

Local Communities Attitudes and Perceptions of the Fazao-Malfakassa National Park in Togo

by

Rajah Saparapa

Dr. Randall Kramer, Advisor

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Executive Summary

The idea of protected areas was first introduced in Togo in 1925 by the general governor, who ordered that it should be free of human contact (Tchamie, 1994). In Togo, at the time, land was not owned by an individual; it was at the disposal of the community who used it for their own benefit (Tchamie, 1994). Many protected areas were established without the consent and participation of the local population, who were sometimes forcibly removed from their ancestral land (Barrow, Lembuya, Ntiati, & Samba, 1993).

The Fazao-Malfakassa National Park was established by forcing the local communities off their land and without taking into considerations their point of view. In addition, the government failed to conduct a good assessment of future population growth. As the population increased and land pressure started to become a problem, local populations moved into the lands that are adjoining the protected area (Barrow, Lembuya, Ntiati, & Samba, 1993). The increase in land competition is putting pressure on the Fazao-Malfakassa National Park and is creating conflict between the local communities and park managers (Soumia, 1990). Today, the local communities are still not included in decision-making, and the relation between the local communities and the park has degraded.

I assessed the perceptions and attitudes of the local community towards Fazao-Malfakassa National Park, and how it may impact conservation attitudes in the region. I also developed recommendations on some best practices to create positive conservation attitudes.

150 household surveys were conducted in 6 villages that are adjacent to the park. The data collected were analyzed through the statistical software STATA. I found that 89% of respondents believe that there are benefits to living close to the park, and 73% believe that there are also inconveniences. About 91% of the respondents mention wildlife disturbance as a type of inconvenience. Although 58% of the respondents believe they should have access to the park, 84% do not want the park to be abolished.

I estimated two logit regression models to examine how two dependent variables, belief that the park should be abolished, and belief that they should have access to the park, relate to socio-economic and attitudinal measures. I found that the number of rooms in the house, number of children in the household, the belief that there are benefits to living next to a national park and

knowledge of visits of the park managers, were statistically related in the case of the dependent variable -- belief that local residents should have access to the park. In the second model, with belief that the park should be abolished as the dependent variable, the independent variables gender (female), education (no schooling), belief that there are inconveniences to living close to the park and knowledge of the managers visit were statistically significant.

These finding showed in general that the local population has a negative perception of the park. It is therefore crucial to develop new ways of management such as a multisectoral approach and community based environmental management to bridge the gap between the park and local communities, and to achieve economic benefits for local communities and positive attitudes towards the park.

Acknowledgements

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Introduction

The concept of Protected Areas in West Africa, for the protection of natural resources and wildlife, was introduced in the early 20th century in a period when most of the countries in West Africa were still colonized. The rich biodiversity of the region was one of the reason why protected areas in many West African countries were created (Dudley, 2008). A protected area is a geographic space that is recognized, dedicated, and managed by a legal or an effective means to maintain a long-term conservation of nature with the associated ecosystem services and cultural values (Dudley, 2008). Although the establishment of protected areas was needed for present and future generations, protected areas were met with hostility and even brought conflict between the government and rural communities. (Barrow, Lembuya, Ntiati, & Samba, 1993). Many protected areas were established without the consent and participation of the local populations, who were sometimes forcibly removed from their ancestral land (Barrow, Lembuya, Ntiati, & Samba, 1993). Many conflicts arose in different parts of West Africa in response to this unthoughtful conservation effort. It is important to understand the attitudes, perceptions and behaviors of the local communities living around the protected areas to develop an appropriate action plan for the good of conservation and the communities, especially in developing areas. In this study I focused on Togo, home to several protected areas.

The idea of protected areas was first introduced in Togo in 1925 by the general governor, who ordered that it should be free of human contact (Tchamie, 1994). In Togo, at the time, land was not owned by an individual; it was at the disposal of the community who used it to their own benefit (Tchamie, 1994). To understand how and why the establishment of protected areas affects

the local population, we first need to understand what the value of the land to the local population is, and how is it being used. Unfortunately, this analysis was not done before dedicating lands as protected areas. Many years later, after Togo gained its independence, the government maintained protected areas. In 1968, protected areas were expanded and classified as three different national parks: the Fazao-Malfakassa, the Keran and the Fosse aux Lions National Parks. Although, a new statute came into effect in 1955 that recognized the input of the local population and their participation in the establishment of protected areas, the statute was not implemented (Tchamie, 1994). To the contrary, to enforce the decision of not allowing human contacts, drastic measures were taken by the government. In the expansion of protected areas, the government failed to take into consideration the future land use of the growing local populations. As population increased and land pressure started to become a problem, local populations have moved into the lands that are adjoining to the protected areas (Barrow, Lembuya, Ntiati, & Samba, 1993). For example, in the case of the National Park of Keran, Tchamie wrote: *“The deliberate destruction by local people of natural resources in protected areas in Togo is evidence of conflict between government programmes and people's needs. A new policy to safeguard protected areas and manage their natural resources must reconcile government interests with those of the local populations (p. 45).”* When Tchamie (1994) conducted surveys in villages adjacent to the Keran and the Fosse aux Lions National Parks, he found that the local populations were bitter and hostile, feeling like their voices were not being heard, and they blamed the establishment of protected areas for the lack of economic development in the region (Tchamie, 1994). Soumia (1990) described the parks as “food larders surrounded by hunger”. The increase in land competition is putting pressure on protected areas and leading to calls for their existence to be justified, especially in developing countries.

The rise in conflict, between the local communities and park managers, is pushing the conservation community to shift their focus from not only explaining how important conservation of biodiversity is to the ecosystem, but to also explaining how important and beneficial it can be to local communities (Mutanga et al, 2015). More in-depth research has been done to understand determinants of local communities' attitudes towards the protected areas. It is important to understand what drives the attitudes so that effective policies and program can be implemented to either resolve negative attitudes or create positive ones (Mutanga et al, 2015).

In this case, the study area is Fazao-Malfakassa National Park (FMNP) and all the villages that lie adjacent to it. The FMNP was under the management of an organization called the Webber Foundation for the past twenty-five years under a contract with the Togolese government that terminated in 2015 (Direction des Ressources Forestières, 2013). A contract was signed between the two parties: the government and the foundation. At the end of the term, the Togolese government refused to renew the contract based on the fact that the Foundation did not uphold the terms of the contract (UICN, 2008). Many management issues arose over the foundation's management of the park. The site development and management plan have never been developed and until the end of the contract, the draft specifications had not been approved by both parties (Ministère de l'Environnement et des Ressources Forestières (MERF), 2014). By 2015, the local communities were still excluded from the management of the natural resources of their land, and they have been questioning the existence of the FMNP. Today, the park is under management by the Togolese government, which is figuring out the best approach to manage the park.

From this study, I will be assessing the perceptions and attitudes of the local community towards Fazao-Malfakassa National Park (FMNP), and how it may impact conservation attitudes in the region.

Methods

Study Area

This study was conducted in the rural area of the Centrale region in Togo. The Centrale region is one of the five regions of Togo. It has a regional capital called Sokodé. The Centrale region is also home for one of the biggest national park in Togo, the Fazao-Malfakassa National Park. The Centrale region has an area of 13,182 km² with a population of 617,871 as of 2010 (Bureau Centrale du Recensement, 2011). In 2011, 63% of the rural population was working in agriculture, hunting and forestry (MERF, 2014).

The Fazao-Malfakassa National Park was created in 1975, and it is situated in the central region of Togo (Figure 1). It has an area of 192,000 ha and is estimated to be about 350 km from the capital, Lomé. It is situated between 8°20' and 9°30' and 0°35' and 1°02' (Direction des Ressources Forestières, 2013). It has an average temperature of 25.5°C and an average annual rainfall of 1330 mm (Direction des Ressources Forestières, 2013).



Figure 1: Map of Togo showing the different protected areas

The Faza0-Malfakassa National Park is the only park in West Africa with both humid tropical and mountain ecosystems (Figure 2). There are 56 villages that are located nearby the park. Each village has a population ranging from 100 to 2500. The most common activity of the villagers is agriculture, especially small-scale farms. The main crops in the villages are yam, cassava and vegetables. For the collection of my data, I visited 6 villages in the central region: Koui, Faza0, Mo, Kouida, Boulohou and Malfakassa .

PARC NATIONAL FAZA0-MALFAKASSA



Figure 2: Site map of the Faza0- Malfakassa National Park highlighting the location of the park and the villages that I visited.

The primary language of most villages in the central region is Kotokoli. None the villages that I visited have access to electricity. All of them, except Kouï, had a well as a drinking water source. Kouï's water source was the river of Kouï, which I suspect is responsible for many villagers having goiter by not providing the necessary iodine amount. The villagers are mostly farmers. In most villages, farmers had to walk to another village, miles away from theirs, to sell their products because of the lack of markets in their villages. Most villages lack markets because the roads are bad, and their villages are difficult to access. Only, Malfakassa had a health facility that was built by the community. However, the small clinic was not functional because of the lack of medical supplies. The other villages did not have access to healthcare on site. Many babies were born at home. The villagers rely on traditional medicine and only seek modern medicine in a city when the condition worsen. Most of the youth of the villages were away to school because they did not have an appropriate school for their education level. The villages had primary schools, but some did not have any secondary schools or high school, except Boulohou. This means youth have to leave their family and move to the cities. Most will stay with a family member that had already moved to the city, so they benefit from that familial support. In the village of Boulohou, the residents got together as a community to offer education for their children. They decided to have a community farm where everyone in the village has to work. The sale of goods harvested is used towards the salary of the teachers from middle school to high school. If they do not have enough from the farm sales to pay the teachers, the village collects money from each family.

[Data Collection Methods](#)

The study was conducted in June and July 2017. My primary quantitative method was a sample survey of households living in villages near the park. I also used a focus group for survey development.

In the effort to obtain a better understanding of the attitudes and the perceptions of the local communities, I designed a survey instrument that was based on a review of prior surveys focusing on the issue of communities and national parks in developing countries. The survey was designed in English and approved by the Duke IRB, I translated it to French (French is my first language) and then the survey was translated back to English. The survey was reviewed by my advisor. The survey was broken down into 4 categories: demographic questions, questions regarding their attitudes toward the national park, questions on the interaction with the park managers, and questions on the economic situation of the household. (The survey is contained in Appendix A) The survey had mostly close ended questions, but included one open-ended, “venting” question. The survey instrument was developed using the Qualtrics software but administered as a paper survey. I asked the questions and recorded the responses. This was the best way to implement the survey for many reasons such as the ability to make sure that questions were not omitted by mistake and to also make sure that the respondents understood the questions clearly.

To assess and improve the survey that was developed, I conducted a focus group (Floyd and Fowler, 2014). The focus group session was conducted in June 2017 in Fazao. Fazao was selected for the focus group because it was convenient location for me to recruit some villagers to meet with me. Fazao was not my first choice, I previously chose different villages but because the villagers were planting their fields, it was impossible to arrange a meeting. Fazao’s chief informed the organization of villagers to delegate its members to meet with me. The villagers decided the place of meeting, which was an abandoned hotel in Fazao. There were 10 members of the community present. Unfortunately, all of my focus group respondents were male, but they represented wide range of ages.

I played the role of the moderator and note taker. The focus group script is contained in the appendix. However, the session was recorded, and the participants provided written consent. I first explained that it was a voluntary activity and that they were actually helping me refine my survey. Then, they proceeded to sign the focus group consent forms (contained in Appendix A). We went through section by section and recorded the feedback. For the demographics section, for example, one participant mentioned that the categories that I have for some of my questions were too small, like the size of household, which ranged from one to three and so on with three members increments and from the last category was ten and more. However, the participants suggested that I increase to five increments with the last category being twenty and more. I also gained insights on the type of crops that are grown in the region and the animals being raised. The participants were very helpful at helping me add more answer choices to several questions. For example, for the reason of the visit of the NPFM managers, I added an option for dispute between the villagers and the park managers which I was told happens often. They also expressed their wish to check more than one answer to some questions like the questions regarding the type of inconveniences of living close to the NPFM. The participants also suggested that the expression Community Based Environmental Management be defined and explained. After refining my survey instrument, I pretested the survey in 3 households in Fazao to make sure that the questions were clear enough and to practice asking questions and explaining terms (Madans et al. 2011).

Following the pretest, the household survey was implemented to a cluster, random sample of 150 households. I randomly selected 6 villages that are adjacent to the national park of FM: Kouï, Kouïda, Fazao, Mo, Boulohou and Malfakassa. I administered 25 household surveys in each village. In the region, there had been mosquito bed net campaign for which each household was numbered for program administration. I took advantage of the numbered households as a way to

decide which household I was going to survey. I chose to randomly sample the households that had an even number. I started surveying in Kouida, where the first household surveyed was the household with the number two, then I continued until I reached the household with number 50, which was the 25th household. I proceeded to continue with the number 52 in the next village that I surveyed until I surveyed a total of 25 households and continued on to the next village. I was accompanied by my field assistant who translated the questions to Kotokoli, when the respondent did not proficiently speak French. I decided to alternatively interview a male and a female. When I could not find one of the sex in the household that I was surveying, I would just substitute with the sex that is present. In each household, I spent an average of 30 min administering the survey.

Findings

I personally coded and then entered into Qualtrics and Excel the responses of the surveys. I uploaded the data set to Stata where I proceeded to clean the data for coding purposes.

The data were categorized into demographic, socio-economic and attitudinal characteristics. The demographics characteristics consist of the age, marital status, gender, education, the number of years they have lived in the village, household size, and the number of children they have (Table 1).

Demographics Characteristics

The percentages of male and female are relatively close, with 45% of female and 55% of male (figure3).

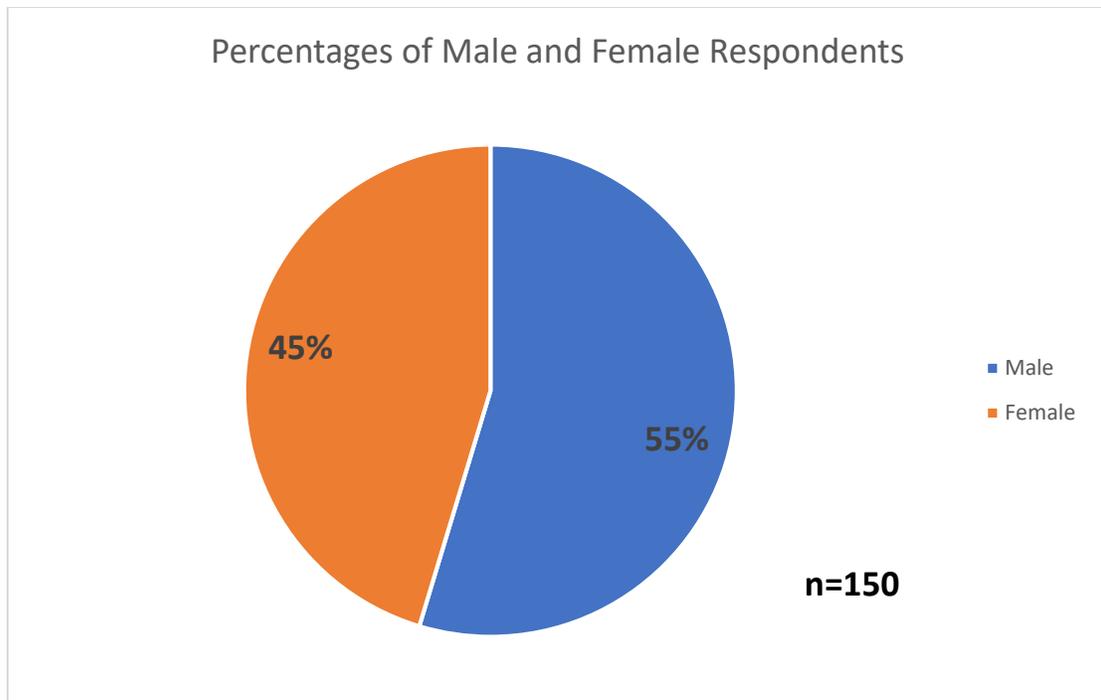


Figure 3: Male and female survey respondents

The mean age of the respondents is 45.50, with 70% of the respondents living in the village for thirty-one years and more. Most of the respondents are married. More than 70% of the respondents did not attend any school (Figure 4).

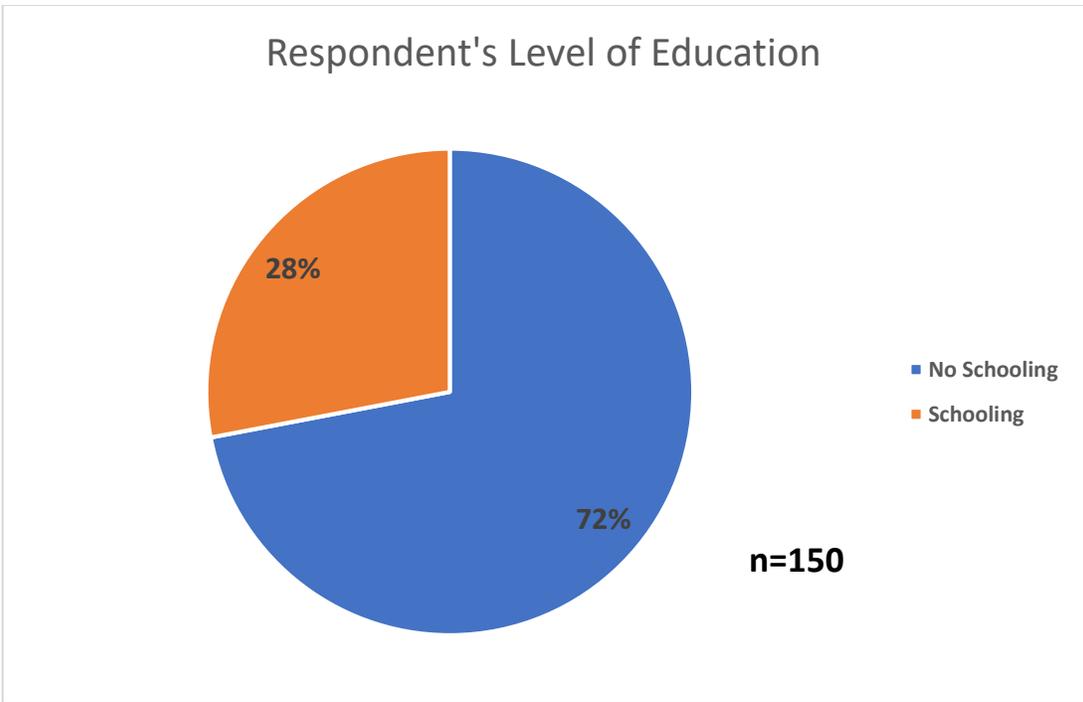


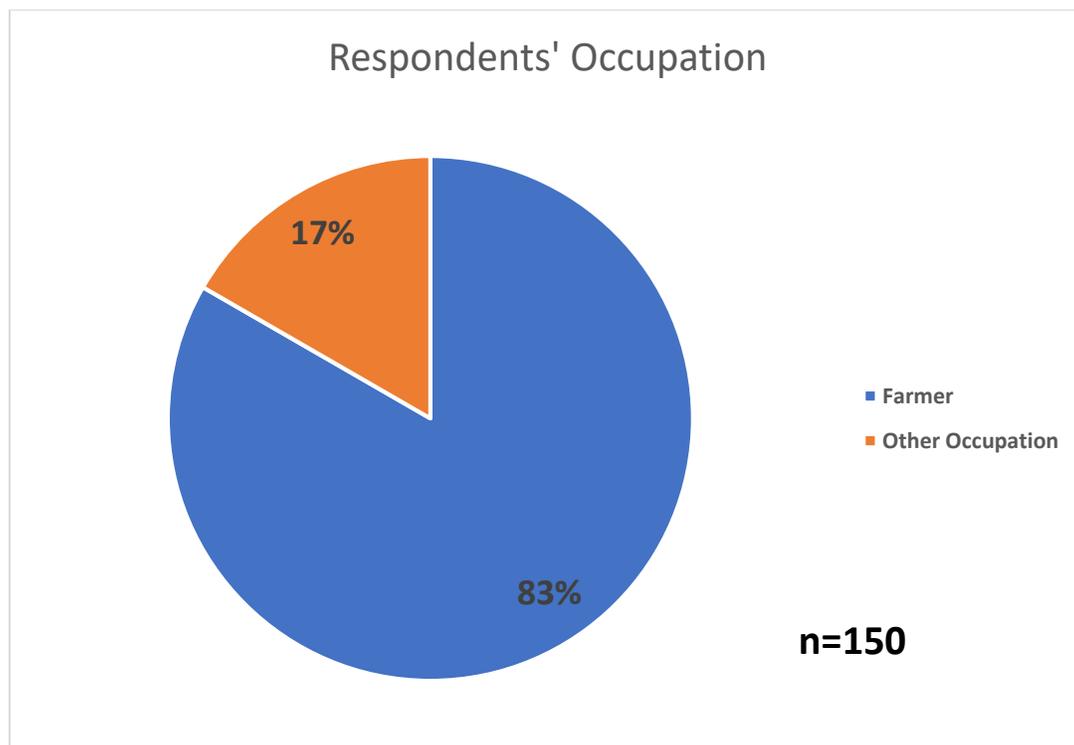
Figure 4: Level of education of respondents

Table 1: A summary of demographic descriptive statistics

| Indicators | Sample | Frequencies | Percentage |
|--------------------------------------|--------|-------------|--------------|
| Age | 150 | Mean: 45.50 | Range:19-100 |
| Gender | | | |
| Female | 150 | 68 | 45.33% |
| Male | 150 | 82 | 54.67% |
| Number of years lived in the village | | | |
| 30 years or less | 150 | 44 | 29.33% |
| 31 years and more | 150 | 106 | 70.67% |
| Marital Status | | | |
| Married | 150 | 135 | 90% |
| Widow | 150 | 12 | 8% |
| Single | 150 | 3 | 2% |
| Education | | | |
| No schooling | 150 | 108 | 72% |
| Some primary | 150 | 16 | 10.67% |
| Finished primary | 150 | 7 | 4.67% |
| Some middle school | 150 | 14 | 9.33% |
| Finished middle school | 150 | 1 | 0.67% |
| Some high school | 150 | 3 | 2% |
| Finished high school | 150 | 1 | 0.67% |
| Household size | | | |
| 1-5 | 150 | 25 | 16.67% |
| 6-10 | 150 | 64 | 42.67% |
| 11-15 | 150 | 36 | 24% |
| 16-20 | 150 | 19 | 12.67% |
| More than 20 | 150 | 6 | 4%% |

Socio-economic Characteristics

The socio-economic characteristics consisted of occupation, land ownership, and livestock ownership. 83% of the respondents are farmers and 17% have other occupation such as working in the public function and being merchants (Figure 5). The top 3 durable goods that the respondents owned are beds (62%), chairs (53%) and tables (45%). The most commonly owned animal are goats followed by sheep.



In addition, I estimated a durable goods index to use as a measure of the wealth of each household, due to the fact that households in the villages do not earn much cash income and rely heavily on agriculture. The durable goods included ownership of household items including bed, chairs,

tables, mobile phone, TV, bicycle and motorcycle. The housing characteristics included the types of flooring, roofing, walls and ceilings, plus the number of rooms in the households. The assets included land ownership, and ownership of any type of animal. Access to public services includes access to electricity and clean water. I coded the variables as 1 if they were present in a household and 0 if not. If the respondents did not give any room number, the household was assigned a number 1. (Table 2).

Table 2: A summary of socio-economic descriptive statistics

| Indicators | Sample | Frequencies | Percentage |
|-------------------------|---------------|--------------------|-------------------|
| Own land | 150 | 102 | 68% |
| Number of rooms | 128 | Mean: 6.125 | Range: 2-20 |
| Occupation | | | |
| Farmer | 150 | 125 | 83.33% |
| Other Occupation | 150 | 25 | 16.67% |
| Land area in hectare | | | |
| Less than 1 hectare | 114 | 5 | 3.47% |
| 1-5 hectare | 114 | 68 | 59.65% |
| 6-10 hectare | 114 | 24 | 21.05% |
| 11-20 hectare | 114 | 17 | 14.91% |
| Land Distance to the NP | | | |
| 5km and less | 150 | 62 | 41.33% |
| More than 5km | 150 | 88 | 58.67% |
| Durable goods ownership | | | |
| Bed | 150 | 93 | 62% |
| Mobile phone | 150 | 57 | 38% |
| Chairs | 150 | 80 | 53.33% |
| Bicycle | 150 | 10 | 6.67% |
| Motorcycle | 150 | 26 | 17.33% |
| Radio | 150 | 31 | 20.67% |
| Table | 150 | 67 | 44.67% |
| TV | 150 | 2 | 1.33% |
| Animals ownership | | | |
| Own sheep | 150 | 50 | 33.33% |
| Own goats | 150 | 54 | 36% |
| Own poultry | 150 | 35 | 23.33% |
| Own ducks | 150 | 5 | 3.33% |
| Own guinea fowl | 150 | 7 | 4.67% |
| Own pigs | 150 | 5 | 3.33% |

Attitudes

Only 42% of the respondents said that they knew the boundaries of the park. 89% of respondents believe that there are benefits of living close to the park (figure 6) and 73% believe that there are also inconveniences (figure 7). 91% of the respondents mention wildlife disturbance as a type of inconvenience. Although 58% of the respondents believe they should have access to the park (figure 8), 84% do not want the park to be abolished (figure 9).

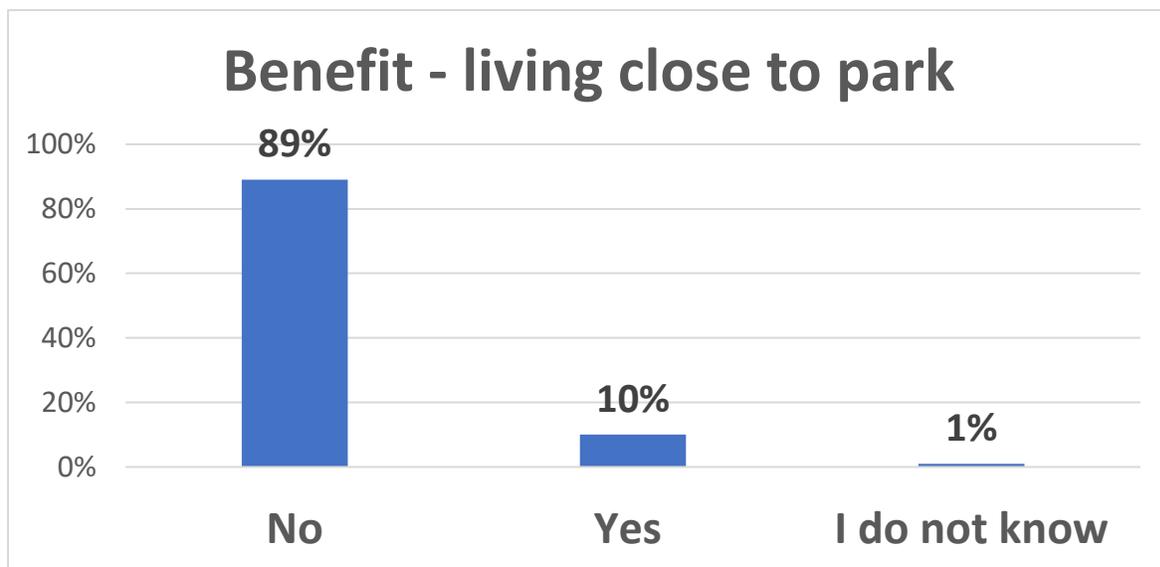


Figure 6: The respondents who believe that there are benefits to living to the park

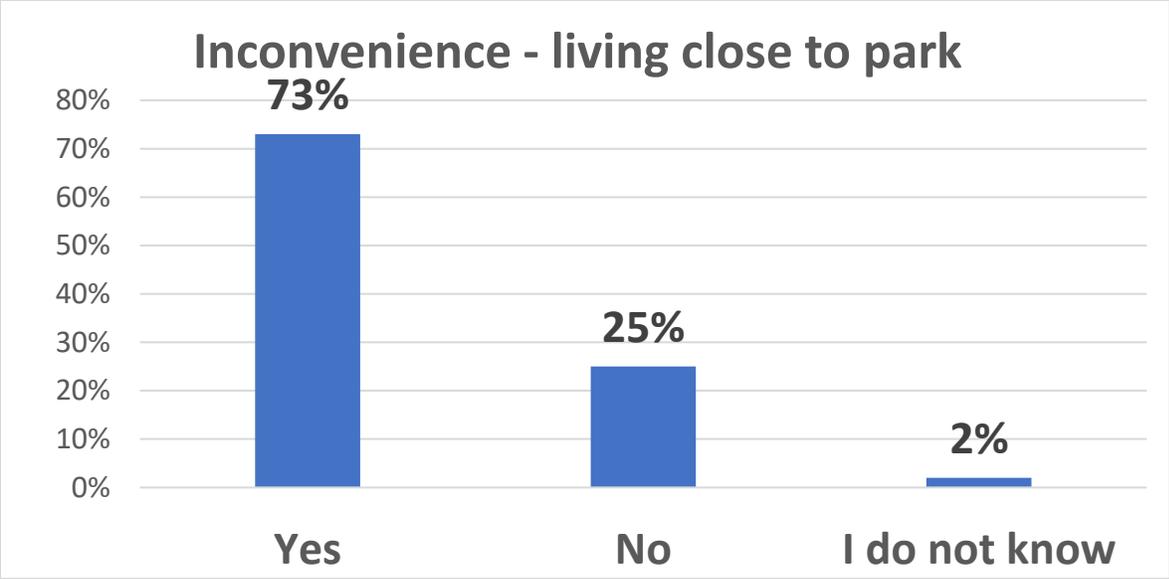


Figure 7: The respondents who believe that there are inconveniences to living close to the park

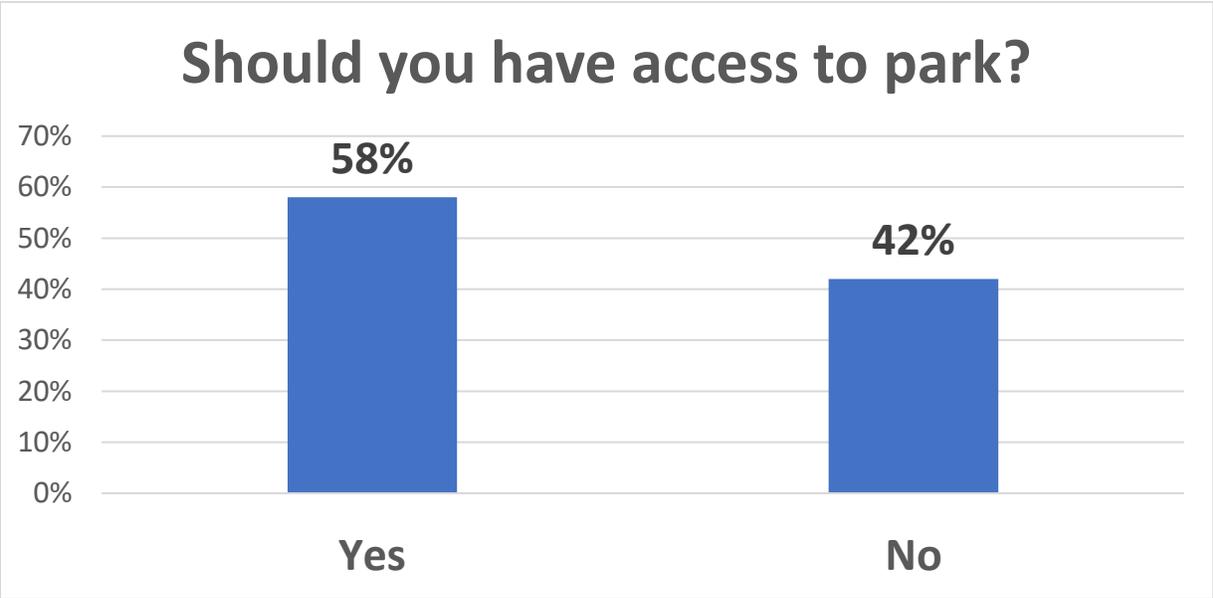


Figure 8: The respondents who believe that they should have access to the park

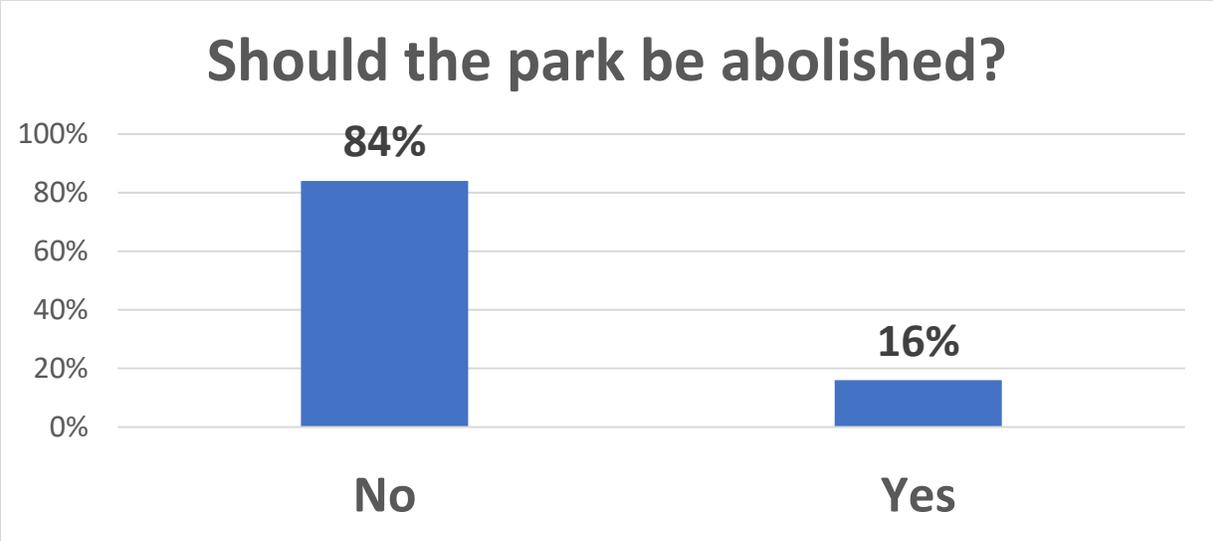


Figure 9: The respondents who believe that the park should be abolished

Table 3: A summary of community attitudes descriptive statistics

| Indicators | Sample | Frequencies | Percentage |
|---|--------|-------------|------------|
| Knowledge of the boundaries of the park | | | |
| Know | 150 | 63 | 42% |
| Do not know | 150 | 87 | 58% |
| Benefited from assistance in farming | | | |
| Benefited from assistance | 150 | 11 | 7.91% |
| Did not benefit | 150 | 128 | 92.09 |
| Knowledge of park managers visit | | | |
| Visited | 150 | 41 | 27.33% |
| Do not visited | 150 | 92 | 61.33% |
| Do not know | 150 | 17 | 11.33% |
| Knowledge of park managers who asked village members to travel to meet | | | |
| Travel | 150 | 39 | 26.35% |
| Do not travel | 150 | 95 | 64.19% |
| Do not know | 150 | 14 | 9.46% |
| Belief that there are benefits of living close to the park | | | |
| There are benefits | 150 | 15 | 10% |
| There are no benefits | 150 | 133 | 88.67% |
| Do not know | 150 | 2 | 1.33% |
| Type of benefits | | | |
| Education on wildlife and fauna | 14 | 7 | 50% |
| Good rainfall | 14 | 9 | 64.28% |
| Belief that there are inconveniences of living close to the park | | | |
| There are inconveniences | 150 | 110 | 73.33% |
| There are no inconveniences | 150 | 38 | 25.33% |
| Do not know | 150 | 2 | 1.33% |
| Type of Inconveniences | | | |
| Wildlife disturbance | 111 | 101 | 91.82% |
| Restrictive access to land | 111 | 8 | 7.20% |
| Bad interaction with forester | 111 | 2 | 1.80% |
| Belief they should have access to the park | | | |
| Should have access | 149 | 86 | 57.72% |
| Should not have access | 149 | 63 | 42.28% |
| Belief the park should be abolished | | | |
| Should be abolished | 148 | 24 | 16.22% |
| Should not be abolished | 148 | 124 | 83.78% |
| Belief that community based environmental management is a good initiative | | | |
| Is a good initiative | 149 | 146 | 97.99% |
| Not a good initiative | 149 | 3 | 2.01% |

Analysis

I conducted a statistical analysis to examine how two dependent variables - belief the park should be abolished and belief that they should have access to the park - relate to socio-economic and attitudinal measures. To be able to quantify and understand the factors of attitudes to protected areas, it is recommended to use a statistically robust approach by running multivariate models (Bragagnolo et al). To do so, I developed two logit regression models to determine the relationships between the independent variables and the dependent variables. The independent variables were age, gender, the number of years lived in the village, education, household size, the area of land, the distance of land from the national park, belief there were inconveniences or benefits of living close to the national park, the durable goods index, respondents that knew the boundaries of the national park, number of children, the number of rooms, knowledge if a park manager or representative visited their village and ownership a land.

The variables age, the number of children, and the number of rooms are continuous variables. The other variables are dichotomous. The durable good index was calculated by assigning the number 1 to any durable goods that the household owned and the value 0 to what they did not owned. The sum of the value is the durable goods index. The maximum of the durable goods index that can be achieved is 7 and the minimum is 0.

I tested hypotheses about the slope coefficients (β) of the regression lines, as well as the overall significance of the model. For the coefficient slopes, each null hypothesis is that $\beta=0$ and each alternative hypothesis is that $\beta \neq 0$. For the overall model, the null hypothesis is that all of the slope coefficients (all β s) are equal to zero, and the alternative hypothesis is that at least one slope coefficient is not equal to zero. All hypotheses were evaluated at an $\alpha=0.05$ level.

Model 1

In this model, I ran a logit regression with one of the dependent variable - belief that they should have access to the park and some of the independent variables.

I found a LR $\chi^2 = 43.64$, $p < 0.0002$ which indicates that the overall model is significant. There is strong evidence to support that several slope coefficients are different from zero. The model's pseudo $R^2 = 0.2173$, which means 21.73% of the variation in the dependent variable is explained by the independent variables.

Several of the independent variables have statistically significant coefficients: sex, the number of children, belief that there are benefits to living close to a national park, the number of rooms, and knowledge about the visit of the park managers.

For the variable number of rooms, the coefficient $\beta = 0.14$, $z = 2.23$ with a p-value $= 0.026$ indicates that an increase in the number of rooms is associated with 14.72% increase in the odds of the belief to have access to the park, holding all else constant. The variable gender p-value $= 0.085$ indicates that the slope is statistically significant, which means that women are 2.46 times more likely to want to have access to the park than men.

The significant coefficient β for number of children indicates that the slope is statistically significant, which means that an increase in the number of children is associated with a 25.04% decrease in the odds of the belief to have access to the park, holding all else constant. The independent variable belief that there are benefits to living next to a national park, has a significant coefficient, which means that the respondents that believe that there are benefits to living next to a national park are 0.12 times more likely to not express their will to have access to the park, holding all variables constant. And finally, the p-value of 0.007 for the variable knowledge of the

visit of the park managers suggests that households that are aware of the visit of the park managers are 5.17 times more likely to express their will to have access to the park holding all variables constant.

The other independent variables did not show a statistically significant slope; therefore, we fail to reject the null hypothesis.

Model 2

In this model I also ran a logit regression with the dependent variable the belief that the national park should be abolished and nine independent variables.

The LR $\chi^2 = 38.69$, $p < 0.0002$ which indicates that the overall model is significant. There is strong evidence to support that at least one slope coefficient is not equal to zero. The model's pseudo $R^2 = 0.3034$ which means 30.34% of the variance in the dependent variable is explained by the independent variables.

For the variable gender, the coefficient $\beta = -0.03$, $z = -1.08$ with a p-value = 0.03 indicates a statistically significant coefficient, which means that women are 5.11 times more likely to want the park to close than men. The variable education shows a statistically significant coefficient, which means that the more educated respondents are 11.7 times more likely to want to close the park. The other two variables, belief that there are inconveniences to living close to the park and knowledge of the managers visit, have a statistically significant coefficient.

The other variables did not show a statistically significant slope therefore we fail to reject the null hypothesis.

Table 3: Summary of logit regression results

| Indicators | Believe should have access to FMNP (1) | Belief that FMNP should be abolished (2) |
|---|---|---|
| Age | 0.023 (0.018) | -0.030 (0.028) |
| Sex (Female) | 0.900* (0.522) | 1.632** (0.769) |
| Education (No school) | 0.267 (0.544) | 2.458** (0.977) |
| Years lived in village (more than 30 years) | 0.448 (0.537) | 1.042 (0.770) |
| Number of children | - 0.288*** (0.078) | -0.154 (0.116) |
| Belief there are inconvenience | -0.456 (0.519) | -1.301* (0.666) |
| Belief there are benefits | -2.145** (0.932) | |
| Landowner | 0.952* (0.497) | -0.016 (0.644) |
| Number of rooms | 0.137** (0.497) | -0.121 (0.096) |
| Knowledge of the managers visit | 1.644*** (0.606) | 1.634* (0.833) |
| LR Chi2 | 43.64 | 38.69 |
| Pseudo R2 | 0.2173 | 0.3034 |
| No Obs. | 147 | 147 |
| *P<0.10, **P<0.05, ***P<0.01 | | |
| Logit regression | | |

Implications and Recommendations

Since the government took over the management of the park, many programs have been introduced to encourage conservation attitudes and economic development. For the conservation effort to be sustainable in the FMNP, there needs to be a participatory type of governance that will involve the park management staff and the local population. Based on experience elsewhere, one promising approach to enforcing positive conservation attitudes is by adopting Community Based Environmental Management (CBEM) in addition to a multisectoral approach from the government. Studies of protected areas have raised questions about their existence and justification, especially in developing countries. Although there are studies that have shown that protected areas have been effective at maintaining species diversity, compared to the areas that have been unprotected, the benefits to local communities may not be obvious (Kerry et al, 2009).

FMNP has been managed with a non-utilitarian conservation approach where the land is supposed to be untouched by the communities. A non-utilitarian approach puts the emphasis on the aesthetic, emotional and ethical values of nature (Loreau, 2014). However, studies have shown that there is a rise in utilitarian conservation practices, where the ecosystem is used as a resource for local populations (Loreau, 2014). This approach to conservation emphasizes sustainable use of land but also its conservation for future use. As the results of this study, most of the members of the communities living close to the national park do not believe that the park should be abolished, however, the majority of the people believe that they should be able to access the park. In determining the appropriate management system and approach to the park, we need to look at its history and how it was put in place. The land that is today the FMNP, used to belong to the communities, and government appropriation of the land equated to taking away people's livelihoods. The communities want to be autonomous and be included in the decision making about

the land around them. They have not only historical ties to the land but also emotional ties as the land belongs to their ancestors. However, they also depend on the land and believe that they should have access to it. The utilitarian conservation approach will be the best approach to reconciling the communities to nature.

Two types of approach should be used to restore the local communities trust and improve the local's positive attitudes towards the park: a Multisectoral Approach and a Community Based Environmental Management Approach.

Multisectoral Approach

A Multisectoral Approach emphasizes on the collaborative work of the different governmental departments. The communities living around the park have been lacking access to electricity, clean water, education, hospitals and decent infrastructures. The villages' lack of access to many needed types of infrastructure is detrimental to human growth and economic development. All the villages that were surveyed have extreme poverty, no access to electricity, public schools or hospitals. Many respondents mentioned the need for better market infrastructure for trade. The combination of all these problems has been one of the main reason for the lack of economic growth and poor standard of living around the park.

The Ministry of the Environment should be working with the Ministry of Energy, Ministry of Transportation, Ministry of Health and Ministry of iInfrastructure to plan development and to accommodate these local communities with their basic needs. Those basic needs are some of the many factors that act as influencer beyond individual household control. It severely affects household's survival and livelihood plans and the amount to which they either remain, escape or descend deeper into poverty (Vedeld et al, 2012). The fulfillment of local communities'

infrastructure needs can be the path to allowing them to attain economic growth which will ultimately lead to the communities not seeing the park as a burden.

Community Based Environmental Management

A promising approach to creating positive conservation attitudes is by adopting Community Based Environmental Management (CBEM) also called Community Based Natural Resources Management (Kellert et al., 2000). This is an approach that came to term in the early eighties (Horowitz et al, 1986). It is a set of strategies and activities targeting a protected area with the local population that lives around it. Its goal is to attain conservation through economic and social motivations, and by also including the traditional knowledge and wisdom of local peoples accrued over their participation with the natural environment (Berkes et al, 1994). A Community Based Environmental Management approach aims to involve both parties: local communities and local institutions in the management of the natural resources in this case the national park (Kellert et al., 2000). It is important that the benefits from the park are shared with the locals for their attitudes towards the park to change positively. To achieve an increase in economic growth, developmental actions from the government, the park managers and Non-Governmental Organization are necessary.

Community Based Environmental Management programs include but are not limited to:

- Income generating activities like tourism where local communities' members would be hired to provide guided tours to tourists, and/or sell artisanal products (Mensah, 2017). There were not any touristic activities in any of the villages that I visited, however, more than 90% of the survey respondents expressed their willingness to have tourist activity in their community.

- The implementation of skills-set training programs such as programs that empower women and encourages them to pursue entrepreneurship (APW, 2015).
- An educational program that encourages conservational practices.
- Participatory planning initiative, where all the stakeholders are included in decision-making and management practices.
- For conservation purposes, it is also important to create buffer zones. Most of the respondents were confused about the actual boundaries of the park. More specifically, “a buffer zone is the habitat surrounding a core protected area that is managed to help maintain values of a National Park, Preserve and/or Reserve” (Dudley and Phillips 2007). This is important because a buffer zone serves as a barrier against habitat degradation and other threats such as fire, disease or invasive species (Hansen and Rotella 2002).

As conceived by the 1987 Brundtland Report, the main principle of sustainability is ensuring that development meets the needs of the present without compromising the ability of future generations to meet their own needs (Report of the World Commission on Environment and Development: Our Common Future, 1987). From this report came the concept of the Three-Legged-Stool of Sustainable Development also known as the Triple Bottom Line, an idea that dictates that no program can succeed without equal attention to environmental, social, and economic considerations. Sustainable development protects human and environmental health, while fostering economic prosperity and societal well-being (Summers et al., 2014). It incorporates the CBEM values in which to achieve sustainability -- the three legs must be satisfied, namely the economic leg, the environmental leg and the social leg. The economic leg provides good jobs, fair wages, security and infrastructure. The environmental leg reinforces conservation attitudes and the social leg provides education services, health services and social justice.

Conclusion

The Fazao-Malfakassa National Park has had a tumultuous history from the moment it was created to today. Its management has not been effective engaging stakeholders and creating support for the park. The local communities have been left out of the decision making about their own ancestral lands. Negative attitudes have been growing among the communities' members and wide spread of poverty in the region has led them to turn to unsustainable practices that not only hurt the community but also biodiversity. As a new approach is being sought by the Togolese government today, a multi-sectoral and community-based approach can be the solution to (1) bridge the gap between the park and local communities, (2) to achieve economic benefits for local communities and (3) to create positive attitudes towards the park.

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Appendix

Focus Group Script

Thank you for coming and expressing interest to participate in this discussion. What we are doing here tonight is called a focus group. My name is Rajah, and I will be moderating the discussion. I am a graduate student at Duke University. I want you to understand that I have nothing to sell you, I am only interested in hearing what you have to say. In this discussion, we are going to be talking about your relationship with the national park of Faza Malfakassa. Information from this discussion will be used in the development of a survey that will be given to the villages around the national park.

First, we need to take care of some housekeeping details. I handed you a consent form when you came in. If you have read the form and signed it, please hand it to me. If you need an additional copy of the form, I can give you one. Does anyone have any questions about the information on the consent form?

[Pause to check to make sure consent has been received by everyone who has joined focus group.]

As I mentioned in the form, with your permission our discussion tonight is being audiotaped. This helps me so that I can talk to you and listen without having to frantically write down what you are saying. Your names will not be used in my report of this group, and I can assure you that no one outside of this room will ever hear this tape.

Now, there is an important thing I want you to know about focus groups. There are only right answers. There is no specific answer I am looking for in any of the things we will discuss tonight. You all have had different experiences and have different opinions, and all opinions are truly important. We are looking for different opinions, so please do not be swayed by others in the group if you might feel differently about something we are discussing. Also, I want you to understand that nothing you have to say is going to get me in trouble or make me lose my job.

I ask that you please talk one at a time so that everyone gets a chance to share their opinions and that we do not miss anything. Also, please speak up so that we can all hear what you have to say and so we get it on tape. Feel free to address others at the table, you do not need to address all of your comments to me, but please avoid side conversations while others are talking. I may interrupt the discussion from time to time. Please forgive me if I do this. I'm not being rude, it's just that I have a lot that I'm trying to cover with you and I want to get you out of here on time. Lastly, I really encourage everyone to participate equally; I'm very interested to hear what each one of you has to say. If you tend to be a very talkative person, you might want to think about talking a little less, and if you tend to be a quiet person, you might want to think about talking a little more.

We'll be here for 90 minutes. Please help yourself to some refreshments. I would like to have no more than one person away from the table at a time, so if you want to get up for any reason, please refrain from doing so until no one else is up from the table.

So, let's begin our discussion. First, I know that some of you know each other, but I'd like everyone to introduce themselves to the group. Why don't you tell us your first name (please, only first name), where you live, how long you have lived in this area?

Focus Group Outline

Issue Area #1– General information about farming in area/renting vs. owning

1. What can you tell me about your experience farming in this area? What sort of issues are you currently facing?
 - How has farming in this area changed over time?
 - Have any of you farmed elsewhere?
 - How is farming here different than other places you might have farmed?
 - Are any of you concerned about the future of farming in this area?
 - Do you expect the next generation in your family to farm the land?

2. In this area, there are farmers who work their own land and farmers who rent.
 - How common is each of these situations?
 - What are the reasons for owning vs. renting?
 - Are there any specific farming-related concerns that come up for one group but not for the other?
 - Who tends to make decisions about land use, crops grown, participation in government programs, etc?

3. I'm going to pass around a sheet with survey questions on it. Let's look at it together.
 - Do the categories listed omit any important one?
 - Are there some categories listed that are unnecessary and could be removed?
 - Are acres the easiest way to talk about a farmer's operational breakdown? What about the percentage of land is in row crops, livestock, etc?
 - Are hunting leases an important source of income to you or to other farmer/landowners you know?
 - How is hunting your land important to you and your family?

Issue Area #2 – Government agencies

4. What can you tell me about your experience with the national park managers?
 - Would you say that your experiences with managers have been more positive or negative?

- How has your relationship with managers changed over time?
- What are some of the different government agencies that you deal with in your farming operation?
- Do you think some of these agencies are easier to work with than others?
- Can you explain the reasons for some of the differences?

Issue area #3 – Attitudes towards national parks

5. What kinds of development issues are important for rural landowners or farmers in your area?

- What are some positive aspects of development?
- What are some negative aspects?

Issue area #4 – Survey timing

7. We are going to be using this information from tonight’s discussion to develop a survey that we will be conducting with about 200 households in the area.

- *Are there any days of the week that would be more difficult than others for you to respond to a survey?*
- *How about times of the day?*

Issue Area #5 – Discussion of specific *conservation payment programs* and program attributes

7. Conservation Attitudes

- Have you ever heard about conservation?
- Have you practiced conservation?
- What do you think about conservation?

Issue area #6 - Personal context

- What is your position and role in your community?
- How did you become a community leader?
- How are you involved in natural resource management in your community?

Recruitment and Consent Script

I am graduate student at Duke University conducting a survey to investigate perceptions and attitudes of the national park of Fazao-Malfakassa among the villages that live adjacently to the national park. I would like you to be a participant in my survey. This research study would go towards writing my master project and making recommendation to the National Environment Management Agency.

You are not obliged to answer any questions that you do not want to answer. You may decline to answer any question. You will not be asked to provide your name or any identifiable information. All answers provided will be kept confidential and we will not disclose any personally identifiable information. There will be no personal information associated with any information obtained from this survey. In any report that I write, I will not share any information that could identify you.

This survey should take approximately 30 minutes to complete.

Thank you for your time!

Survey Instrument

Sex

Male (1)

Female (2)

Age

How many years have you lived in the village?

1-5 (1)

6-10 (2)

11-20 (3)

21-30 (4)

31-40 (5)

41-50 (6)

51 and more (7)

What is your ethnicity?

Marital Status

- Single (1)
- Married (2)
- Divorced (3)
- Widow (4)

What is your education?

- No schooling (1)
 - Some Primary (2)
 - Finished primary (3)
 - Some secondary (4)
 - Finished secondary (5)
 - Some High School (6)
 - High School Diploma (7)
 - Some university (8)
 - University degree (9)
 - Other (10) _____
-

How many children do you have?

Size of Households?

- 1-5 (1)
- 6-10 (2)
- 11-15 (3)
- 16-20 (4)
- More than 20 (5)

What is your occupation

- Farmer (1)
 - Breeder/Livestock Keeper (2)
 - Farmer and Livestock Keeper (3)
 - Hunter (4)
 - Fisherman (5)
 - Skilled Trader (6)
 - Logging Company Employment (7)
 - Other Private Employment (8)
 - Other Public Employment (9)
 - Other (10) _____
-

To whom does the land you work on belong?

- Myself (1)
 - My spouse (2)
 - Another family member (3)
 - A friend (4)
-

What is the estimated total area of the land?

- less than an hectare (1)
 - 1-5 hectares (2)
 - 6-10 hectares (3)
 - 11-20 hectares (4)
 - 21-30 hectares (5)
 - 31-40 hectares (6)
 - 41-50 hectares (7)
 - More than 50 hectares (8)
-

What crops do you grow?

Corn (1)

Soy (2)

Cotton (3)

Peanut (4)

Sorghum (5)

Plantain (6)

Rice (7)

Cassava/Manioc (8)

Taro (9)

Sweet Potato (10)

Yam (11)

Sugar Canned (12)

others (13) _____

What do you use it for?

Sale (1)

Subsistence (2)

Both (3)

Display This Question:

If What do you use it for? = Both

If Both, which one has the larger proportion of your harvest?

- Sale is equal to subsistence (1)
 - Sale is more than subsistence (2)
 - Subsistence is more than sale (3)
-

Do you find any barrier in the process of sale?

- Yes (1)
 - No (2)
-

Display This Question:

If Do you find any barrier in the process of sale? = Yes

If yes, which one?

- Lack of customers (1)
 - Bad Roads (2)
 - Low prices (3)
 - Other (4) _____
-

Do you have any secondary livelihood activities?

Yes (1)

No (2)

Display This Question:

If Do you have any secondary livelihood activities? = Yes

If yes, What are your household's secondary livelihood activities?

Agriculture (1)

Breeding (2)

Hunting (3)

Fishing (4)

Commerce (5)

Skilled Trade (6)

Logging Company Employment (7)

Other Private Employment (8)

Other Public Employment (9)

Other (10) _____

Do you own animals?

Yes (1)

No (2)

Skip To: End of Block If Do you own animals? = No

Which animals and how many animals do you have?

Cattle (1) _____

Sheep (2) _____

Goats (3) _____

Calve (4) _____

Poultry (5) _____

Rabit (6) _____

Ducks (7) _____

Guinea Fowl (8) _____

Pork (9) _____

Other (10) _____

Why do you breed?

- Sale (1)
- Subsistence (2)
- Both (3)

Display This Question:

If Why do you breed? = Both

If Both, which one has the larger proportion?

- Sale is equal to subsistence (1)
- Sale is more than subsistence (2)
- Subsistence is more than sale (3)

End of Block: Default Question Block

Start of Block: Block 1

Do you know the limit of the national park?

- Yes (1)
- No (2)

Display This Question:

If Do you know the limit of the national park? = Yes

How did you learn about the limit of the park?

- Village Chief (1)
 - Park Managers (2)
 - Family Members (3)
 - Other (4) _____
-

What is the distance from your land to the national park?

- 0km-0.5km (1)
 - 0.6km-1km (2)
 - 1.1km-2km (3)
 - 3km-5km (4)
 - 6km-10km (5)
 - 11km-20km (6)
 - more than 20km (7)
-

If you had the possibility to increase your harvest for sale, would you do it?

- Yes (1)
 - No (2)
-

Have you had any support for the development of your land for agriculture?

Yes (1)

No (2)

Skip To: Q70 If Have you had any support for the development of your land for agriculture? = No

If Yes, who?

NGO (1)

Government Aid (2)

Association (3)

Other (4) _____

If Yes, when?

Less than a year (1)

1-2 years (2)

3-5 years (3)

More than 5 years (4)

Does anyone from the natural park management visited your village?

- Yes (1)
- I do not know (2)
- No (3)

Skip To: Q71 If Does anyone from the natural park management visited your village? = I do not know

Skip To: Q71 If Does anyone from the natural park management visited your village? = No

If Yes, who?

- Researchers (1)
 - Forester (2)
 - Regional Director (3)
 - National park representative (4)
 - I do not know (5)
 - Other (6) _____
-

If Yes, when?

- Last week (1)
 - Last month (2)
 - Last 6 months (3)
 - Last year (4)
 - More than a year (5)
 - I do not know (6)
-

Reason of their visit?

- Awareness campaign on protected areas (1)
 - Dispute between man and animals (2)
 - Dispute between villagers and foresters (3)
 - Resolved dispute (4)
 - I do not know (5)
 - Other (6) _____
-

Do you know if any officials have requested for a member of the village to travel and meet with him ?

- Yes (1)
- I do not know (2)
- No (3)

Skip To: Q20 If Do you know if any officials have requested for a member of the village to travel and meet with h... = I do not know

Skip To: Q20 If Do you know if any officials have requested for a member of the village to travel and meet with h... = No

If Yes, who?

- Park manager (1)
 - Government Officials (2)
 - I do not know (3)
 - Other (4) _____
-

If Yes, when?

- Last week (1)
 - Last month (2)
 - Last 6 months (3)
 - Last year (4)
 - More than a year (5)
 - I do not know (6)
-

Do you know the reason of the meeting?

- Yes (1)
 - I do not know (2)
 - No (3)
-

Reason of the meeting?

- Awareness campaign on protected areas (1)
 - Dispute between man and animals (2)
 - Dispute between villagers and foresters (3)
 - Resolved dispute (4)
 - I do not know (5)
 - Other (6) _____
-

Do you think that there are personally some benefits to living in a village close to the national park?

- Yes (1)
 - No (2)
 - I do not know (3)
-

Display This Question:

If Do you think that there are personally some benefits to living in a village close to the national... = Yes

If Yes what do you think are the benefits?

- Create Employment through activities (1)
 - Create employment as forester (2)
 - Build roads (3)
 - Education on wildlife and fauna (4)
 - Access to medical plant (5)
 - Good rainfall (6)
 - Build building (7)
 - Attract tourist (8)
 - I do not know (9)
 - Other (10) _____
-

Do you think that there are personally some inconveniences to living in a village close to the national park?

- Yes (1)
 - No (2)
 - I do not know (3)
-

Display This Question:

If Do you think that there are personally some inconveniences to living in a village close to the na... = Yes

If Yes what do you think are the inconveniences?

- Wildlife disturbance (1)
- Restrictive access to land (2)
- Slow development of the village (3)
- Bad interaction with forester (4)
- Other (5) _____

Skip To: Q24 If If Yes what do you think are the inconveniences? = Restrictive access to land

Skip To: Q24 If If Yes what do you think are the inconveniences? = Slow development of the village

Skip To: Q24 If If Yes what do you think are the inconveniences? = Bad interaction with forester

Skip To: Q24 If If Yes what do you think are the inconveniences?(Other) Is Not Empty

If wildlife disturbance, what type of disturbance?

- Crop destruction (1)
 - Animals eat stock (2)
 - Insecurity (3)
 - Loss of life of a family member (4)
-

Which animals causes you the most problem?

Elephant (1)

Monkey (2)

Feline (3)

Other (4) _____



What could the national park management do to make your life in your village better?

- Electric fence (1)
 - Build and renovate tourist site (2)
 - Recruit young men in the village (3)
 - Financial compensation for crop loss from wildlife (4)
 - Human assistance after crop loss from wildlife (5)
 - Fence park (6)
 - Build a dispensary (7)
 - Build roads (8)
 - Build school (9)
 - Help disabled (10)
 - Help women's group (11)
 - Access to clean water (12)
 - Access to electricity (13)
 - Other (14) _____
-

Should you be allowed to enter the national park?

- Yes (1)
 - No (2)
-

Display This Question:

If Should you be allowed to enter the national park? = Yes

If Yes, why?

- For grazing (1)
 - See animals (2)
 - To hunt (3)
 - To collect honey (4)
 - To collect fruits (5)
 - Access to medicinal plants (6)
 - Sacred place for rituals (7)
 - Other (8) _____
-

Display This Question:

If Should you be allowed to enter the national park? = No

If no, why?

- Fear of wild animals (1)
 - No need to (2)
 - Other (3) _____
-

Do you have any tourist activities in your village?

Yes (1)

No (2)

Do you benefit from the tourists that come to the national park?

Yes (1)

No (2)

Display This Question:

If Do you benefit from the tourists that come to the national park? = Yes

If Yes, how?

Give me job (1)

Employ a family member (2)

Sale of tourism products (3)

Meet with foreigners (4)

Other (5) _____

Display This Question:

If Do you benefit from the tourists that come to the national park? = No

If No, how would you want to benefit?

- Give me job (1)
 - Employ a family member (2)
 - Sale of tourism products (3)
 - Meet with foreigners (4)
 - Other (5) _____
-

Do you think the National Park should be abolished?

- Yes (1)
 - No (2)
-

Display This Question:

If Do you think the National Park should be abolished? = Yes

If yes, why?

- The benefits from the park are not shared with the local population (1)
 - The parc does not bring anything to me (2)
 - The park slow down the development of the village (3)
 - Other (4) _____
-

Display This Question:

If Do you think the National Park should be abolished? = No

If No, why?

- It will create problems of land share (1)
 - Conservation is good and important (2)
 - Other (3) _____
-

Do you think community based environmental management is a good idea?

- Yes (1)
- No (2)
- I do not know (3)

Skip To: Q81 If Do you think community based environmental management is a good idea? = I do not know

Display This Question:

If Do you think community based environmental management is a good idea? = Yes

If yes, why?

- Provide a better management of the park (1)
 - Help the government in the monitoring of the park (2)
 - The voice of the villagers will be heard (3)
 - Help in the development of the village (4)
 - Other (5) _____
-

Display This Question:

If Do you think community based environmental management is a good idea? = No

If No, why?

My village do not need to be part of the management of the park (1)

Other (2) _____

Do you have anything else to add in regards to the national park of Fazao-Malfakassa?

End of Block: Block 1

Start of Block: Block 3

Do you own any of these durables goods?

Chairs (1)

Tables (2)

Beds (3)

Radio (4)

TV (5)

Mobile Phone (6)

Bicycle (7)

Motorcycle (8)

Car (9)

Truck (10)

Tractor (11)

Type of wall in your house?

Bark (1)

Mud Brick (2)

Board (3)

Plate (4)

Cement (5)

Type of floor in your house?

- Bare ground (1)
 - Mat (2)
 - Wood (3)
 - Cement (4)
 - Tiles (5)
-

Type of ceilings in your house?

- Bark (1)
 - Plywood (2)
 - Concrete (3)
 - Vegetable matter (4)
 - No ceiling (5)
-

Type of roof in your house?

- Tile (1)
 - Plate (2)
 - Concrete (3)
 - Other (4) _____
-

How many room do you have in your house?

Housing situation

Renter (1)

Owner (2)

Free housing (3)

Temporary living (4)

Other (5) _____

What is your principal source of energy for cooking?

Electricity (1)

Gas (2)

Oil (3)

Charcoal (4)

Fire wood (5)

Straw (6)

Other (7) _____

What is your primary source of energy for light?

Electricity (1)

Candles (2)

Oil (3)

Tallow (4)

Battery/Torch (5)

Solar (6)

Other (7) _____

Where does the water that you drink comes from?

Faucet in the house (1)

Public fountain (2)

Individual protected well (3)

Individual un-protected well (4)

River/lake (5)

Other (6) _____

End of Block: Block 3
