported that safety measures were implemented, the number of children per room was reduced, protective masks and alcohol gel were used. Some classes, namely in Brazzaville from the Edu Conservation project, were taught through television, making it possible for students to be at home and see the classes taught. But this situation only happened in Brazzaville because in Odzala it was impossible due to the lack of infrastructure.

3.1.3 Perceptions of COVID-19 disease impacts on working conditions and operations

Table 3.3 | Perception of impacts on Work.

| | |
|---------------------------|---|
| SPAC | <p>Conservation and Research:</p> <ul style="list-style-type: none"> To protect the gorillas, it was necessary to adapt the research work (mandatory quarantine before the trackers go into the forest; extended distance; use of self-protection masks) For a few months the conservation and research station (Ngaga Camp) did not receive student researchers <p>Early Childhood Development:</p> <ul style="list-style-type: none"> With no children at the SPAC school in Sanza Mobimba, the school's employees were forced to readjust their daily lives. |
| CCC | <ul style="list-style-type: none"> Work activities limited by the absence of tourists 23 employees fired Decrease in wages between 4% to 50% depending on the salary. And this since April of last year. Local employees had between 68 to 76 employees. In 2019, it decreased to 11 expatriate employees at the site, about 13 in total. They are down to 46 local employees. It is difficult to explain to employees why wages drop and why there are redundancies. Staff unmotivated because they cannot see the COVID-19 in their lives and understand the impacts it is having. With the absence of tourism, it was necessary to readjust daily activities. |
| Community of Mbomo | <ul style="list-style-type: none"> Limitations on market opening days. Instead of seven days a week, they're open for five days. |

Also, in daily work activities were felt impacts due to government measures. The day-to-day activities of the stakeholders were readjusted, adapting to reality and the new health rules.

About the perception of impacts on Work, the various SPAC projects underwent changes and later adaptations due to the pandemic. SPAC Conservation and Research has also undergone some changes in its day-to-day work, particularly about tracking gorilla research. To protect the gorillas, Dr^a Magda Bermejo's team was forced to change its working method for a few months. In their daily work, the trackers go into the jungle to close to the gorillas where they observe their behaviour and track the places that the primate families pass by. Due to the high contagion of Coronavirus disease, particularly in this very vulnerable species, visits to the jungle were carried out with precautions. Before leaving for the jungle, trackers comply with 14 days of mandatory quarantine, as well as wearing a mask and not approaching the

animals, observing them only from 20 meters.

There are some perceptions of CCC member related to impacts on working conditions and operations in CCC, just like the challenges in access resources, logistics, employees' difficulty in understanding the situation, asking when the park would open and feeling anxious and frustrated with the whole situation. They didn't directly feel the impact of COVID-19 in their lives, but they felt it in the impacts it brought, namely in the cut in salaries, which made it very difficult to explain to them and keep them motivated. Financial impacts and staff motivation were the most mentioned factors during interviews with Congo Conservation members. There were also quite negative effects on the Staff, such as a reduction in the number of employees, 23 employees were dismissed from their duties. The concern of the risk of ceasing activities and losing job persisted among employees, as with the opening of the park to tourism without a scheduled date, concerns and fears began to increase.

With the interviews carried out, what was found was that people were quite receptive to the vaccine and saw it as the solution and the return of tourism and therefore with the return of their lives to normality. Senior members of Congo Conservation Company cite improve communication and employee engagement as improvement points. The curfew impacted staff activities, mostly the travel between Brazzaville and Odzala. Trips were often made by plane, and due to COVID-19 they started to be made by bus. The journey between Brazzaville and Odzala by bus takes about 15 hours, which makes the transition between the two places and the logistical issues between the two places very difficult. The headquarters of Congo Conservation Company is in Brazzaville. However, the lodges are in the Odzala Kokoua National Park, so several trips are required. The number of people in the workplaces were organized in such a way that the number of people in the office was reduced at the same time. They also aligned CCC's business strategy so that, when tourism was opened again, they would come back stronger and prepared to face various complicated situations. They specifically consolidated the control of operations. They significantly changed the business model, namely cross training of employees, financial control and training around that and reduction in activities.

3.1.4 Perceptions of COVID-19 impacts on economy

Table 3.4 | Perception of impacts on Economy.

| | |
|---------------------------|---|
| SPAC | <ul style="list-style-type: none">• There were no impacts on the SPAC economy |
| CCC | <ul style="list-style-type: none">• Total absence of receipts during the months between March 2020 and the present day. Reopening scheduled preview for December 20th. |
| Community of Mbomo | <ul style="list-style-type: none">• Reduction in the number of people in the market• Government measures tried to prevent sales of food/products on the village streets• Increase in market prices caused by lack of products |

There were several economic impacts resulting from the measures imposed by the government, namely in the CCC and in the Mbomo Community.

The CCC saw its income reduced to zero with the closure of the park and the ban on tourists in the Park and lodges.

The markets suffered contingency measures such as the decrease of people in the markets, which had economic impacts for the people in the region. Economically, they were mostly affected by the protection measures, like the restriction to market and shops. According to the interviewees, due to the pandemic and mainly to contingency measures imposed by the government, the markets suffered contingency measures such as the decrease of people in the markets, which had economic impacts for the people in the region.

The prices of products for sale in the markets increased due to travel limitations to Brazzaville to carry goods. With the scarcity of products, traders raised prices, which had negative impacts on the Mbomo community.

3.1.5 Perceptions of COVID-19 impacts on conservation

Table 3.5 | Perception of impacts on Conservation.

| | |
|---------------------------|---|
| SPAC | <ul style="list-style-type: none"> • Main goal to conservation today is keep it as is; • Concern that there is an exponential increase in timber exports; • There were no increases in poaching in the park. |
| CCC | <ul style="list-style-type: none"> • There was no factual opinion on this topic. |
| Community of Mbomo | <ul style="list-style-type: none"> • It was considered that the pandemic has not had negative effects on the park's conservation. |

Based on the interviews carried out and the inputs received, the conservation situation of the Odzala Kokoua National Park, namely in gorilla research, did not change due to the pandemic. In the table below, it is possible to see a general analysis of the perceptions of each group of respondents.

About Perception of impacts on Conservation, one of the most affected were the Students in Ngaga whose research was affected by the required distancing during gorilla observation because of COVID-19 protective measures. The Ngaga camp's Conservation and Research team often welcome Congolese students to carry out research in the park. Mandatory quarantine after coming to the camp before the gorilla's observation, therefore, it reduced the number of observations.

One of the Conservation and Research team's concerns regarding conservation is that as petroleum resources begin to run out, the country is starting to turn to wood, as Congo is one of the world's main wood exporters. This can have a negative impact on the forest and, consequently, on biodiversity.

What the locals hunt most are antelope; *potamochoerus* (red african pig), and other smaller-scale hunters hunt monkeys (not gorillas) and birds. However, according to the perceptions of the Conservation and Research team, this hunting is done in numbers that do not negatively affect conservation and there were no increases or decreases during the pandemic. The number of poaching records has not increased due to the pandemic situation.

3.1.6 Perceptions of COVID-19 impacts on tourism

Table 3.6 | Perception of impacts on Tourism.

| | |
|---------------------------|---|
| SPAC | <ul style="list-style-type: none">• Absence of tourism during the pandemic was not reported as a negative impact on Odzala Kokoua National Park. |
| CCC | <ul style="list-style-type: none">• Closing of the park and lodges led to a decrease in revenue;• Tourist lodges CCC 2020 until today: less than 100 guests (in March 2020 the park closed). |
| Community of Mbomo | <ul style="list-style-type: none">• 100% of respondents did not feel affected by the absence of tourism. |

Congo's tourism suffered a high impact due to contingency measures imposed by the government, as the Odzala Park closed its doors and found itself totally unable to receive tourists. However, opinions on this topic differ.

Regarding the perception of impacts on tourism, it was the Congo Conservation Company that felt these impacts the most. The park was closed to tourism in March 2020 and is scheduled to reopen on December 20th and 2021. Vaccination is considered essential for the reopening of the park, and at this point all members of the CCC team are already vaccinated. There was a sharp drop in CCC revenues due to the fall in tourism. With the park completely closed to tourism, there were no revenues from this activity. During the pandemic 23 Congo Conservation Company employees were fired from their jobs due to the company's low income and the fact that tourism had completely disappeared. The impact on logistical issues and operations due to travel impediment, affecting the business, was also mentioned. In 2020, less than 100 tourists enjoyed cultural experiences in Odzala Park. Investment in domestic tourism was one of the lessons learned by the CCC during the pandemic, as there has always been little investment in domestic tourism and they consider it a very important measure to consider for the future.

Respondents from the community of Mbomo and SPAC do not consider that the impediment to tourism has had negative consequences for the Park.

3.1.7 Perceptions of Feelings about COVID-19

Table 3.7 | Perception of feelings on COVID-19.

| | |
|---------------------------|--|
| SPAC | <ul style="list-style-type: none"> • The fear level is high, the distance of proper healthcare facilities is a critical factor to increase the fear of contracting the virus. • 20% of respondents mentioned fear of the rapid spread of the virus. |
| CCC | <ul style="list-style-type: none"> • The fear level is medium. Not verify fear of the virus itself but mostly a fear of losing their jobs. |
| Community of Mbomo | <ul style="list-style-type: none"> • The fear level is high due to consciousness of the effects of the virus and the lack of healthcare if it arrives to Mbomo. • It is a fear of the unknown, as it was mentioned that, unlike Ebola, this virus "is not visible" |

In the table above, I present the results of the questions relating to feelings towards the COVID-19. In Odzala, so far only 1 confirmed case has been registered (and the test performed for this confirmation was antigenic and not PCR, leaving some doubts regarding this prognosis). This case happened during my stay in Congo, in June 2021.

COVID-19 was not identified in the community of Mbomo. However, from the media (radio and television) the community knows it is real and it is present in Brazzaville and in other countries. About the vaccination, it is good for protecting against the virus and seen as a normal procedure just like other types of vaccination that are already often administrated. It is seen as something that will not arrive soon.

Mbomo community generally feels is that, as they have never had contact with the COVID-19, it is as if it did not exist. However, they know that they have already killed many people around the world and that's why they are afraid, it is a bit like the fear of the unknown and what it can bring them negatively. It is tradition, in the village of Mbomo, whenever there is a virus or a worrying situation for the inhabitants, the men of the family take the women and children to remote places where they are cared for by their grandparents, to protect them from danger. During the most critical period of the COVID-19 pandemic, this happened in the village.

The Mbomo community reported being afraid of COVID-19 by the unknown, that is, because it does not know where it is and is "invisible". They are afraid of getting sick and of having to go to the hospital in Mbomo, a place which they consider having very few conditions for health care. SPAC considers that it is mostly afraid of the rapid contagion of the disease and that suddenly many people need health care and do not have it because there are not enough health conditions in Mbomo to treat a disease situation due to the new coronavirus.

The fear of COVID-19 was compared with Ebola and it was identified by the interviewees as being totally different. During the infectious phase Ebola was something visible, you could see people dying, shedding blood, vomiting blood. It was referred by a SPAC interviewee that "corpses were seen in the streets, we even saw stray dogs devouring the human carcasses that were scattered on the roads, it was a terrifying situation in which we lived". Although they consider COVID-19 to be worrisome, they cannot feel great fear because they went through a very traumatic period during Ebola, which is not happening with the current pandemic.

3.1.8 Perceptions of feelings about the COVID-19 vaccination

Table 3.8 | Perception on COVID-19 Vaccination.

| | |
|---------------------------|--|
| SPAC | <ul style="list-style-type: none">• All respondents consider vaccination very important• They consider the vaccine to be salvation for their families and for their work, as they stated that the well-being of the gorillas was also their well-being. |
| CCC | <ul style="list-style-type: none">• All respondents consider vaccination very important |
| Community of Mbomo | <ul style="list-style-type: none">• All respondents consider vaccination very important |

During the field research in Odzala, the possibility of getting vaccines to Congo began to be discussed. It was a process that I was able to follow closely and that made me include questions regarding this topic in the interviews I conducted.

Vaccination was also a concern of SPAC since the beginning. The protection of employees and those involved, but also of wildlife, especially lowland gorillas, is a constant concern of SPAC, which is why vaccination would be such an important measure for everyone. After preparing the interviews with the various SPAC workers, it was realized that in general, people were afraid of the vaccine because they were not sure of the side effects it could cause on their health, however, this was no reason not to want to take, as all respondents showed great interest in being vaccinated and considered vaccination a key point in preventing the rapid spread of the virus in northern Congo.

3.2 SWOT Analysis

The 3 figures below break down the analysis of the interview results using a SWOT analysis. I did an analysis for each stakeholder (SPAC, CCC and Mbomo Community).

3.2.1 Sabine Plattner African Charities

| | |
|--|--|
| <p>Strengths</p> <ul style="list-style-type: none"> • Economic support and structured Organization. • Initiatives developed during the pandemic <i>Green Deal Space</i> • Close to the community. • Do not depend on tourism for their economy. | <p>Weaknesses</p> <ul style="list-style-type: none"> • Located in a vulnerable country. • There is no defined contingency plan. • Lack of infrastructures and resources in case of contagion. • Absence of PCR tests around the Park. |
| <p>SABINE PLATTNER AFRICAN CHARITIES</p> | |
| <p>Opportunities</p> <ul style="list-style-type: none"> • Further strengthen the proximity to the community. • Learn from this pandemic, how to act on future pandemics. | <p>Threats</p> <ul style="list-style-type: none"> • Rapid virus contamination and contagion around the park. • In case of contagion, aggravation of illness. |

Figure 3.2 | SWOT Analysis - Sabine Plattner African Charities.

Analysing the SPAC responses in the context of SWOT analysis, it was possible to assess what SPAC employees considered as strengths, Weaknesses, Opportunities and Threats in the face of the COVID-19 pandemic situation.

- Strengths: As SPAC's main strengths, we have the economic support they receive from Sabine Plattner, the fact that they are a structured organization, with different projects underway and with a lot of impact on the community and wildlife. The Green Deal Space initiative is also identified as one of the strengths of SPAC, as it helped the population to clarify doubts about the pandemic, as well as its initiatives to distribute masks and soap. The SPAC EduConservation project during the pandemic was also considered a great strength. During the pandemic and with the closing of schools, a project was implemented in Brazzaville. In Mbomo, there were no newspapers but books with the complete story were distributed in schools. Despite not having a

structured and established contingency plan, SPAC always remained very close to the communities, supporting everything that was within its reach.

- **Weaknesses:** The fact that they are located in a remote country, with Odzala Park located in an even more remote area and with few health resources and basic living conditions, and if there is a situation of many positive cases, the situation is very complicated. The lack of medical resources in the park area and the absence of PCR tests are also existing weaknesses.
- **Opportunities:** The pandemic situation has helped SPAC to get even closer to the community, having become even more a friendly and supportive face in the communities. The COVID-19 pandemic brought learning opportunities for future pandemics. It was understood what should be adjusted and consolidated, and what should be avoided in this type of health crisis.
- **Threats:** The rapid spread of the virus is a threat to SPAC. One of his main concerns is self-protection measures against the new coronavirus, so that it is possible to reduce the risk of contagion. The concern is also due to the precarious means of health in the region, which, in the case of many positive cases, would not be able to treat people, causing aggravation of the disease and even death.

3.2.2 Congo Conservation Company

| | |
|--|---|
| <p>Strengths</p> <ul style="list-style-type: none"> • Confidence from tourists for showing their concern for people and wildlife (opening of the lodges only scheduled for December 20, 2021). • Structured organization. | <p>Weaknesses</p> <ul style="list-style-type: none"> • There is no defined contingency plan. • Lack of infrastructures and resources in case of contagion. • Absence of PCR tests around the Park • Dependence on tourism. |
| <p>CONGO CONSERVATION COMPANY</p> | |
| <p>Opportunities</p> <ul style="list-style-type: none"> • Staff Vaccination. • Learning for future pandemics. • Opportunity to realize that investing heavily in domestic and regional tourism. • Cross training for staff. | <p>Threats</p> <ul style="list-style-type: none"> • Financial dependence of tourism. • Worsening of the pandemic, consequently not opening to tourism. |

Figure 3.3 | SWOT Analysis - Congo Conservation Company.

The interviews conducted to members of CCC allowed the structuration of a SWOT analysis, interpreted as follows:

- **Strengths:** Trust on the part of tourists because they understand that Congo Conservation Company is an ecotourism company concerned with the environment and its communities, and therefore will only open doors when it considers that there are no risks to wildlife and communities. The opening of the Odzala-Kokoua National Park is scheduled for December 20, 2021, if by then the sanitary situation remains as it is in Congo. Another of the strengths of the CCC is the fact that it is a structured organization, supported by the Park and with a team that works towards the same objective, along the same path.
- **Weaknesses:** The fact that the CCC does not have a structured contingency plan is a weakness, as if there are cases of contagion among staff, there is no defined action plan, and this can be quite harmful for employees and for the CCC itself. There is also no defined place where, if positive, it is positive to be quarantined, protecting the other people around. The lack of infrastructure and resources in the event of contagion is also a concern. The hospital in Mbomo is the closest to the lodges, and it has a lot of

shortcomings in terms of health conditions and means of medical care. The lack of PCR tests requires the use of antigenic tests, which are not very accurate and may not correctly validate positive or negative cases of COVID-19. Dependence on tourism is also an issue. With its doors closed to tourists, the CCC found itself in a complicated situation, having to fire employees for lack of funding to pay wages.

- Opportunities: Vaccination of staff against COVID-19 was an interesting opportunity. As a tourism agency, it was important that CCC staff were protected with the vaccine so that it would not harm wildlife and would safeguard themselves and their families. There is also an opportunity to learn for future pandemic situations. Knowing how to act, what to do and what plans to have to overcome possible crisis situations. It was also time to rethink the benefits of domestic tourism, giving importance to this topic and staying on the table as a project to invest. There was an opportunity to invest in staff training, have strategy alignment conversations and try to support the weakest staff in their motivations, understanding their fears and fears during this period.
- Threats: Financial dependence of tourism is a weakness but also a threat. A threat because in the future there may always be pandemic or crisis situations that will prevent tourism in the park again. This will again cause negative consequences for the CCC. With the pandemic situation still somewhat irregular, there is a concern about not opening on the stipulated date, causing even more impacts on the CCC.

3.2.3 Community of Mbomo

| | |
|--|--|
| <p>Strengths</p> <ul style="list-style-type: none"> • SPAC Support • The fact that they have been through other pandemics such as ebola helps them to know how to deal with pandemic situations. • Family protection strategies in pandemic/crisis situations. | <p>Weaknesses</p> <ul style="list-style-type: none"> • Lack of health conditions. • Scarcity of resources. • Precarious food and infrastructure conditions. • They feel abandoned by the country, for being in a very remote area. • Do not have government support. |
| <p>COMMUNITY OF MBOMO</p> | |
| <p>Opportunities</p> <ul style="list-style-type: none"> • Learning for future pandemics. • Closer proximity to some entities (in Green Circle). | <p>Threats</p> <ul style="list-style-type: none"> • Limitations on business market days aren't seven days a week, they're five days a week so they can clear. • Fast virus contagion. |

Figure 3.4 | SWOT Analysis – Community of Mbomo.

The different profiles interviewed in the community of Mbomo provided vital information to understand the strengths, weaknesses, opportunities and threats of this rural community in the face of the COVID-19 pandemic situation.

- **Strengths:** As the main strengths of the Mbomo community I identified was the fact of population of Mbomo have already lived with other pandemics, namely Ebola, which makes them have some awareness and perception of how to act in these situations. The populations of Mbomo have a cultural habit of taking their children and their wives when faced with a pandemic or crisis, to places even more remote than their village, where they stay with their grandmothers protected. Another identified strength was the support of SPAC. During the pandemic situation, and beyond, SPAC proves to be a key player in supporting the community. They are always around and make a point of helping in everything that is within their reach. During the pandemic, several activities have been developed, namely the Green Deal Space, which brings communities closer to entities such as the police, doctors, conservation entities, teachers, in order to talk about contingency measures, the impacts that the virus may have in their lives, the importance of self-protection measures and clarification of all doubts that arise. These circles took place in partnership with African Parks and the SPAC Conservation and

Research team, outside African Parks, in Mbomo. In addition to these moments of sharing, SPAC made soaps to be placed at the doors of various establishments, distributed leaflets in various public places with the important self-protection measures to comply with and distributed masks to the population.

- **Weaknesses:** The health and hospital problem in Mbomo was identified as a weakness. The lack of health conditions is a constant concern for the population. People are afraid of getting sick just because they know that if that happens, they will have to be assisted in the only nearby hospital in the region, the Hospital de Mbomo, where they report that conditions are extremely precarious. The population of Mbomo, being in a remote location, feels completely abandoned by the government. There is no government support in the region or concerns about improving the village. There is no electricity, the hospital has no conditions, and the government has never intervened to try to improve these aspects, thus feeling abandoned by the country and forgotten.
- **Opportunities:** Learning for future pandemics was also referred to as an opportunity. Past pandemics have brought some techniques, namely the one explained earlier in the forces, of taking families to remote areas. They were learning to live in crisis situations and to create ways to survive it, learning. The pandemic brought the Mbomo community closer to some local entities, namely the Green Deal Space. This made the community feel involved.
- **Threats:** The limitations on the Mbomo market are a threat to the community. The increase in prices due to the scarcity of food caused by the reduced trips of traders to Brazzaville to recharge food, is a threat to the population. The fact that markets happen less times a week and with a reduced number of people, also becomes an inconvenience. Contagion speed is a strong threat. It has been invested in means of self-protection to prevent contagion, because if it does, the situation will become quite complicated, due to the number of inhabitants in the village and the hospital conditions.

Chapter 4

Discussion

4.1 Impacts of the COVID-19 pandemic in Odzala-Kokoua National Park

This study took place in the Odzala -Kokoua National Park, north of the Republic of Congo, in order to understand the impacts generated by the COVID-19 pandemic on the activities of the non-profit organization SPAC. The analyses of the respondent's perceptions and the identification of current strengths, weaknesses, opportunities and threats (SWOT) associated with the COVID response suggest that this case study as distinctive elements from other cases reported in the existing literature. Studies conducted in other African countries, namely Namibia revealed that the measures introduced by the government, such as the closing of borders that impeded tourist activities in the region, brought considerable vulnerabilities to the country (Lendelvo et al., 2020). Tourism has a strong economic presence in the country, representing around 15% of Namibia's employment. With no income, it was necessary to

activate a government emergency fund for conservation, in order to guarantee part of the payments of some conservation members, namely game guards and rangers (Lendelvo et al., 2020). Also, in the case of Maasai Mara in Kenya, the absence of tourism affected 116.000 members of the Maasai community, who stopped receiving conservancy feed for their animals and to manage their lands for Conservation, thus having had fewer incentives to help conserve natural resources (Lindsey et al., 2020).

Although Namibia is also depending on tourism, the country managed keep part of the salaries to provide support to the communities through government funds, this response is akin to the one observed in the case study, that is, SPAC. With the difference that in this case, the continuation of the projects and the payment of salaries were guaranteed by private funds and not by the government. However, there are records of several cases where the situation did not happen in this way, namely Tanzania or Nigeria, where there was no government funding or aid to support communities (Lindsey et al., 2020).

The COVID-19 pandemic and the restrictions to tourism demonstrated that relying solely on tourism can have very negative impacts in a crisis situation and that it may be important to adapt new forms of financing for conservation and community projects. In Guinea, some schools were at risk of closing because the teachers' salaries were paid with community tourism revenue, and without tourism, there was no way to pay salaries (Walters et al., 2021).

In the mountain gorilla parks of Uganda, Rwanda and the Democratic Republic of Congo, communities living around the protected area receive an amount from tourism receipts. At the moment these populations are also being heavily impacted (Hockings et al., 2020).

In contrast to the literature presented, the SPAC case study is quite different. As a non-profit organization, it did not suffer from the measures to close borders and prevent tourist travel imposed by the government to combat the COVID-19 pandemic. The financing of SPAC projects, whether from the point of view of education or conservation, was not impacted by the absence of tourism, as the financing came from Sabine Plattner and remains unchanged during the pandemic.

Tourism is not intrinsic in the Congo culture. Citizens, politicians and some organizations and communities do not see tourism as something positive or do they not see benefits in this activity. In 2018, 209 tourists visited the Odzala-Kokoua Park, while the neighboring Virunga National Park received 8000 and the Volcanoes 36000 (Doumenge et al., 2021). This information shows that even before the COVID-19 pandemic started, the registered numbers of tourists per year in Congo were low, the lack of a tradition in tourism activity may explain the reason why there were no quick action measures in the Odzala-Kokoua National Park to maintain it during the pandemic or to restore it as soon as it was safe to do it. In the case of Rwanda, a tourism return plan was created whereby all people traveling to national parks had to undergo PCR testing before and after arriving at the park. This move allowed parks in

Rwanda to open before most parks in Africa (Roberts, 2020).

It was shown to be important to have emergency financial support to be activated in situations of financial crisis, so that people and nature dependent on a certain protected area do not suffer the consequences of the lack of income from tourism (Hockings et al., 2020).

What most affected the community of Mbomo, and SPAC were the measures that had to be taken to protect communities and wildlife. Analyzing the perceptions detailed on Section 3.1.3, in terms of impact on daily work activities, SPAC had to completely change its day-to-day to face the pandemic. The Conservation and Research team had to change their daily activities, bringing implementing safety measures for trackers going into the field and monitoring those who were close to the gorillas. Ten days quarantine was mandatory before trackers entered the forest as well as masks and a distance from gorillas of at least 20 meters. Also in the neighboring Democratic Republic of Congo, Rwanda and Uganda, protection measures were applied to mountain gorillas, daily testing to COVID-19 before going to the forest, masks, screening for fever and quarantine and extended minimum distance from the animals (Gilardi et al., 2021).

In the case of the Mbomo community, the measures that most affected the inhabitants of the village were the government measures that restricted the market to less than 7 days a week and with a limited number of people, which affected businesses. However, the populations of Mbomo in the village do not have access to electricity, apart from agriculture and livestock, which some families have, the market is main livelihood for most. In this sense, the measures implemented by the government to reduce the number of people in the markets negatively impacted the lives of communities. In West Africa, particularly in Benin, government measures were even more drastic. Local markets have closed completely, markets that sell necessities such as food and are the main source of food for many local people. To avoid hunger, the populations of Benin were forced to consume seed crops used in traditional medicine in the region (Walters et al., 2021).

Furthermore, an increase in hunting pressure has been reported for some parts of Africa linked to government measures of the COVID-19 pandemic (Lendelvo et al., 2020). However, according to the perceptions mentioned by the Conservation and Research team and informal conversations, because the community is environmentally conscious of preserving the environment, illegal hunting activity has not changed in the Odzala-Kokoua National Park.

Education was also affected by the contingency measures imposed by the government. The closing of schools in the period from March 19, 2020 to September 21, 2020, which prevented the school program from being fulfilled and impaired the performance of schools, namely the exams and tests at the end of the year were not held (Makany et al., 2021).

In Brazzaville, Congo, the lifestyle is quite different from that of Mbomo. Differences are also felt in teaching. While in Brazzaville some children have access to television, in Mbomo

they don't. The Congolese government, together with UNICEF, bet on teaching through television and radio, so that it could give students the opportunity to continue learning, even at a distance. This measure may bring inequalities in the long term, as the poorest children do not have access to television, being disadvantaged in relation to children who belong to families with more economic possibilities (Congo Government & UNICEF, 2020).

To support the children, the SPAC EduConservation Project placed a story in the Brazzaville newspaper, during the period when schools were closed and there was no way for students to take classes, so that parents could continue their studies and read to them at home. Every week another chapter appears in the newspaper, illustrated, where stories and adventures of a young conservationist were told.

Most importantly, there were no direct impacts of the coronavirus disease, i.e. there were no outbreaks, deaths or positive cases by the time the study was completed. What I found was that the impacts came from measures imposed by the national and local authorities. Based on the results of the SWOT analyzes presented in figure 3.2, it is possible to discuss some interesting points. The Mbomo community identified the fact that they are in a very remote place, having a feeling of abandonment by the government as a weakness. However, one of their strengths was the fact that they had the opportunity, in the event of a pandemic, to take their children and their wives to even more remote areas of the village of Mbomo, so that they could be taken care of by their grandparents and protected from harm. Sometimes communities feel that they are in a remote place, but in a pandemic situation they feel the need to move to even more remote places and further away from the village. No bibliography was found on this topic, however, being in a remote area could even be a strength against the spread of the virus, as they are far from frequent external contacts, and thus better protected against the pandemic.

Regarding the fear of the virus, based on the results of the interviews carried out, the population was afraid of the unknown and of getting sick and having to go to the hospital in Mbomo, which was identified as a weakness by the population of Mbomo. The fear of COVID-19 was not a fear of something visible, unlike Ebola. During the Ebola phase, the interviewees reported that they saw human corpses scattered around the village of Mbomo, some of them being devoured by wild dogs, identified as a scene of terror, a situation that marked those who experienced it.

Talking about the vaccine, In the case of Zimbabwe and Nigeria, the population was very hesitant about the vaccine. The fear of possible side effects, together with the lack of information on the subject, meant that, in general, the vaccine was not seen as something positive (Dzinamarira et al., 2021). The opposite situation occurred in Mbomo village, where the populations were quite receptive to the vaccine, demonstrating a great desire for it to arrive so that they could feel more protected as well as their families, but also the wildlife.

4.2 Recommendations to SPAC

Based on the study results, I formulated some recommendations for SPAC, transforming what were identified as weaknesses into opportunities. One of the weaknesses detected by both SPAC and CCC was the absence of a contingency plan to act on the COVID-19 pandemic. I believe that this weakness could become an opportunity, with a structured action plan being created, with defined measures on how to act in a positive case situation. The lack of infrastructures and resources in the case of contagion was also verified, that is, there is no defined and prepared place, with available medication and adequate conditions to receive and treat people in case of quarantine or contagion. At this point we know that the pandemic is not over and that new pandemics may occur in the future, therefore the need to have a plan to tackle positive cases is critical. This includes, having a person at SPAC that is responsible to develop the plan and ensure that the best possible conditions for its implementation in pandemic situations are met (which unfortunately are recurrent, the Ebola outbreak ended recently and COVID was installed). In the contingency plan, it will be essential to have a quarantine place, with well-defined measures and some health resources, such as medication to treat the symptoms, and transfer protocols to larger and best equipped hospitals if symptoms get more severe and risk the patient's future health or even survival. It would be important to have someone responsible and dedicated to these types of situations, as it could help to avoid severe disease or even life-threatening situations. It would also be important to free up a room in each lodge to be selected as the quarantine room. This in a first phase, if necessary, more rooms would have to be released. Another weakness is the lack of infrastructures and equipment to do PCR testing. This weakness can be overcome by designing an international solidarity fundraising campaign to purchase PCR tests and make it possible to reliably validate the presence or absence of the virus in communities.

4.3 Conclusions

With this study, it was shown that the greatest impacts of the COVID-19 pandemic on Sabine Plattner African Charities (SPAC) and Odzala-Kokoua National Park, Republic of Congo, were felt indirectly, as they did not fully exist in the study area before or during the field research. The measures imposed by the government were the ones that most provoked changes and adaptations in communities and organizations.

According to the results obtained in interviews and informal conversations at the level of the SPAC Conservation and Research project, the main impacts were felt at the level of

monitoring and investigation of gorillas, such as the mandatory quarantines of trackers before going into the forest, which caused the trackers to stay for 10 days isolated from their families and quarantined in the Ngaga, unable to see their families as they had to be housed in the Ngaga Research Camp for the protection of the animals. Sometimes it happened that the trackers broke the quarantine and went to see the families, which meant that when they came back, they had to spend 10 days in isolation again before going to the wild. This had an impact on research and research work. In terms of the Early Childhood Development and EduConservation projects, the Congolese government's measures to close schools had the biggest impact. The children and adolescents were forced to go home, staying there for 6 months and not being able to complete the school program. This information was collected during interviews with those responsible for the project. (Congo Government & UNICEF, 2020)

At the organizational level, there were some measures that could have been taken, namely the elaboration of a contingency plan or the possibility of carrying out PCR tests. However, SPAC has always maintained a very close relationship with the community, being always present and using initiatives that help in the mitigation and prevention of the virus, keeping people informed and protected, which made the community see SPAC as the entity more reliable for service. questions and requests for help. This was essentially the case with the Green Deal Space initiative, where the community and organizations were united to talk and stay informed about the pandemic. This circle and the study itself showed that keeping stakeholders informed and involved has very positive results for the conservation and social well-being of communities and organizations.

SPAC projects related to conservation were not affected by the pandemic, as there was no impact on the funds that support the program and mainly due to the closer relationship between SPAC, the Community and the Ecosystem during the pandemic (Green Deal Space). These three dimensions are interrelated and essential for maintaining human well-being in the Odzala-Kokoua National Park.

It also concludes that for the effective conservation of fauna and natural ecosystems it is essential that local communities support conservation objectives and are engaged in the projects developed. The Mbomo community was once part of that place, it is their home, and it is important that they are valued. Community attachment and a sense of pride in their land became clear during interviews and informal conversations. The Lossi Reserve in Odzala Park is a good example of ownership, this area was created by the local community to protect lowland gorillas and local biodiversity. The balance between local communities and local biodiversity, in mutual understanding and respect between them, is the key to a balanced and sustainable ecosystem and this will be the way to go in the future. The data that supported the conclusions of the study were essentially the interviews carried out with the different stakeholders and the data collected from the methodology of this Master's Dissertation.

4.4 Future Work

Considering the results and conclusions of the study, some initiatives were identified to be carried out in the future to develop in the Odzala Kokoua National Park. Given the importance and involvement of stakeholders (SPAC, CCC and Mbomo Community), in the near future, it would be interesting to organize an online feedback workshop session with the stakeholders present in the study. In this session, the study findings and results will be shared with stakeholders in order to present the study results and hear their comments and opinions. The elaboration of a contingency plan for future pandemics should also be one of the major goals to be carried out soon. It is also essential to implement a contingency plan. It is crucial to have a properly designed action plan for a verified positive case situation.

The complexities of human-wildlife relationships go back to the beginning of human existence. It would be interesting to carry out an in-depth study of the human-animal relationships existing in the Odzala Kokoua National Park, understanding the main impacts, relationships, behaviors and ways of solving the threats that exist between them. For the future, it would also be important to have greater investment in sustainable development projects in the region.

Respecting sustainable boundaries to maintain a healthy separation between human and wildlife habitat would help avoid close contact and reduce the risk of animal-to-human transmission of the virus. This avoided the populations' very close contact with wildlife to overcome the issue of animal-to-human transmission of the virus mentioned above. It would be interesting in a future study to analyze the post-pandemic impacts that the pandemic left on SPAC projects and communities, how their activities and relationship with the community changed.

References

- African Parks. (2018). *African Parks | Odzala-Kokoua*. <https://www.africanparks.org/the-parks/odzala-kokoua>
- African Parks. (2020). *A Charted Course | African Parks Annual Report 2020*. <https://www.africanparks.org/2020-annual-report>
- Alaniz, R., & Papadopoulos, I. (2020). *Questions to Encourage Culturally Competent Research—CONVERGE Extreme Events Research Check Sheets Series*. <https://doi.org/10.17603/ds2-gbht-ma87>
- Austin, J. (2021). *Social Science Methods: In-Depth, Semi-Structured Interviews—CONVERGE Extreme Events Research Check Sheets Series. Designsafe-CI*. <https://doi.org/10.17603/ds2-mmhr-td76>
- Bermejo, M., Rodríguez-Teijeiro, J. D., Illera, G., Barroso, A., Vilà, C., & Walsh, P. D. (2006). Ebola outbreak killed 5000 gorillas. *Science*, 314(5805), 1564. <https://doi.org/10.1126/science.1133105>
- Caillaud, D., Levréro, F., Cristescu, R., Gatti, S., Dewas, M., Douadi, M., Gautier-Hion, A., Raymond, M., & Ménard, N. (2006). Gorilla susceptibility to Ebola virus: The cost of sociality. *Current Biology*, 16(13), R489–R491. <https://doi.org/10.1016/j.cub.2006.06.017>
- Cesareo, K., Newman, K., & Huijbregts, B. (2012). *Congo Rainforest and Basin | WWF*. <https://www.worldwildlife.org/places/congo-basin>
- Congo Conservation Company. (2020). *Odzala-Kokoua National Park - Congo Conservation Company*. <https://congoconservation.travel/odzala-kokoua-national-park/>
- Congo Government, R. of, & UNICEF. (2020). *Proposition de la République du Congo au Guichet de Financement Accélééré de la Riposte contre le COVID-19 du GPE/PME*.
- Corlett, R. T., Primack, R. B., Devictor, V., Maas, B., Goswami, V. R., Bates, A. E., Koh, L. P., Regan, T. J., Loyola, R., Pakeman, R. J., Cumming, G. S., Pidgeon, A., Johns, D., & Roth, R. (2020). Impacts of the coronavirus pandemic on biodiversity conservation. *Biological*

Conservation, 246(April), 8–11. <https://doi.org/10.1016/j.biocon.2020.108571>

Doumenge, C., Michel, B., Poliwa, R., Breuer, T., Chassey, E., Ngoga, T., & Arranz, L. (2021). *8 Ecotourism and Protected Areas in Central Africa : a Future in Common* (Issue September, pp. 308–351).

Dzinamarira, T., Nachipo, B., Phiri, B., & Musuka, G. (2021). COVID-19 Vaccine Roll-Out in South Africa and Zimbabwe: Urgent Need to Address Community Preparedness, Fears and Hesitancy. *Vaccines*, 9(3), 250. <https://doi.org/10.3390/vaccines9030250>

EduConservation. (2020). *EduConservation* | Facebook. <https://www.facebook.com/educonservation/>

Fernandes, I. G. M., Figueiredo, H. M., Junior, H. L. d. C., Sanches, S. G., & Brasil, A. (2015). Planeamento estratégico: Análise Swot. *Revista Conexão Eletrônica Das Faculdades Integradas de Três Lagoas*.

Gilardi, K., Nziza, J., Ssebide, B., Syaluha, E. K., Muvunyi, R., Aruho, R., Shalukoma, C., Seguya, A., & Masozera, A. B. (2021). Endangered mountain gorillas and COVID-19: One health lessons for prevention and preparedness during a global pandemic. *American Journal of Primatology*, e23291. <https://doi.org/10.1002/ajp.23291>

Hockings, M., Dudley, N., & Elliott, W. (2020). Editorial Essay: COVID-19 and protected and conserved areas. *PARKS*, 26.1, 7–24. <https://doi.org/10.2305/IUCN.CH.2020.PARKS-26-1MH.en>

Lendelvo, S., Pinto, M., & Sullivan, S. (2020). A perfect storm? The impact of COVID-19 on community-based conservation in Namibia. *Namibian Journal of Environment*, 4(July), 1–15.

Lindsey, P., Allan, J., Brehony, P., Dickman, A., Robson, A., Begg, C., Bhammar, H., Blanken, L., Breuer, T., Fitzgerald, K., Flyman, M., Gandiwa, P., Giva, N., Kaelo, D., Nampindo, S., Nyambe, N., Steiner, K., Parker, A., Roe, D., ... Tyrrell, P. (2020). Conserving Africa's wildlife and wildlands through the COVID-19 crisis and beyond. *Nature Ecology and Evolution*, 4(10), 1300–1310. <https://doi.org/10.1038/s41559-020-1275-6>

Ma, H., Chiu, Y. H., Tian, X., Zhang, J., & Guo, Q. (2020). Safety or travel: Which is more important? The impact of disaster events on Tourism. *Sustainability (Switzerland)*, 12(7), 1–12. <https://doi.org/10.3390/su12073038>

Makany, L. G. D., Batchi, M., & Makany, R. A. (2021). La pandémie du covid-19 et son impact

économique sur le secteur privé de l'enseignement supérieur au Congo Brazzaville. *Revue Congolaise de Gestion, Numéro 31(1)*, 13–42. <https://doi.org/10.3917/rcg.031.0013>

Martin, E., & Burgess, N. (2020). *Northwest Congolian Lowland Forests | One Earth*. <https://www.oneearth.org/ecoregions/northwest-congolian-lowland-forests/>

Ntoumi, F., & Velavan, T. P. (2021). COVID-19 in Africa: between hope and reality. In *The Lancet Infectious Diseases* (Vol. 21, Issue 3, p. 315). [https://doi.org/10.1016/S1473-3099\(20\)30465-5](https://doi.org/10.1016/S1473-3099(20)30465-5)

OECD. (2019). *OECD Trade data | Republic of the Congo*. <https://oec.world/en/profile/country/cog>

Peek, L., & Austin, J. (2021). Social Science Methods: Observations—CONVERGE Extreme Events Research Check Sheets Series. *Designsafe-CI*. <https://doi.org/10.17603/ds2-4evc-4k10>

Peek, L., & Tobin, J. (2020). Tips for Empathy, Understanding, and Ethical Research Engagement—CONVERGE Extreme Events Research Check Sheets Series. *Designsafe-CI*. <https://doi.org/10.17603/ds2-99ak-fz90>

Pyhala, A., Orozco, A. O., & Counsell, S. (2016). *Protected areas in the Congo Basin : failing both people and biodiversity? November*.

Ranscombe, P. (2020). Rural areas at risk during COVID-19 pandemic. *The Lancet. Infectious Diseases*, 20(5), 545. [https://doi.org/10.1016/S1473-3099\(20\)30301-7](https://doi.org/10.1016/S1473-3099(20)30301-7)

Reid, W., Mooney, H., Cropper, A., Capistrano, D., Carpenter, S., & Chopra, K. (2005). *Millennium Ecosystem Assessment. Ecosystems and human well-being: synthesis*.

Reuters. (2021). *República do Congo: últimas contagens mundiais, gráficos e mapas do coronavírus*. <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/pt/countries-and-territories/republic-of-the-congo/>

Roberts, S. (2020). Africa's year of zero: a special report on the future of wildlife tourism. *Financial Times*, 1–15. <https://www.ft.com/content/6a4f6c76-8a00-46ef-a645-23a5eda58825>

SPAC, E. C. D. (2020). *SPAC | Early Childhood Development*. <https://www.spacafrika.org/early-childhood-development>

Spenceley, A. (2020). *COVID-19 and protected area tourism - A spotlight on impacts and options in Africa*.

Sprecker, S. (2021). *African Parks: How a New Approach to Conservation Impacts the Local Population*.

Stolton, S., & Dudley, N. (2015). *Private governance of protected areas in Africa: Cases studies, lessons learnt and conditions of success*.

Strong-Cvetich, N., & Scorse, J. (2008). Ecotourism in post-conflict peace-building: a new tool for reconciliation? *Ecoclub: International Ecotourism Magazine*, 8(96), 10–17.

Stronza, A. L., Hunt, C. A., & Fitzgerald, L. A. (2022). Ecotourism for conservation? *Routledge Handbook of Ecotourism*, 372–397. <https://doi.org/10.4324/9781003001768-28>

Vandeweghe, J. & G. (2017). *Odzala-Kokoua: Aux Confins de la Basse-Guinée et du Bassin du Congo*.

Vanden Abeele, S., Janssens, S. B., Piñeiro, R., & Hardy, O. J. (2021). Evidence of past forest fragmentation in the Congo Basin from the phylogeography of a shade-tolerant tree with limited seed dispersal: *Scorodophloeus zenkeri* (Fabaceae, Detarioideae). *BMC Ecology and Evolution*, 21(1). <https://doi.org/10.1186/s12862-021-01781-1>

Walters, G., Pathak Broome, N., Cracco, M., Dash, T., Dudley, N., Elías, S., Hymas, O., Mangubhai, S., Mohan, V., Niederberger, T., Achtone Achtone Nkollo Kema Kema, C., Oussou Lio, A., Raveloson, N., Rubis, J., Mathieu Toviehou, S. A. R., & Van Vliet, N. (2021). COVID-19, Indigenous peoples, local communities and natural resource governance. *PARKS*, 27(27), 57–72. <https://doi.org/10.2305/IUCN.CH.2021.PARKS-27-SIGW.en>

World Health Organization. (2021a). *COVID19 Cases | WHO*. <https://who.maps.arcgis.com/apps/dashboards/0c9b3a8b68d0437a8cf28581e9c063a9>

World Health Organization. (2021b, February 23). *Ebola virus disease | WHO*. <https://www.who.int/en/news-room/fact-sheets/detail/ebola-virus-disease>

Appendix A

Interview questions

At the beginning of the questionnaire, the following presentation and explanation of what would be developed was made, explaining that the conversation would be recorded and that the names of the people interviewed would not be revealed.

The interviews began with some context presentation: “First of all, my name is Inês, I'm Portuguese and I'm 25 years old. I'm doing my Master Thesis in Environment and Sustainability at the University of Lisbon – Portugal. Thank you very much for your availability to answer some questions. I am developing a study with the support of Dr. Paul Telfer and Dr. Magda Bermejo, to assess the impact of COVID-19 on SPAC activities in northern Congo. The aim is to understand the impact and act for the future. I'm going to ask you a few questions, it might take about 30 minutes, and I ask you to answer them all honestly. It will be a super informal conversation. You are completely free to withdraw at any time or not answer any questions. The names of the people interviewed will not be revealed, so you can be sure of confidentiality. We need to record the interview, for data analysis, is it okay for you? If you have any questions, please feel free to ask.”

Depending on the interviewee profile, the set of questions from Table A.0.1 in the interview was different to ensure the questions were as much relevant as possible.

Table A.0.1 | List of interview questions.

| ID | Question |
|------|--|
| 1 | Age |
| 2 | Genre |
| 3 | Literary abilities |
| 4 | Job |
| 5 | Relationship with the park |
| 6 | Relationship to the protect area |
| 7 | Relationship with SPAC |
| 8 | What are your feelings about the virus? |
| 8.1 | On a scale of 0 to 10 what is your fear about the virus? |
| 9 | Do you know anyone who has gotten sick from the virus? |
| 9.1 | If yes, how many persons? |
| 10 | Do you know anyone who died with the virus? |
| 11 | Did the pandemic impact you? |
| 11.1 | On a scale of 0 to 10 what impact did it have? |
| 11.2 | If so, what impacts? |
| 12 | Did the pandemic impacted your family? |
| 12.1 | On a scale of 0 to 10 what impact did it have? |
| 12.2 | If so, what impacts? |
| 13 | How do you see the health of your community being affected during this health crisis? |
| 14 | How does your experience (economic, health) of living through this pandemic compare with your experience with the Ebola outbreak since 2018 until now? |
| 14.1 | If so, what impacts? |
| 14.2 | On a scale of 0 to 10 what impact Ebola did it have in your life? |
| 15 | Have you felt changes in the region's economy (markets, agriculture, hotels) since the beginning of the pandemic? |
| 15.1 | If yes, what type of changes? |
| 16 | What were the donations made to SPAC in 2019? |
| 16.1 | And in 2020? |
| 17 | Has the government containment measures had an economic impact? |
| 17.1 | If so, how? |
| 18 | How did the government react? |
| 19 | What measures have been implemented by the government? |
| 20 | What support was available from the government? |
| 21 | Which government support measures were useful to you? |
| 22 | Which government measures have affected you the most? |
| 22.1 | If yes, in which ways? |

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| 22.2 | What contingency measure do you consider to have been most impactful for the normal functioning of education? |
| 23 | Did the lockdown affected you? |
| 23.1 | If yes, in which ways? |
| 23.2 | On a scale of 0 to 10, how much did it affect you? |
| 24 | Did the curfew affected you? |
| 24.1 | If yes, in which ways? |
| 24.2 | On a scale of 0 to 10, how much did it affect you? |
| 25 | What protective measures has SPAC implemented to protect employees and members against COVID-19? |
| 26 | Did the population comply with the rules imposed by the government? |
| 27 | Were there any school breaks imposed by the government? |
| 28 | Did the travel restrictions affected you? |
| 28.1 | If yes, in which ways? |
| 28.2 | On a scale of 0 to 10, how much did it affect you? |
| 29 | Did tourism levels change in the period between April 2020 and month February 2021? |
| 29.1 | If yes, How so? |
| 29.1.1 | If decrease in tourism, did this have an economic impact? |
| 29.1.1.1 | If so, what type, and or how much? |
| 30 | What was the number of tourists staying in the lodges in 2019? |
| 30.1 | And in 2020? |
| 31 | What lessons can be applied when tourism returns? |
| 32 | How have changes in global and / or domestic tourism affected the conservation projects in Odzala promote by SPAC? |
| 33 | What limitations has COVID-19 brought to day-to-day operations? |
| 34 | Has the pandemic had impacts on staff? |
| 34.1 | Which impacts? |
| 34.2 | Which measures did you take? |
| 35 | What changes have you implemented to face this new reality? |
| 35.1 | Have you changed your work model? |
| 35.1.1 | If so, how? |
| 36 | What has happened to the staff of campsites and lodges? |
| 37 | How many employees were collaborate with you in 2019? |
| 37.1 | And in 2020? |
| 38 | Did you have to dismiss some employees |
| 39 | What are the capacity constraints faced by conservation entities to manage wildlife, staff, and members during this time? |
| 40 | How is you currently operating? (0%-29%, 30%-70%, more than 70%) |
| 41 | What is the total of people involved in all SPAC projects? |
| 41.1 | Has that number changed since the beginning of the pandemic? |
| 41.2 | If so, how many people collaborate at the moment? |
| 42 | SPAC developed an action plan to respond to the covid crisis in order to continue the projects? |
| 43 | What are the main fears for you if the pandemic continues for longer? |

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| 44 | What is the biggest challenge that you face at the moment in the face of the pandemic? |
| 45 | In what way has this pandemic affected conservation members? |
| 46 | Did the pandemic impact EduConservation projects? |
| 46.1 | If so, what kind of impacts? |
| 47 | What projects has EduConservation implemented in 2019? |
| 47.1 | And in 2020? |
| 48 | Did the pandemic affect collaboration with partner countries in EduConservation Projects? |
| 49 | which are possible effects of the virus on the gorilla population? |
| 49.1 | Have there been instances of covid-19 infections in gorillas? |
| 49.2 | What were the outcomes? |
| 50 | Were there changes in the numbers of illegal hunting during the pandemic? |
| 51 | What was the number of animals killed in Odzala park in 2019? |
| 51.1 | And in 2020? |
| 52 | How changes in global and / or domestic tourism have affected wildlife |
| 53 | What are the main challenges for conservation today? |
| 53.1 | What kind of support is the conservation currently receiving to address some of these challenges? |
| 53.2 | And from whom? |
| 54 | What do you think is the level of interest in learning about nature conservation among the youth? |
| 54.1 | In your perspective, is it a topic that interests them? |
| 54.2 | If not, what can be done to increase their level of interest in nature conservation? |
| 55 | What do you think are the impacts of the pandemic on children's education? |
| 55.1 | In which ways? |
| 55.2 | What aspects of the containment measures have most affected their education? |
| 55.3 | How has EduConservation responded to educational constraints caused by the pandemic? |
| 56 | Did the contingency measures imposed by the government impact the face-to-face classes in schools? |
| 57 | What were specific impacts on the different projects? |
| 57.1 | What happened to these projects? Postponed? |
| 57.2 | Did they get cancelled? |
| 57.3 | If postponed, until when? |
| 58 | How is the implementation of funded projects affected by COVID-19? |
| 58.1 | Did new opportunities and new visions arise? |
| 59 | Did the pandemic impact the park's conservation? |
| 59.1 | What impacts? |
| 59.2 | If so, rate on a scale of 0 to 10. |
| 60 | Why is it not currently being observed in Mbomo the measures that were initially taken? |
| 61 | What are the essential measures for the return of tourism? |
| 62 | What do you think of the vaccine to support the prevention of the COVID-19 disease? |

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| 63 | What lessons can be applied after the pandemic to support sustainable and fair economic recovery in the park area? |
| 64 | Are you at a risk that your activities and projects will shut down permanently is the COVID-19 crisis continues? |
| 65 | What were the main challenges that SPAC faced since the beginning of the pandemic? |
| 66 | Did new opportunities and new visions arise? |