Situational Analysis of Mangalane, Mozambique for a Community Based Natural Resource Program

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Abstract:
National Parks and other protected areas have traditionally focused on excluding people for the preservation of wildlife; however, local communities can be important players in biodiversity conservation. Community Based Natural Resource Management (CBNRM) projects have been developed throughout Southern Africa as a method of involving local people in conservation with the joint goal of improved conservation and reduced poverty. This paper describes a situational analysis of Mangalane, Mozambique conducted as part of a CBNRM project and governance training program. Mangalane consists of five villages that border Sabie Game Park, a private game reserve adjacent to Kruger National Park, in southwestern Mozambique. The paper describes a participatory methodology to understanding the community in which a CBNRM pilot project is being implemented, applies this methodology to the Mangalane communities, and offers information with which to guide economic development and land-use planning within Mangalane. The research shows that households are economically diverse, but heavily reliant on natural resources for survival. Historical trends show that many of these natural resources are declining over time due to over-exploitation. The governance dashboard revealed negative attitudes toward wildlife, which can be improved through effective CBNRM governance and improved livelihoods. The CBNRM program should support sound governance of natural resource management to reverse the trends of declining resources and support community land-use planning and economic development that includes livestock, agriculture, fish, and wildlife. The methodology described here is recommended for use in other CBNRM programs as a means to develop a program that is well-adapted to the local context and to evaluate the success of the program over time.
Acknowledgements:
Brian Child, Renata Serra, Sandy Slater-Jones, and Glenn Galloway have contributed their valuable time and effort to the entire research process from developing the initial proposal to editing the final draft. The Masters for Sustainable Development Practice and the Center for African Studies at the University of Florida funded the researcher’s travel and living costs for the duration of the project. This research was part of a larger collaborative effort through SAWC with support from Sabie Game Park, Resource Africa, Peace Parks, and University of Florida. Rodgers Lubilo, Villem Ponahazo, and Margaret Chingovo all provided assistance with field work and Sabie Game Park, particularly Ferdie Terreblanche and Shadreck Midzi, provided valuable logistical support. Trainees from Mangalane and environmental monitors from SAWC assisted with data collection and translations. Members of Mangalane community generously contributed their valuable time to surveys, interviews, workshops, and feedback on data, not to mention warmly welcoming an outsider into their homes. Finally, without the continuous help from Thabisile Sibuye, as translator, research assistant, interviewer, surveyor, travel companion, and friend, this research project could not have succeeded.
Acronyms Used:
AGM-Annual General Meeting
CAMPFIRE-Communal Areas Management Program for Indigenous Resources
CBNRM-Community Based Natural Resource Management
GLTFCA-Greater Limpopo Trans-Frontier Conservation Area
FRELIMO-Frente de Libertação de Moçambique or Mozambique Liberation Front
MT-Metacais (Mozambican currency)
RENAMO-Resistência Nacional Moçambicana or Mozambique National Resistance
SADC-Southern African Development Community
SAW-Situational Analysis Workshop
SAWC-Southern African Wildlife College
SGP-Sabie Game Park
WHO-World Health Organization

Terms Used:
Mangalane residents speak Tsonga (sometimes referred to as Shangaan) which is also spoken across the border in parts of South Africa. There were many discrepancies about the spelling and pronunciation of local terms including village names and even Mangalane. Part of the discrepancies result from the difference between English influence in South Africa and Portuguese in Mozambique; however, even within the community of Mangalane, there were differences in spelling and pronunciation of numerous terms. Rather than seeking a consensus on spelling of local names and terms, a common spelling was chosen for use throughout this paper in an effort to simplify that matter. Some alternative spellings are listed below, but this is not a complete list.

- Mangalane- Mangalana
- Mukakaza- Mukakazi, Mukhakhaza, Mukhakhazi
- Baptine- Babtine, Baptin
- Mavanguana- Mavhanguana, Mavaunguana
- Costine- Kostine
Introduction:
National Parks and other protected areas have traditionally focused on excluding people for the preservation of wildlife; however, local communities can be important players in biodiversity conservation. In May 2013, a group of trainers, students, and researchers from the University of Florida, Southern African Wildlife College and throughout southern Africa traveled to Mangalane, Mozambique for a Community Based Natural Resource Management (CBNRM) Pilot Project. This specific project focused on governance training for local communities and a participatory situational analysis. These two aspects combine to form the first step in local empowerment which is necessary for communities to be able to manage their own natural resources once rights and responsibilities have been devolved to this level. It is important to begin including communities in all aspects of CBNRM from the initial research to management of the project itself. Simultaneously, capacity building of community members, through training and other methods, is necessary for communities to manage resources.

The researcher spent five weeks in Mangalane to conduct the situational analysis and participate in the CBNRM governance training. The majority of the time was dedicated to understanding the local context where this pilot project is being implemented. This was done in a participatory way in which community members were highly involved in gathering, verifying, and explaining information. This participatory approach generates better quality data in a time and cost effective manner. More importantly, the participatory methods lead to greater empowerment of communities which is an ultimate goal of CBNRM to empower communities to manage their natural resources.

There are 3 specific research objectives of this paper. The first objective is to describe a participatory approach to understanding and explaining the specific context of the community in which a CBNRM project is being implemented. This should be a general approach that can be applied to different CBNRM programs in order to guide the context-specific portions of the program and to provide baseline data for future monitoring. Another objective is to apply this methodology to Mangalane Community in Mozambique as the CBNRM pilot project is being initiated. The final objective is to provide the community with Situational Analysis Reports that can be used to guide economic development and land-use planning. These three objectives contribute to a best-practice approach of CBNRM as desired in this pilot project.

1.1 CBNRM:
Traditional efforts to conserve natural resources have focused on a fortress approach. This involves the creation of protected areas where the goal of strict preservation is accomplished through the exclusion of all people, including locals. Legal and or physical barriers are created to severely restrict access (Hutton et al., 2005). Local people became classified as threats to or even enemies of conservation (Hulme & Murphree, 2001). In Africa, colonial policies strongly centralized the control of wildlife. As a result, wildlife became a symbol of oppression to local people and poaching was a method of rebelling against the oppression by colonial powers (Child et al., 1997). By the 1980s, it was clear that fortress conservation alone was unsuccessful as wildlife populations were declining significantly (Hulme & Murphree, 2001).
The realization that traditional conservation methods were unsuccessful meant a new approach was necessary. Instead of viewing local communities as threats, allow them to be heroes that contribute to conserving natural resources. One major issue with the previous system was that production, management and ownership of wildlife were divided under different authorities (Child et al., 1997). If the people living with the wildlife have no say in the management and receive no benefits from the wildlife, there is no incentive for them to support conservation. Utilization of natural resources following market-based economic incentives came to be seen as more effective than strict preservation for the ultimate conservation of natural resources. The objective is to decentralize control over wildlife and other natural resources and redistribute both social and political power to local communities. The new Community Conservation programs that arose in the 1980s emphasized the role of local residents in decision making and include CBNRM as well as other approaches (Hulme & Murphree, 2001).

Community Conservation approaches have been commonly used in forestry in India, Latin America and elsewhere (Arnold, 2001). Throughout Southern Africa, CBNRM became increasingly popular in the wildlife sector and programs were quickly initiated in Botswana, Kenya, Mozambique, Namibia, Tanzania, Zambia and other countries. However, one of the most well-known examples of CBNRM in southern Africa is Zimbabwe’s Communal Areas Management Program for Indigenous Resources (CAMPFIRE) which began in 1987 (Murphree, 2006).

Zimbabwe initially began devolving wildlife rights to private land holders in the 1970s in response to declines in wildlife populations. These private landowners began farming wildlife in addition to livestock and quickly realized that it was more valuable, especially in drier regions. Also, wildlife can be sustained on the same land without overgrazing and the environmental degradation that results over time (Child et al., 1997). Private landowners realized greater economic benefits from wildlife and began conserving and restocking wildlife on their lands. With this success in conservation on private lands, officials began discussing the possibility of implementing a similar program for communal land leading to the creation of CAMPFIRE.

The goals of CAMPFIRE were to conserve natural resources, use wildlife to improve quality of life in rural communities, and to promote self-management by devolving rights and supporting local capacity (Child et al., 1997). Legal frameworks were put in place to decentralize the rights and responsibilities of wildlife to local councils over communal lands. Simultaneously, councils had to agree to rules about devolving some of the management and at least 50% of the economic benefits to the communities themselves to avoid elite capture (where chiefs, leaders or other people in power retain benefits that are meant for the group as a whole). The sustainable use approach in CAMPFIRE led to seven direct results in the communities: 1) the powerless became proprietors; 2) accountable institutions developed; 3) financial empowerment was achieved; 4) unity was fostered in communities; 5) wildlife was linked to benefits so positive attitudes developed over wildlife 6) managerial capacity improved, and 7) development/land use was planned (Child et al., 1997).

CAMPFIRE saw much success in initial experiments, and CBNRM projects began to spread throughout the region as a result. However, CBNRM has not been successful in every case. Many times the decentralization is done on paper but not in reality; in these cases a successful outcome
cannot be achieved (Hutton et al., 2005). It is important to continue to learn from past experiences in an effort to improve and evolve CBNRM programs (Child and Barnes 2010). Even if protected areas are successful in conserving biodiversity within their borders, there are not enough protected areas to conserve biodiversity at the landscape scale (Hutton et al., 2005).

In CBNRM projects throughout southern Africa, many of the economic benefits come from selling hunting licenses. Lodges can also be profitable, but they require a greater initial investment (Fabricius and Collins, 2007). In addition to improved conservation and economic benefits, CBNRM, in theory, encourages community participation and equitable sharing of benefits. However, the last two depend heavily on local leadership and micro-governance (Child and Barnes, 2010).

Despite some successes in CBNRM, many challenges have occurred. One danger is that if community members are not benefitting economically, they will no longer have an incentive to protect wildlife. This can be extremely problematic when elite capture prevents income from being distributed throughout the community (Fabricius and Collins, 2007). Even if elite capture is not occurring, a perceived mistrust in leaders can result in negative consequences to wildlife conservation. To ensure CBNRM projects are fully effective, they must have good financial records and decision making (Fabricius and Collins, 2007). Much effort has been devoted to improving accounting in CBNRM projects. However, local governance is equally important, but historically has received less attention. Good governance should be accountable, transparent, participatory, equitable, effective, efficient, responsive, inclusive, and based on the rule of law (Child, 2003).

While CBNRM has many supporters, it also has opponents that focus on the failures rather than the successes (Hutton et al, 2005). CBNRM programs have had successes and failures in conserving wildlife, promoting rural livelihoods, and encouraging self-governance (Murphree, 2006). It is important to take note of successes and failures in order to learn from the past and apply this knowledge to the future evolution of CBNRM. In order to evolve CBNRM and create programs that are more likely to be successful it is important to develop a best-practice model for a holistic approach to successful CBNRM in situations where the legal-framework for decentralization/devolution of wildlife exists. The project described in this paper is an attempt to develop a best-practice approach to CBNRM that can help guide future projects.

1.2 Participatory Research:
Traditional research has tended to be designed, carried out and interpreted by and for university-based scholars (Chambers, 1994a). It has been an extractive science with little involvement of the research subjects in the planning, interpretation or use of the research. This traditional approach was especially problematic in social-science research on communities (Herlihy and Knapp, 2003, Prinsloo, 2008). Research is tied to power and pride so the traditional approaches gave greater power and pride to outside researchers while taking away more power and pride from communities that were being researched (Wilmsen and Elmendorf, 2008).

The Participatory Research approach was developed in the 1980s as an alternative approach that incorporated local people into the research process. Initially it was most commonly used in the
field of health, but by the 1990s it was increasingly more common in development and natural resource management fields (Brock and McGee, 2002). The way CBNRM approaches seek to decentralize wildlife rights and responsibilities, participatory research is meant to decentralize research into an open and democratic method of producing knowledge (Chambers, 1994b). The purpose of this knowledge is problem solving and ultimately, social change. The methods used for participatory research involve reflection, learning and action (Brock and McGee, 2002). By recognizing local peoples’ expertise and incorporating them into the research process, higher quality information can be obtained in a more cost-effective way (Prinsloo, 2008). Furthermore, the process itself can lead to community empowerment, which is important for development (Brock and McGee, 2002).

Participation itself is difficult to define because there are many different levels. According to Hart (1992) participation ranges from the low to high- being informed, being consulted and informed, shared decision making, and community initiated and directed. In research, this highest level of participation allows communities to choose what information to collect and then to interpret the results themselves. Unfortunately, this maximum level of participation is, in practice, rarely achieved even within participatory research approaches (Herlihy and Knapp, 2003).

Methods of participatory research vary as much as the levels of possible participation. Traditional research methods such as surveys can be incorporated into participatory research by reporting results back to the community rather than just extracting the information. Communities can also be included in the planning and/or interpretation of surveys to generate more participation (Özerdem, A., & Bowd, 2010). Household livelihood surveys are a commonly used technique in CBNRM programs throughout southern Africa (Jones and Weaver, 2009, Rozemeijer, 2009), but could be adapted to incorporate a more participatory approach. The governance dashboard survey is an adaptive management tool that has been established to diagnose and address governance issues in CBNRM programs. The tool has been used in communities in Botswana, Namibia, Zimbabwe and elsewhere (Collomb et al., 2008). The purpose of these surveys is not just to collect information, but to support corrective action. To encourage participation, survey results are reported back to communities within one week for validation, and interpretation as well as to allow corrective action in response to the information. Other participatory research methods include interviews, focus groups, and direct observation (Özerdem, A., & Bowd, 2010).

Both qualitative and quantitative methods are important. Qualitative measurements provide more opportunity for local knowledge and expertise to be voiced, but quantitative data provides more legitimacy in the academic world (Wilmsen and Elmendorf, 2008). Ultimately, researchers and participants should be viewed as equals and treated with mutual respect to support the participatory research process (Herlihy and Knapp, 2003). Unlike traditional research methods, participatory research benefits from experiential learning. Changes and improvements are frequently made to methods in order to be more participatory, useful and or to increase validity (Chambers, 1994b).
CBNRM programs have used a participatory research approach to develop a situational analysis as a first step towards understanding and managing individual projects. These situational analyses incorporate a variety of participatory activities that are conducted in a workshop, resembling a large focus group. The methods include historical timelines, helps/hindrances, relationship assessments, trends in abundance of natural resources, and community vision/needs assessment as described by Slater-Jones (2013).

Community mapping is another common participatory approach that is often incorporated into CBNRM programs (Taylor et al., 2006, and Slater-Jones, 2013). Historically, indigenous land has been claimed more often by maps than by guns (Harlihy and Knapp, 2003). Maps are incredibly powerful and by controlling maps, one can control what they represent (Corbett et al., 2006). Maps are used not only to show where resources are present, but also show proprietorship of these resources; therefore the individual or organization developing the map can exercise their influence over ownership and legal boundaries. For this reason, giving community members the opportunity to develop and own maps can lead to greater empowerment and increased opportunities to reclaim or maintain ownership of their land, particularly in situations where legal tenure is unclear (Corbett et al., 2006, Herlihy and Knapp, 2003).

Mapmaking is not new to indigenous cultures, but newer methods can be incorporated with traditional methods to increase legitimacy of the maps. Geographical Information System (GIS) was previously unavailable to rural communities because of the technology and advanced knowledge it required (Abbott, 1998). However, with improvements in technology, GIS has become more readily available and user-friendly allowing it to be incorporated in community approaches to natural resource management in the US and elsewhere (Craig, 2002).

Because GIS involves the use of computers which are still rare in many rural areas of southern Africa, Taylor et al. (2006) developed a cost-effective method of incorporating community hand-drawn maps with GIS data to create digital maps for the community. This new method still incorporates community participation and ownership of maps, maintains local knowledge and historical names, and can help capture resource rights which lead to community empowerment. Drafts of the digital maps can be returned to communities for ground-truthing to ensure that information is not altered or misinterpreted during the process. It is important not only to have local people participate in the mapping process, but to also explain the results and confirm the validity of the final maps (Fagerholm & Käyhkö, 2009).

1.3 Conceptual Framework:
CBNRM has the potential to both improve conservation and reduce poverty if properly developed and managed. It is of utmost importance that there is a potential for economic benefit where CBNRM programs are initiated. This requires having the appropriate legal framework in place for communities to gain ownership rights to wildlife within their area. Without benefits, the poverty reduction goal cannot be achieved and improved attitudes toward wildlife are unlikely to occur, therefore limiting the potential for improved conservation. However, even with economic benefits in place, it is vital for communities to agree to participatory governance.
In CBNRM just as in traditional systems of managing wildlife there are winners and losers. Oftentimes traditional leaders and government officials are resistant to devolving rights to community members because it means little or no opportunity for them to benefit from elite capture (Hulme & Murphree, 2001). Without the support of the community and the potential for economic benefits, the CBNRM project should not move past the initiation phase.

The transformation phase of the CBNRM project includes brokering a deal to ensure that the potential economic benefits are realized. In addition to this economic aspect the communities must organize themselves and be trained to manage the economic benefits. This includes conduction of elections, constitution building, revenue distribution, participatory budgeting, project planning, project management and other aspects of micro-governance. A situational analysis is also necessary as a first step in order to understand the current situation as well as the goals for the future. The situational analysis helps build the basis for future evaluations as to the success of the project.

During the final phase of sustaining the project, a governance dashboard and other adaptive management techniques should be used with financial audits to ensure that the project is performing as desired. Other monitoring and evaluation methods can be used and compared to baseline data from the situational analysis to ensure that the desired impacts of poverty reduction and improved conservation are achieved.
The conceptual framework used is the Learning by Doing process shown in figure 1. Selected Community members can be trained in CBNRM and governance processes while the CBNRM program is implemented. These trainees learn while participating in the process of organizing the communities and establishing good governance practices. In addition to participating in field work to practice skills, trainees must spend some time in the classroom to learn the theoretical aspects. Trainings should be supplemented with field trips, role plays, and opportunities to practice skills whenever possible to improve the likelihood that the information is retained and the trainees become effective community facilitators, service providers, or future trainers. The learning outcomes vary depending on who is being trained from community members to government officials, park managers, and trainers. However, the learning by doing process applies to all aspects of the training. For a more detailed description of the training process in Mangalane, Mozambique, see appendix B.
This paper addresses the situational analysis aspect of the CBNRM project which occurs in the transformation phase of the project. The information gained serves two purposes: form a better understanding of the situation in order to adapt the project to specific local contexts; and form a baseline for future monitoring and evaluation. The Situational Analysis Workshops (SAWs) are most useful in explaining the local context and guiding the CBNRM project. The monitoring and evaluation occurs at two levels, the project and the overall objectives. At the project level, governance dashboard surveys are an important method for monitoring conformance and performance that is closely tied to adaptive management in order to improve the project rather than just identifying issues. To measure overall objectives, before and after comparisons of livelihood surveys, governance dashboard surveys, and situational analysis reports can be used. Spatial analysis of community maps can also help identify if objectives are being met by showing if more or less land is allocated for wildlife.

**Background:**

2.1 Location:
Mozambique is a country in South-east Africa bordered by the Indian Ocean to the east, Tanzania, Malawi, and Zambia to the north, Zimbabwe, South Africa and Swaziland to the west (see figure 1). It was colonized by the Portuguese beginning in the 16\textsuperscript{th} century and did not gain independence until 1974. Following independence, the country experienced a long and violent civil war between the FRELIMO and RENAMO political parties from 1977 until 1992 (Newitt, 1995). Since 1992, Mozambique has been at peace, but after over two decades, the rebuilding process continues.
The capital city is Maputo in the south. Portuguese is still the official language spoken by the government, but a variety of traditional languages are spoken throughout the country (Newitt, 1995). The national currency is Metacais (mt) and the exchange rate for June 2013 was approximately 30mt to US$1.

Sabie Game Park is located in southwestern Mozambique, bordering Kruger National Park in South Africa (see figure 2). To the north of SGP is the Mazintonto River, to the south is the Corumana Dam and to the east is Mangalane. The community of Mangalane is composed of 5 villages, Mukakaza, Mavanguana, Bantine, Ndindiza, and Costine as shown in figure 3. (Costine and Ndindiza are both small and sparsely populated villages that have chosen to combine for the purposes of this project.) The combined land size of these villages is approximately 50,000ha.

SGP is part of the Great Limpopo Trans-Frontier Conservation Area (GLTFCA) created in 2002 through an international treaty. It includes Kruger National Park in South Africa, Gonorazhou National Park in Zimbabwe, Limpopo National Park in Mozambique and other non-protected land bordering these national parks. The goals of the GLTFCA were to conserve biodiversity while including local people in the management of and economic benefits from this biodiversity. The park is still relatively new and little has been done in areas outside the National Parks to achieve the goals (Spierenburg et al., 2008).
2.2 Stakeholders:
The Southern African Wildlife College (SAWC) is located in Kruger National Park at the Orpen Gate. Their mission is to “provide people from Africa with the required motivation and relevant skills to manage and conserve their protected areas and associated flora and fauna on a sustainable basis in cooperation with local communities.” They provide both short and long term wildlife training. In addition, they conduct and compile research in a variety of different topics such as biodiversity levels, ecological studies, and natural resource utilization. Their aim is to transform CBNRM from theory to field level results and develop best-practice case studies of Learning by Doing and Co-Learning. Ultimately, they aim to make these best-practice cases the common practice of CBNRM across the region. SAWC, with Brian Child and Rodgers Lubilo, developed the CBNRM governance training program that was piloted in Mozambique and South Africa in June and July of 2013.

Sabie Game Park (SGP) in Mozambique was granted a 99 year lease in 2000 and the hunting permits were obtained in 2009. Approximately 40km of fence separate the 28,000ha game park from the neighboring communities. MacDonald Safaris is the company that runs the hunting safaris within Sabie Game Park. In an effort to improve relations with the nearby communities and encourage poverty reduction, SGP approached SAWC to develop a “best-practice” approach
of CBNRM that would become an example to other regions in Southern Africa. SGP also provided a large portion of the funds necessary to complete the project.

On the eastern border of SGP is Mangalane, a region composed of five villages: Mukakaza; Mavanguana; Baptine; Costine; and Ndindiza. All of these villages have been impacted by the creation of the park and certain individuals from each community were forced to relocate from within the park where they lived previously to outside the park. According to the law of Mozambique, these communities are entitled to 20% of the trophy fees paid by SGP to the government.

The Government of Mozambique wants to see communities benefit from the 20% trophy fee income. They have stipulations to ensure that the money is not appropriated by local elites. These stipulations include the selection of a ten person committee and opening of a bank account with three signatories. Teresa Nube from the Direccao Nacional de Terres e Florestas (The Department of National Lands and Forests) attended the first community meeting and has aided the process of liberating the 20% and returning it to the communities.

2.3: Project:
The purpose of the governance training pilot project was to develop a “best-practice” approach to CBNRM in southern Africa. The project began with a needs assessment of the site in Mangalane Mozambique and several meetings between stakeholders. Because the communities already have a right to 20% of the hunting fees generated in SGP, there was potential for quick economic benefits for the communities.

After the needs assessment revealed a viable program (economic potential, community interest, and stakeholders to manage and monitor the project), the training portion and situational analysis began in June 2013. Training focused on governance topics such as committee elections, constitutions, equitable benefit sharing, participatory budgeting, and reporting information at community meetings. Other general topics on history of CBNRM, value of wildlife, and hunting/tourism were included to provide adequate background understanding to participants that had little knowledge of the wildlife sector. Theoretical learning within the “classroom” (wooden benches under a tree) was supplemented with experiential learning. The Learning by Doing model provided basis for this learning approach as described in the conceptual framework section. Instead of just learning about the topics in a classroom, trainees were able to go out to each of the villages and practice leading a meeting. During this time trainees, taught the information they previously learned on wildlife and governance to their communities. They also led participatory budget processes, committee elections, and several role-plays. To further supplement the experiential learning section, field trips were included whenever possible to provide a better understanding of the wildlife sector. For example, all trainees visited the hunting camp at SGP and took a game drive to the dam to experience wildlife from a tourist’s perspective. Selected trainees were able to visit private lodges, hunting concessions, a wildlife rehabilitation center, Kruger National Park, and environmental education centers in South Africa.
A Situational Analysis was conducted simultaneously to the training in Mangalane to provide guidance for the project itself, baseline data for long-term monitoring of CBNRM objectives, and community empowerment through participatory approaches. The research included two surveys, several informal interviews, direct observation, and a participatory workshop in each community. (See the Methods section for a more detailed description of the Situational Analysis approach.)

Another aspect of the learning approach was co-learning or learning from each other. This was incorporated through the use of another pilot project in South African communities that border Sabi Sands private game reserve near Kruger National Park. Three trainees from these communities participated in the training at SGP, Mozambique. In July, a second training session was held at SAWC with these trainees and five of the ten trainees from Mangalane. During this time, trainees were able to visit South African communities and learn about the potential economic benefits from wildlife in this context. Trainees from South African communities and Mozambican communities were able to learn from each other both in the classroom and in the communities while practicing what they learned in the classroom. Current and former SAWC students were also included in the training program to be trained as future trainers which provided more opportunities for trainees to learn from each other. Many trainees enjoyed learning about the CBNRM projects these future trainers have worked on in their own countries of Namibia, Zambia, and Zimbabwe.

**Methods:**
Baseline data was collected in the form of a census of adults, informal interviews, household livelihood surveys, situational analysis workshops, and community mapping. This information was compiled to give a report of the current situation prior to training and implementation of good governance practices. This information is useful in guiding and adapting the pilot project to the specific conditions of Mangalane as well as assisting Mangalane Community members with planning. In the future the data will also be used as a basis for comparison in monitoring the effectiveness of the CBNRM project in meeting its primary objectives of poverty reduction and improved conservation.

<table>
<thead>
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<th>Timeline of Methods Used:</th>
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<td>Week 1</td>
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*Figure 4: Timeline of Methods Used*

3.1 Census:
Prior to the training, the researcher went from household to household collecting names of all adults over age 18. The lists were then compiled and checked by community leaders and committee members to ensure accuracy. The final lists were used to determine the percentage of
trophies fees owed to each community based on population size. (Each adult will receive an equal share of the overall money owed to the communities.) Additionally, these lists divided by household were used to guide the random sampling for the livelihood surveys. (See appendix K for a copy of the census lists.)

3.2 Interviews:
Prior to conducting the surveys, five informal interviews were conducted during the census to assist in the adaptation of the generic survey to the specific region in Mozambique. These informal interviews provided the researcher with a better understanding of the communities in order to get the most effective information during the survey process. Interviewees were asked about their families, livelihoods, living situation, and challenges/concerns. These interviews were more like casual dialogs with community members. No forms were used to ask questions or record answers during the interviews, but notes were taken afterward. This method was used to allow interviewees to feel more comfortable with the researcher, particularly as this occurred early on in the researchers’ time in Mangalane. The interviews themselves also helped integrate the researchers into the community to assist future research.

After conducting the surveys, an additional eight informal interviews were conducted to ensure the accuracy of the information collected from surveys and situational analysis workshops. During these interviews, participants were given preliminary research results and asked if they agreed with the information. Then they were asked to explain some of the results. Finally, any additional questions that arose after reviewing the preliminary results were asked during these interviews. For example, the interviews did not include questions about religion, but communities felt it was important to include churches on their maps. Therefore, in the follow-up interviews, participants were asked which types of churches are in their community and how many people attend the services.

All individuals to be interviewed were chosen based on convenience, anyone who was available and willing to participate at a time and location that was convenient for the researchers. There was no method of selection and no necessary qualifications. Trainees, staff at SGP and other individuals that were easy to meet with and had time to participate were selected. Several community members approached the researcher to inquire as to why their household was not included in the survey. They were disappointed at not being given the opportunity to voice their opinions and tell us about their lives. These community members were all encouraged to participate in the situational analysis workshops and also given the opportunity to be interviewed if they desired. All individuals that were interviewed or surveyed agreed to an informed consent in the local language, Tsonga.

3.3 Livelihood Survey:
Given the number of households and population size in each village, it was determined that 16 surveys would be conducted in Mukakaza, 15 in Mavanguana, nine in Baptine, five in Costine, and five in Ndindiza for a total of 50 surveys in the region. Given the time and resources
available, 50 surveys were considered feasible and they represent 17% of the households in Mangalane which is sufficient for this analysis. The numbers in each village were based on the relative household and population sizes of each village. The households were numbered in each village and a random number generator was used to determine which households would be surveyed. In addition to the desired number of households, numbers were generated for replacement households. These households were surveyed in the event that a household on the original list declined to participate in the survey or if there was no adult present to complete the survey. In only one circumstance did the household members decline to participate in the survey, but in multiple cases, households were found empty. In these circumstances, as a result of time restraints, researchers had to continue to the next household on the list until the previously determined number within the village had been reached.

The 12 page survey took approximately one hour to complete. It included questions about production and consumption as well as assets for an economic analysis of each household. There were additional questions regarding health care, education, trends in natural resources, food availability/affordability, and human-wildlife conflict. (See appendix C for a copy of the survey.) The surveys were written in English and a translator (who was familiar with the survey and the objectives of the research) was used during the survey process. The economic information was analyzed and graphed to show production and consumption of different products by household. Other information, such as resource trends, was analyzed separately. The results as well as the raw data were given to the SAWC for future comparisons in ongoing monitoring of the training program.

3.4 Situational Analysis Workshops:
The situational analysis workshops (SAWs) were conducted in three of the four communities. While there are five villages, Ndindiza and Costine villages decided to combine into one community for the purposes of meetings, decision making and benefit sharing because they both have such small populations and are located very close to each other. Ndindiza/Costine members then failed to either attend the original meeting for the workshop or to reschedule for another meeting. Therefore, a SAW was not conducted for Ndindiza/Costine villages. This workshop can be conducted in the future if community members are willing to participate.

All SAW dates were chosen through an agreement with researchers and community leaders. These leaders worked with trainees from the village to disseminate information to all members of the community. A minimum of 20 individuals, both male and female were requested, with an emphasis on elders that know the history of the region. The workshops were conducted in Tsonga with the help of a translator and the trainees from the community. Each workshop took approximately four hours and consisted of five different participatory methods as described below:

1. Historical Timeline: Participants were asked to think of important events in the history of their community. As participants shared events, they were each written on a separate
index card along with the year that the event occurred. Ideally, a month or season would be included as well, but participants could rarely remember the time of year, only the year itself. Each card was then pinned to a rope that stretched across the front of the meeting space. By moving pins and index cards around, the events were arranged in chronological order to create the final timeline. All participants agreed upon the accuracy and completion of the timeline and when they were satisfied with the result the historical timeline was finished.

2. Helps/Hindrances: Participants were asked to think of things that have helped or hindered the development of the community. These could be internal or external factors that have influenced them in either a positive or negative manner. Two flip charts were placed on easels, one for positive things and one for negative things. In addition, two different colored index cards were used, with yellow representing positive things or helps and green representing negative things or hindrances. Only when participants were satisfied that both lists were complete did this segment come to a close.

3. Vision for the Future: Participants were asked to envision the ideal community. From this information they were asked to suggest a list of goals that they hoped to achieve in the future. It was stressed that this was not a wish list to be given to the government, Sabie Game Park or any other organization for fulfillment. Instead the community itself would decide which goals were necessary to build the future community that they desired; then the community itself would lobby and work together to achieve these goals while partnering with government or other organizations. Recommendations were listed on index cards and put up on the flip chart for all participants to observe. When community members were satisfied with the final list, they were asked to choose several goals that were of highest priority. Each community selected the five most important goals. If time had allowed, a complete needs assessment would have been conducted to list all goals in order of importance.

4. Relationships: Participants were asked to list organizations that they had a relationship with. Then they were asked to describe the type of organization, the strength of the relationship and the importance. The strength and importance were graphed on a flip chart using small, medium, and large circles. The importance of the relationship was captured visually by the size of the circle used to represent the organization. The strength of the relationship was demonstrated through the distance from the community in the center of the chart.

5. Natural Resource Trends: Participants were asked to make a list of natural resources that they use. When this list was completed, they were asked to choose several of these resources that may have changed over time, such as trees, fish, and wildlife. Then, they were asked to think back to 1960, before the war, and explain the abundance of fish in the area. Once a consensus was reached for the 1960s, they continued characterizing the abundance in each decade leading up to the present. Abundance over time was graphed using a different symbol for each resource. Participants were able to see the pictorial
representation and decide if more symbols should be added or some taken away to ensure the accuracy of the trend over time. When the chart was completed, participants were asked to explain some of the reasons for the changes over time and the meaning behind the chart.

<table>
<thead>
<tr>
<th>Tools Needed For Situational Analysis Workshop and Community Mapping:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Flip Chart Easels (2)</td>
</tr>
<tr>
<td>• Flip Chart Paper (2-3 pads)</td>
</tr>
<tr>
<td>• Colored Pencils</td>
</tr>
<tr>
<td>• Colored Markers</td>
</tr>
<tr>
<td>• Colored Index Cards</td>
</tr>
<tr>
<td>• Colored Paper in different size circles</td>
</tr>
<tr>
<td>• String (6-8 meters)</td>
</tr>
<tr>
<td>• Scissors</td>
</tr>
<tr>
<td>• Sticky Tac</td>
</tr>
<tr>
<td>• Clothes pins</td>
</tr>
<tr>
<td>• Ariel or Satellite View Maps</td>
</tr>
<tr>
<td>• GPS device</td>
</tr>
<tr>
<td>• Camera to document findings</td>
</tr>
</tbody>
</table>

*Figure 5: Tools Needed For SAWs and Community Mapping*

The information from the SAWs was compiled into a report for the community itself. The report was then given to trainees to verify accuracy and approve the final product for printing and distribution to the community leaders and committee members. A copy of the report in English was also developed to assist SGP, SAWC, and other partners in understanding the current situation of each community as well as their goals for the future.

3.5 Community Mapping:
Community mapping sessions occurred after the situational analysis workshops in each of the three villages. A community mapping session was also held with the leaders and some trainees from Ndindiza and Costine. Workshop participants were invited to stay for the mapping, but those who were uninterested or unable to stay were excused. Each community developed a hand-drawn map on flip chart paper using multi-colored markers to display important aspects of their community geographically. Upon completion of the hand-drawn maps, a large satellite-view photo of the area was introduced. Participants were asked to then locate important aspects from the hand-drawn map on the photo using different colors to code the different aspects. These aspects included households, farm land, grazing land, privately owned land, schools, clinics, shops, and water sources in addition to village boundaries. GPS points were then taken for the schools, clinics, shops, churches, boreholes, and other relevant infrastructure. GPS points were also taken for some, although not all, of the households. The drawings on the photo-map
and the GPS points were later digitized using GIS to create a finished digital map for the communities. This final product was added to the report from the situational analysis workshops as well as the hand drawn map from the session.

3.6 Governance Dashboard:
The Governance Dashboard Survey consisted of 33 statements to which participants respond with the appropriate category of agreement. The statement, “I think wildlife is valuable,” “the community is organized” and “people poach less than before” can be answered with ☑️ to signify strongly agree, ☑️ for agree, ☐️ for neutral, ☐️ for disagree and ☐️ for strongly disagree. This is a simple and visual tool for identifying issues in governance that need to be addressed. The governance dashboard survey used was adapted from previous surveys in Botswana and can be found in appendix D. The survey was administered non-randomly to 50 individuals. Ten individuals were selected from each village including the traditional leaders. These individuals were surveyed one at a time before or during the CBNRM workshops (described in appendix B). Each survey took approximately 15 minutes. While the survey forms were written in English, all surveys were conducted in Tsonga by a trained researcher who is fluent in Tsonga and English.

The results were put on flip-charts and presented back to trainees, community leaders and committee members that attended the final workshop. During feedback, participants were asked to verify or contradict the results and identify probable underlying factors. This feedback session was vital to verifying the data and more fully understanding the factors contributing to the identified trends.

Results and Discussion:
4.1 Census:
Before beginning the census, researchers met with local chiefs and leaders to gain permission for data collection related to the project. The data collection process for the census was straightforward in that the researchers simply had to drive from house to house and inquire about the number of adults. However, as the researchers were not from the region, assistance was needed to locate the houses and ensure that none were missing from the final list. The two trainees from each village were asked to aid the researchers in locating each household. They also provided additional legitimacy for the project because they are from the region and could explain that we had permission and support from local leaders and that the information would be used to benefit the community. Additionally, SGP provided a vehicle, and a driver who knew the region well.

The most difficult aspect of the census was determining the requirements for being a community member. After discussions with a few individuals at SGP we determined that 18 years was an appropriate cut-off age for adults. During the census process we met several women younger than 18 who were already married and had children. In hindsight we determined that it may have been more appropriate to consider individuals 16 years and above as adults. Unfortunately, records could not be altered to include individuals ages 16 and 17 as there was not enough time to
re-conduct the census. Instead community members were encouraged to work with trainees, leaders, and elected committees to determine specific requirements of community members (age, length of time spent in community, permanent vs. temporary resident and so forth) and to adjust the lists accordingly. This was another opportunity for empowerment by showing communities how we conducted the census and then allowing them to alter the list and control who is or is not considered a member according to specific requirements agreed on by the community as a whole. Ultimately, this information will be included in community constitutions when they are developed.

Any individual who considered him/herself a member was counted in the census regardless of how much time they actually spend in the village. Community members assisted us by including the names of family members or neighbors who were temporarily absent during the census, but still considered community members. Census names were typed up and returned to communities to be checked for accuracy. Any adjustments made by the communities were incorporated into the final list of community members. Communities are able to change membership criteria in the future and are expected to update the lists annually to determine the individual share of the financial benefits from wildlife.

There are 21 households in Ndindiza, 23 in Costine, 73 in Baptine, 75 in Mavanguana and 94 in Mukakaza.

<table>
<thead>
<tr>
<th>Village Name</th>
<th>Number of Households</th>
<th>Number of Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baptine</td>
<td>73</td>
<td>201</td>
</tr>
<tr>
<td>Ndindiza</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>Costine</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td>Mavanguana</td>
<td>75</td>
<td>264</td>
</tr>
<tr>
<td>Mukakaza</td>
<td>94</td>
<td>238</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>289</strong></td>
<td><strong>818</strong></td>
</tr>
</tbody>
</table>

*Figure 4: Village Size*

4.2 Interviews and Surveys:
Interviews proved useful in both designing the surveys and further explaining some of the underlying causes of the trends that were revealed in the data. Even with interviews to guide the development of the surveys, some additional changes were made after testing the survey on the first 5 individuals. The final survey that was developed is specifically designed for these 5 villages and adaptations would be necessary for use in other regions. While the author thinks the final survey is a useful tool for future monitoring, minor changes can still be made and additional questions may be helpful in revealing more of the situation.

The final interviews were conducted after only preliminary analysis of survey results. Without time or travel constraints, more interviews or focus groups could have been conducted after the full analysis of results was completed.
4.2.1 Human Wildlife Conflict:
There have been many incidences of human wildlife conflict in the region, as shown in more detail in figure 5 in section 3.3.1. Only 2 of the 50 households surveyed attributed livestock death in the previous year due to predators. However, when the topic arose, all households told a story of either a previous predator attack that personally affected them and their herds or a recent attack on a neighboring herd. It is most likely that the perception of attacks is greater than the actual occurrence because it is based on past problems that overwhelm current trends. This possibility was confirmed in part by asking if predator attacks have decreased in the past 10 years (see appendix J for the graph of results to this question) to which the majority of households answered yes. Interviewees explained that while they do not like the fence because it separates them from water and their graves, “the fence is a good thing for keeping many of the dangerous animals away from us.”

Even if livestock attacks are decreasing, they have not been eliminated and the fear of them (based on historical evidence) continues to be prevalent. This fear seems to be compounded by a sense of helplessness. Villagers are well aware that it is illegal for them to kill the wildlife that threatens them. In an effort to comply with the law, they have attempted to seek help from both the government and SGP with little or no response. Variations of the phrase “we reported it, but nothing happened” were repeated regularly. In many cases, the animal has long since disappeared before SGP is able to respond to the report. Regardless, the sense of fear of wildlife and the feeling of helplessness to address the issue was clear in many conversations, interviews, and workshops. While livestock is an important concern, the concern for human life was equally important although the instances of threat to humans by wildlife were fewer.

Figure 6: Damage to Crops by Wildlife
Twenty of the 50 households surveyed reported damage to their crops by wildlife in the past year. In all of these cases, the damage was said to affect at least half of the field (although in some cases, the farmer had one or two additional fields.) Wild pigs were the most common perpetrator and they were most commonly found in Mavanguana. Efforts to catch or hunt wild pig are unsuccessful. Elephants had damaged fields throughout the region and when they entered a field, they generally destroyed the entire crop. Hippos were only reported in Costine, where farms border the Corumana Dam. Hippos may not destroy the entire field in one night, but they will return to the same field until it is destroyed and there is little a farmer can do to protect the remainder of his field after a hippo or elephant has discovered it.

SGP is not responsible for human-wildlife incidences and in fact they have helped to mitigate these issues by erecting the fence around the park and responding to some reports of dangerous crocodiles, buffalo or other species. Even so, the perceptions of SGP in the community can greatly impact the perceptions of both wildlife and conservation. Historically, the relationship between SGP and local communities was poor. In a stakeholder evaluation during the situational analysis workshop in Baptine, participants said “the relationship [with SGP] is very important, but so far it is not a good relationship. We need Sabie to fulfill its promises and also want Sabie to help us kill problem animals and even let us use the tractors for ploughing our fields each year.” Countless times community members aired grievances at SGP for not fulfilling promises such as providing boreholes, building clinics, employing local people, and providing meat from hunted animals. The clinic in Baptine was attributed to SGP and the community was very grateful for this. According to members of Mavanguana, “Sabie Game Park promised jobs, but there is no one from Mavanguana who is employed by the Game Park.” Several individuals from Costine and Ndindiza are employed by SGP either annually or temporarily as these are the closest villages to the main gate. One woman from Baptine is employed at the game park and a few people from Mukakaza are hired to maintain the fence in their area. There was a repeated complaint of SGP hiring outsiders instead of locals, but the outsiders who have been hired have extensive experience in their area of work. Another barrier to employment for local communities is their inability to speak English which is needed in the jobs that directly deal with guests such as guides and trackers.

Only 40% of households surveyed had ever received meat from SGP. Even though hunting quotas are still relatively low, SGP professional hunters occasionally shoot hippos solely to provide additional meat to the communities. The reasons for the discrepancy in meat provided at SGP and meat reaching community members were unclear, but are likely attributed to elite capture. Some interviewees explained that they may not have been present on the day meat was distributed. Others thought the chief kept a large portion that prevented others from receiving any, still others reported that SGP staff would sell the meat or distribute it to girlfriends leaving only a small steak for the community as a whole. Researchers witnessed a meat distribution in Mavanguana community in which local leaders very carefully divided the pieces as equitably as possible and made every effort to ensure that even individuals unable to travel to the meeting
spot would in fact receive their fair share. At another point in time researchers witnessed a SGP representative taking a leg of buffalo that was originally allocated to the community by SGP staff. While SGP managers and head staff are making an effort to distribute meat to the community, not all members of the community are benefitting. While the size of the meat was usually only 1-5kg and the frequency reported at one or two times per year per village, the meat was seen as an important gesture from SGP. Even if SGP is not at fault for the missing meat, they lose out on a tremendous opportunity to improve relationships with local community by not ensuring that meat reaches all community members.

Currently, the word mistrust and the phrase “false promises” occur repeatedly in conjunction with SGP. A leader from Mukakaza clearly stated the main issues.

“We do not have a good relationship now because there is too much mistrust. They have made many false promises such as water, school, clinic and have not fulfilled them so we do not trust Sabie Game Park. We must see some benefits from the wildlife, like the 20% and meat for the community, before we can work together with Sabie. Then we can help them by reporting the poaching activity that we see or become aware of, but for now we cannot help them. It is like a foreign rancher who lived in our area; he would support the community and provided water so we did not steal his cattle. But other ranchers, we would steal from. And if anyone tried to steal from this man we would not let that person.”

Community members acknowledge their willingness to assist private landowners by reporting illegal activity as they have done for one private cattle rancher in Mukakaza Village. However, this potential assistance is only available to private landowners with whom they have a good relationship, built on trust and mutual benefits. Currently, the community has nothing to gain by reporting poachers, although SGP could benefit enormously. On the other hand, poachers could choose to use their wealth and connections to retaliate against community members that reported them. In a situation with potential costs and no foreseeable benefits, community members will act in their own best interest and not report poaching.

SGP has a lot to gain from a good relationship with the neighboring communities, particularly in their ability to help prevent and/or report rhino poaching. Representatives of SGP realize this potential and there is evidence that they are genuinely trying to improve the relationship. For example, by initiating and helping fund the CBNRM Governance Training. The current manager is extremely popular with the communities and has earned their trust.

4.2.2 Livelihoods:
Households in this region primarily rely on natural resources for their livelihood. Figure 6 shows the different resources that contribute to household use as well as the goods that are exchanged at the market level. Formal employment has historically been low in this region as it is very rural. The few formal civil servants- teachers and nurses- are provided by the government and do not
come from the region itself. They serve here temporarily and often seek better positions in more urban areas. The household livelihood survey revealed few cases of formal employment outside of tourism and these individuals travel to different cities, daily, weekly, or seasonally to work. An individual in Mukakaza explained that he works as a security guard in neighboring Magudo town and has to commute daily in a situation where transportation is expensive and often unreliable.

Figure 7: Household Resources Flow

With the opening of SGP, there are new jobs available in tourism and several households surveyed have family members that work for the park. This is most common in Costine as it is closest to the park entrance, although people in Mukakaza have also been hired to build/repair the fence that borders that park. The tourism season in SGP runs for approximately half the year, so few year-round positions are available. Even during hunting season, full-time positions are limited and many are filled by foreigners who have the necessary skills, training, and experience. The majority of community members, employed by SGP work part time or seasonally. Therefore, the income from SGP employment only contributes a portion of the overall household income, which still relies on other informal income opportunities.
As shown in figure 7, the household income sources are diverse, particularly in the less wealthy households where members seek any opportunity to earn income which is necessary for the purchase of certain goods on the market. These households simultaneously seek natural resources that can substitute for purchased goods in a more subsistence-based lifestyle. The idea of subsisting on natural resources rather than informal trade or formal markets is very common in Mangalane. For households without access to formal employment, livestock and wild products contribute greatly to household income. Wild products is a general term, but in all but one case, it refers to charcoal (the exception is a woman who earns a small amount of money selling reed mats that she makes).

The large majority of community members are farmers and livestock herders. The agricultural products are exclusively for home consumption in all households surveyed. Cattle herding can be a source of informal employment for young men, but rather than being paid in cash, herders are given one cow annually. This is an important opportunity for young men to develop their own herds. Livestock are a valuable asset, both culturally and economically. Cows are considered the most important source of wealth and individuals are reluctant to sell these valuable assets, but in times of need, when all other income-generating options have been exhausted, cows may be sold to ensure the survival of the household. With few other opportunities, many households are forced to sell livestock annually during the dry season when food is scarce. At other times livestock is sold to pay hospital bills, or school fees.

Hunger was identified as an issue in several community meetings, but only 20 of the 50 households said they experienced hunger and these households ranged from the poorest to the wealthiest. The explanation for this trend may come from an inefficient use of finances (e.g. money is spent on alcohol, or other non-essential goods rather than on food) or it may be a result of inaccurate data. More discussions with community members can lead to a greater understanding of the issue of hunger and if the data is inaccurate, community members may be able to help redesign survey questions related to hunger in an effort to receive more accurate information on future surveys.

The overall expenditures tended to be higher than income. This contradictory finding may stem from an under-reporting of income, an over-reporting of expenditure or a combination of both. Households surveyed had little difficulty recalling number of livestock sold and at what prices. Similarly, information on charcoal sales, and formal/informal employment wages were easy for participants to recall. Determining monthly expenditure was more difficult; prices were well-known but individuals had difficulty in determining amounts purchased, especially as these can have a large seasonal variance. In this survey, participants were asked to think of average expenditures, but the average may be difficult to determine when food products in particular are purchased in larger quantities during the dry season, but in other months, most households rely on their own agricultural production. To improve expenditure information, households could be asked to keep simple records of income and expenditure on a weekly basis throughout the year. While this method would require much more time, it could be cost effective and improve
financial decision making in households by encouraging individuals to track their own earnings and spending. Another issue which would not be addressed by more reliable reporting is the participation in illegal activities such as poaching of rhinoceros. Community leaders confirmed that members of the community participate in poaching, but they are unwilling to report these individuals. It is possible that one or more households that report no annual income and no hunger are benefitting from illegal and unreported activities.

![Annual Household Income Per Capita by Sector](image)

*Figure 8: Annual Household Income Per Capita by Sector*
4.2.3 Health: Although a clinic has been built in each of the four communities, health care is not necessarily available. For example, the clinic in Ndindiza/Costine is not currently staffed nor is it operative. Other clinics have only one health care worker; therefore any illness or family emergency can result in the clinic closing until further notice. Even when the health worker is able and willing to operate the clinic, he/she may be limited by access to supplies and equipment. Major challenges to accessing health care include the quality of clinics in the region and the distance to the closest hospital in Kaboka. All households surveyed mentioned that transport to Kaboka was difficult and even impossible at times. While the cost of transportation can be a deterrent to many families, the physical state of the road can prevent even the wealthiest families from accessing the hospital, especially during the rainy season. According to one woman who was interviewed, “if you get sick with the rains, you will just suffer and die here.” The cost of a visit to the clinic or hospital is only 5mt which is considered affordable to all families surveyed. However, the cost of transportation to Kaboka varies from 50 to 150mt one way depending on the village (see Map of Mangalane in appendix F).

Access to clean water also varies by village. In Costine, Ndindiza, and Baptine, community members get their drinking water from the dam. In Mukakaza, drinking water is obtained from rivers, either Mazintonto or other smaller rivers in the south. Members of Mavanguana community use a borehole for drinking water and this is the only improved water source in the area. All households surveyed in Mavanguana reported that they did in fact have access to clean water daily, while no households in Ndindiza or Costine reported having access to clean water.
every day. Two people from Baptine and three from Mukakaza claimed to have access to clean water although they obtain it from the same source that is considered unclean by other people in the same communities. Of the people who have access to clean water, some reported still getting sick from the water. This could result from an undiagnosed illness being attributed to water quality when in fact it was not. Another likely explanation is that clean water is stored in unclean jerry-cans or 50 gallon plastic drums where bacteria can contaminate the previously clean water. Further research would be necessary to determine the type of sickness and the cause.

When asked if children suffered from Kwashiorkor (a disease of malnourishment) in the past year, 6 households said yes. One additional household said no, but a young boy appeared to currently be suffering from Kwashiorkor. The main illnesses of concern were Malaria, Cholera, and HIV/AIDS; these three diseases were brought up repeatedly in surveys and interviews. During Mavanguana’s situation analysis workshop, an elderly woman said “In 1996, many diseases started to afflict us such as Malaria, Cholera and HIV/AIDS. It was very difficult because there was no hospital or clinic.”

4.2.4 Agriculture: Most households in Mozambique rely on agriculture to provide food for the household. The commonly grown crops are maize, peanuts, watermelon, and pumpkin. In addition to these crops, many households also grow sorghum, millet, cow peas, beans, vegetables, sweet potato, sweet reed, and/or cassava. The agricultural yield is typically low. All 50 households surveyed reported that the crops grown are not enough to supply food for the household throughout the year. They must supplement their food production with purchased food that is imported from nearby towns such as Sabie, Moamba, or Magudo. They also reported that if they had a surplus of food produced in their fields, they would sell some, but they currently do not produce enough for the market. Of the 50 households surveyed, only one household purchases and uses fertilizer and chemicals and the owner is also an agricultural laborer in South Africa for six months of the year. Crops are grown from saved seeds rather than purchasing improved seeds. Occasionally, a family may spend 5-10mt to purchase a package of vegetable seeds; however, staple crops such as maize, peanuts and tubers are planted with leftover seeds or cuttings from a previous crop. The only monetary input into agriculture is the hiring of tractors to plow the fields of some households. SGP plows the fields of several individuals who were relocated from within the park. Other individuals must hire a tractor if they can afford to or use oxen to plow their fields. Poorer households that cannot afford to hire a tractor and do not own oxen struggle to plant enough crops to feed their families using only hand-held hoes.

4.2.5 Education: Of the oldest generation, individuals 41 years and above, only 19% reported having any formal education. The middle generation, individuals ages 19 to 40 are almost evenly divided between no education and some education. The youngest generation, ages 5-18 or school-aged, are primarily attending school. Only 11% of children in this age group have never attended school. The reasons for these children not attending school were varied and the
gender of children not attending school was balanced. In some families, one young boy is needed to herd the cattle and he therefore is unable to attend school. In other families, one of the daughters, usually the eldest is unable to attend school because she is needed to assist with household chores such as fetching water, collecting firewood or cooking. In Mavanguana community, there were two households that reported children being unable to attend school because the distance to the closest school was too far for the children to manage. In both of these cases, no children in the household were attending school or had attended school in the past. The majority of school-aged children are currently attending school or they have completed primary school. Unfortunately, there is no secondary school in any of the 5 communities; therefore, it is difficult for students to continue their education past primary level. Some families are able to send students to Moamba, or other towns to attend boarding school for the secondary level, but the cost of boarding is prohibitive to many families. In developing a vision for the future, all communities addressed the need for higher grades in their local schools.

![Education Level of Individuals 5-18 Years](image)

*Figure 10: Education Level of Individuals 5-18 Years*
4.3 Situational Analysis:
SAWs were intended to be completed in all four communities; however, they were only completed in three communities. In Ndindiza/Costine, only three community members showed up to the pre-arranged meeting despite the community choosing the time and date themselves. The participatory methods require more than three individuals to represent the community, and rescheduling efforts were equally unsuccessful. As other villages receive their final reports and are able to use them for planning, it is likely that Ndindiza/Costine will be more interested in developing their own report. If this interest occurs, it is possible for other researchers to conduct a SAW in the summer of 2014. The complete reports from SAWs for Mukakaza, Mavanguana, and Baptine can be found in appendices G, H, and I respectively.
In general, it is valuable to allow the communities to choose the time, date, and location of the meeting and to have ample time to relay this information to all community members. This makes it more likely that both men and women, elderly and young adults from all sections of the community will be able to attend the meeting. While there is no magic number of people required to complete the activities, it would be difficult to get representative information with less than 20 individuals. All three workshops had at least 25 individuals in attendance.

The workshops were planned to last approximately 3 hours, but in order to fully complete all the activities with ample discussion time, at least four hours was necessary. The researcher was advised by a SGP representative not to provide any snack or drinks at the workshops because it would result in expectations of snacks and beverages at all future meetings or workshops putting greater pressure on SGP. However, this prevented attendees from remaining focused on the activities and ultimately, several people had to leave early. It would have been beneficial to provide some bread or biscuits and juice in order to keep everyone’s attention and be able to complete all the activities.

For future application of SAWs, it is advised that communities are able to choose the time and place and given at least 2 days to inform all community members of the workshop date, time and location. Every community member was invited and encouraged to attend. A simple snack such as biscuits, or fruit should be provided to maintain energy levels and interest throughout the workshop. A minimum of 20 individuals seems appropriate, but it is more important to ensure that participants represent the community than to focus on overall attendance. For example, it is necessary to have both men and women, elderly and younger adults. Furthermore if multiple tribes, religions or other groups are present in the community they should all be represented in the workshop to ensure that the information pertains to the entire community not just a portion. In this case communities were ethnically homogenous and there were few religious differences. The priority in Mangalane was to have representatives of both genders and different age groups. In addition, workshop times were chosen to allow SGP staff from the community the opportunity to attend.

The activities were conducted in the order they were described in the methods section. While the order can be adjusted as needed, it is helpful to start with something simple such as introductions and/or an icebreaker. After individuals have stood up to say their name, they will be more comfortable participating in the remainder of the workshop. To encourage everyone to participate it may be helpful to pass out cards and ask everyone to write down at least one contribution. This will allow shy or quiet people to comfortably participate and may increase participation of women in contexts where they do not speak out in front of men. In this context, participants were illiterate, but researchers were able to ask specific people for contributions. Also, while one person was conducting the SAW from the front, another person was able to talk to quitter participants one-on-one for additional contributions. As facilitator it is vital that one ensures broad participation of the group.
4.3.1: Historical Timeline:

Establishing a chronological timeline can be difficult in a culture where exact dates are less important as is common in many African cultures. Instead, many cultures focus on the chronology of events relative to each other, but do not assign specific dates to each event. For instance, even major events like starts and ends of war varied in these reports. Historical records say that independence was won in 1974 when FRELIMO defeated the Portuguese colonists; however, all three villages placed 1974 as the start of the war between the FRELIMO and the Portuguese despite records saying the war for independence actually began 10 years before independence was finally granted. Participants remembered events clearly and were able to describe them in great detail, but they were always hesitant to place an exact date on an event. Instead they think of events as occurring in certain periods of time. The three main time periods discussed were before independence, during the civil war, or after the civil war. Within these time periods, the group would discuss events in relation to each other before deciding on a final year to be published in the report. Because the method allowed events to be placed onto the timeline and then rearranged in relation to each other, communities were able to place events in chronological order even if they were unsure of the specific year in which each event occurred.
It was common for events to be given a year based on the relation in time to the creation of SGP or the building of a school/clinic. Events that can be verified by outside sources show some discrepancies. Because the report was established by and for the communities themselves, no corrections were made to the Situational Analysis Reports. In this context, however, community timelines will be addressed in light of known historical records.

Historical Records show the civil war between FRELIMO and RENAMO was initiated in 1977. Participants in Mukakaza placed the start of this civil war in 1982 and Baptine participants placed it in 1986. No participants in Mavanguana directly mentioned the civil war although they said the reason people moved away in the 1980s was as a result of violence in the area. The differences can be attributed in part to a confusion of trying to combine traditional African historical records that lack specific dates with a more western approach to making a chronological timeline. Another likely contribution is that while fighting began in 1977 it did not immediately affect the entire country. Mangalane region was not directly affected at the start of the war, but later during the 1980s. No attempt was made to verify the accuracy of the dates attributed to the creation of the Corumana Dam, the building of the schools and clinics, or the wildlife incidences.

Participants in all three workshops described life under Portuguese rule very descriptively. The colonists living in the area were primarily cotton farmers and herders, but they also grew rice, potatoes, and other crops. They constructed several small towns in the area with schools, churches and shops. Individual farm houses were scattered throughout the region, including in what is now SGP. Many people described the Portuguese as forcing them to work in the fields for free. Participants explained the strictness of their colonial masters through two specific incidences that were described verbally and completed with physical actions for a visual representation. The example from Mavanguana was “if a Portuguese found someone who looked clean, that person was reprimanded for not working hard enough.” In Baptine they explained that “we would spend all day bent over in the fields and if we stood up, we would be kicked with boots for not working hard enough.” Laborers were not paid in cash, but instead received food rations. Several elderly community members explained that the rations were never enough and that in addition to laboring on Portuguese farms, they would have to plant and tend to their own small plots in order to provide adequate food.

The most positive view of colonial times was the presence of shops near their communities. With sadness they declared, “from the time the Portuguese left, there were no shops left. Even if you had money, there was nowhere to buy supplies.” People rejoiced in their new found freedom from colonial masters because they finally enjoyed the opportunity for paid employment. They realized with great sadness that not only was employment difficult to obtain, there was little use for money when it could be earned because the Portuguese-owned markets were closed and no others replaced them for some time. From independence through the civil war, formal employment was practically non-existent in Mangalane as were shops. Instead of joining the formal economy, people in this area were forced to develop a subsistence lifestyle.
involving the use of available natural resource, traditional agriculture and livestock farming. Goods could be traded with neighbors in an informal market situation. To purchase goods that were unavailable in the region, people had to travel far and often had to sell a cow. Cattle were one of the few opportunities for generating cash in the formal markets in Maputo or other cities. Even today, formal employment is scarce and only 4 small tuck-shops exist in Mangalane.

Local people suffered not only at the hands of Portuguese colonists, but at the hands of their traditional chiefs as well. In Mavanguana, an elder told how “the chief used to collect 2mt from each household annually as a tax. He also took the best portion of meat from any animal that was slaughtered. Each year we would hold a festival together where the chief would perform a ritual so that the rains would come.” As the FRELIMO party gained power, the traditional chiefs lost some power as well as respect from their constituencies. The taxes and demands of the chiefs were largely ignored, although the traditional leaders continued to play a role in cultural ceremonies including the request for rain and the honoring of ancestors.

All three communities described the issues of the past in a similar manner. Additionally, they all discussed FRELIMO in a positive manner for bringing freedom and help to the people. (It is important that although we did not ask about political allegiances, some people who spoke positively of FRELIMO also stressed that they supported RENAMO or other political parties over FRELIMO.) Members of all communities agreed that many people were forced to move out of the area in the 1980s due to violence. Some people moved to distant parts of Mozambique, others to Swaziland or South Africa. Several who had fled to South Africa said “we had to leave our livestock, our houses, and most of our belongings here in the village when we fled.” Those who chose not to flee the area, did not remain stationary either. Many of these individuals moved into the Lebombo mountains to hide in caves and trees when the attacks became more intense. In two separate interviews, accounts of this fearful escape were given. One man explained that he would go and live in the hills with his family until the sound of shelling diminished. “There was no time to bring things, only to run.” Cattle and valuables were abandoned during the escape and some or all would be missing when the family returned. Indirect accounts of mothers helplessly watching as their children died from land mines, children watching as parents were killed by wild lions, and orphans left to fend for themselves in the caves were abundant.

When SGP was brought up in the historical account, many negative words were used. The people describe being forced off their land, deceived by park staff/representatives, and left without access to water. Historically, herders would take cattle into the Lebombo Mountains to access water in the dry season. In drought years whole families and communities would temporarily move to one of the water sources that were later enclosed in SGP. Initial fears at being isolated from important water sources as well as ancestral graves were mitigated through SGP’s promises for employment and creation of water sources, schools, and clinics. The relationship between SGP and local communities will be expanded on in other sections.
The recent history focused heavily on the construction of schools and clinics in each village as well as wildlife incidences. Many of the incidences mentioned were of predators (usually lions or leopards) attacking livestock. In Mavanguana a small herd of buffalo resulted in “children [being] unable to attend school for some time because it was too dangerous to walk with buffalo around.” In Mukakaza a woman was reportedly attacked and killed by an elephant in 2011.

Although the year of each incidence may not be historically accurate, the timelines developed by each community are extremely valuable for understanding the communities themselves. It is impossible to fully understand the current situation without at least a cursory understanding of the past. This is particularly true in an area that has been heavily affected by an extended civil war. Their past experiences continue to shape their present situation and are important in guiding future development goals.

4.3.2: Helps and Hindrances:
This section gave the community an opportunity to think about factors both within and outside their control that have had either positive or negative impacts. A full SWOT (Strengths, Weaknesses, Opportunities, and Threats) would go well with this section by allowing communities to think more about how factors may affect them in the future as well as those that have affected them in the past.

Communities primarily focused on the provision of infrastructure or support as helps. Hindrances varied, but many were related to SGP and the false promises. Below is an example of Helps and Hindrances from Baptine.

<table>
<thead>
<tr>
<th>Helps:</th>
<th>Hindrances:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreigners came (possibly from Italy) after the war to give them food, mosquito nets, pangas and other things in an effort to help them get resettled.</td>
<td>Not enough classes in the school- it ends at grade 7 and there are only 2 classrooms for everyone to share</td>
</tr>
<tr>
<td>School was built in 2000</td>
<td>Many relatives died in the war- now elderly are without children to care for them, many children were orphaned, people were widowed</td>
</tr>
<tr>
<td>Clinic was built by Sabie in 2008</td>
<td>Many issues with wildlife- they destroy fields, take livestock and cause safety issues for the people</td>
</tr>
<tr>
<td></td>
<td>There is hunger every year</td>
</tr>
<tr>
<td></td>
<td>Poverty- there are not enough houses, and many of the houses are not built well enough to provide adequate protection from the rains</td>
</tr>
<tr>
<td></td>
<td>Nurse at the clinic only works part time, and there are not always enough medicines</td>
</tr>
</tbody>
</table>
4.3.3 Vision for the Future:
Developing a vision for the future can be of great use in guiding development projects. In the past, these communities were grateful for any support that was offered, whether or not it was a top priority for them. With a list of goals as well as a needs assessment of which goals are more important than others, communities can request the most useful projects from donors. They can also use this information to guide budgeting of money from wildlife hunting in order to ensure that the most important needs are met first. A sample vision from Mavanguana is below:

**Vision for the future**
- Bridge over the river to improve transport in the rainy season (currently children are unable to cross the river for school during the rainy season)
- Water for cattle during the dry season
- Water for people, need more boreholes for the other side of the village
- Hospital (currently just a small clinic- sometimes there is no nurse or no medicine so we have to travel all the way to Kaboka village which is far)
- More employment (many people are not working now). We know that job creation is the only way to help develop the village.
- Want to expand the school to have more classrooms and to include higher grades (currently it only goes to grade 7)
- Need a grinding machine or hammer mill (currently the women must grind all the mealies by hand)
- Tractor for the whole community to plough their fields. Many of us have large fields and the oxen get too tired from pulling the plow
- Need food aid and/or seeds for farming- we are hoping the government or an NGO can assist them
- Pensions or grants for the elderly and the disabled who are unable to work and support themselves-should come from the government like it does in South Africa.

**BOLD:** indicates top 5 priorities

**Figure 15: Mavanguana’s Vision for the Future**

4.3.4 Relationships:
This activity proved the most difficult to adequately explain to participants. Because of time constraints, the activity was not completed in any of the communities. It would be useful to complete this activity in the future for a better understanding of local and national organizations that impact or could impact the region.

Mukakaza did provide verbal insights on the strength and importance of relationships with three separate entities, although there was no visual representation as planned. No traditional leaders attended the workshop in Mukakaza giving participants more freedom to speak openly about the leaders. In the future, it may be useful to discuss traditional leader systems both with and
without leaders present to develop an unbiased understanding. The description of relationships between Mukakaza and three other entities are listed below.

**Sabie Game Park:** We do not have a good relationship now because there is too much mistrust. They have made many false promises such as water, school, clinic and have not fulfilled them so we do not trust Sabie Game Park. We must see some benefits from the wildlife, like the 20% and meat for the community, before we can work together with Sabie. Then we can help them by reporting the poaching activity that we see or become aware of, but for now we cannot help them.

**Traditional Leaders:** We have traditional leaders within the community that hold some power; however, since the war, the chiefs and traditional leaders have less power and respect in the community than they used to.

**Private Cattle Rancher:** We respect the one private rancher that lived near the community because the community was able to benefit from the ranch. Even though, we used to steal from other cattle farmers in the area, we never stole from this man because we respected him.

4.3.5: Natural Resource Trends:
Participants easily grasped the idea of mapping trends in natural resources on a visual timeline. They would discuss together and then add or take away symbols in each category in an effort to accurately portray the amount of a resource that was present at each stage in history. A sample from Baptine is shown in figure 16.

While the chart shows trends in natural resources based on community members’ experiences and memory, it alone offers little insight into why these trends exist. The real value of this exercise is in the discussion that ensues after resources have been graphed. In this example, community members explained that there were no fish found within Baptine until the dam was built in the 1990s. The increase in resources such as trees and wildlife during the 1990s was explained by the migration during the war. As most people moved away from the region in the 1980s, the resources that were previously being depleted by human use had an opportunity to increase in the absence of human pressure. By the time people began returning in the mid-1990s, they found many more of these resources than when they left. The community has also noticed that the numbers are already quickly declining again as a result of human use. Despite the community recognizing this trend and understanding the potential implications, there has been no effort to halt or reverse the trends thus far.
### Timeline

<table>
<thead>
<tr>
<th></th>
<th>1960s</th>
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<th>1980s</th>
<th>1990s</th>
<th>2000s</th>
<th>Present</th>
</tr>
</thead>
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<td>Trees</td>
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<td>🌿🌿🌿🌿</td>
<td>🌿🌿🌿🌿</td>
<td>🌿🌿</td>
</tr>
<tr>
<td>Fish</td>
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<td>🐟🐟🐟🐟🐟</td>
<td>🐟🐟🐟🐟🐟</td>
<td>🐟🐟🐟🐟🐟</td>
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</tr>
<tr>
<td>Animals</td>
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<td>🐘🐘🐘🐘</td>
<td>🐘🐘🐘🐘</td>
<td>🐘🐘🐘🐘</td>
<td>🐘🐘🐘🐘</td>
<td>🐘🐘🐘🐘</td>
</tr>
<tr>
<td>Wild Fruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 16: Trends in Natural Resource Abundance for Baptine**

4.4 Community Mapping:
The hand-drawn maps were very well-done and include aspects that the community identified as important. Although they were not drawn to scale and were not checked for accuracy, they were useful in identifying the important aspects of the community without imposing the researcher’s perspectives. Some communities struggled to understand the satellite-view maps, making it difficult for them to add anything. When the researcher added GPS points for the school, the chief’s residence, or other landmarks, it was easier for participants to understand the map and then add other aspects. Over 200 of the 289 households were identified by GPS and incorporated in the digital maps. Google Earth™ was used to obtain the satellite view maps, accuracy of additions was checked using GPS points and by comparing with Google Earth™ imagery from 2005 (few households or farmland have been moved since then) and the final digital maps were produced using Google Earth Pro™. These digital versions should be added to over time to incorporate additional layers such as location of important resources, dry season water sources or other important aspects. The digital maps can assist communities in land use planning and in future negotiations with private individuals interested in purchasing land.
4.5 Governance Dashboard:
The survey showed that communities perceive wildlife being of little value to them. Furthermore, they do not like the fence that borders SGP (see figure 17). The results of the survey were very interesting on their own, but the full value came from presenting the results back to community members for verification and explanation of the trends discovered. Some of the reasons for the low value of wildlife were false promises from SGP, low benefits from wildlife to the communities, and human-wildlife conflict. If the pilot project is able to unlock the financial benefits from trophy hunting and SGP fulfills promises to the communities, the perceived value of wildlife could improve. While the fence is considered valuable in reducing human-wildlife incidences, it is ultimately disliked because it separates communities from important dry season water sources and ancestral graves. One of the promises by SGP is to provide adequate water to the communities; when this is fulfilled there should be a less negative perception of the fence. However, the issue of ancestral graves will remain. SGP could allow community members to visit graves for specific celebrations, but this may present a greater threat of poaching.

One contradictory finding was a very positive attitude toward SGP despite many negative comments in interviews and SA workshops as described in previous sections as shown in figure 18. To explain this difference in information, community members said that the perception of the relationship with SGP was greatly improved as a result of the manager recently encouraging
SAWC to come and hold workshops and help communities to receive the money they deserve from wildlife. Even with improved attitudes, community members attributed all positive aspects to the current manager regardless of behind the scenes players that were actively involved. One participant explained that “when someone comes and shows you the way in the dark you thank him, he [the manager] has shown us the way so we thank him, but we have not seen any others to thank.” When asked if SGP was a good idea, younger respondents generally agreed because of potential for employment, meat, and financial benefits. Elderly respondents, particularly those with livestock, were more concerned about the threat that wildlife like leopards pose to cattle and therefore disagreed with the statement.

Most respondents were unclear of what a constitution was and most villages have not held annual general meetings (AGMs). There has been little to no transparency as far as number of animals shot and trophy hunting fees generated within SGP. However, results suggest that people are willing to attend meetings and that they have the ability to elect their leaders. When the 20% income does get transferred to the communities, it will be important to monitor that it is being spent according to participatory budgets and that decision makers are accountable to their communities and that information is transparent and properly reported back to communities and government leaders. See graphs 20-37 of appendix J for additional results from the dashboard survey.

**Figure 18 Attitudes on Wildlife and the Game Fence**
Conclusion:
The Situational Analysis of Mangalane, Mozambique, revealed that communities are diverse, but highly reliant on natural resources and the environment for their own survival. Formal employment within and outside of tourism is limited and even when informal employment exists, it often pays in-kind rather than in-cash. When income is necessary for purchase of market goods such as clothing, cooking oil, or health services, it is often earned through the sale of value added goods produced directly from the environment such as charcoal, livestock, and traditionally brewed beer. With such a heavy dependence on the environment, community members are vulnerable to changes in resource availability. Surveys, interviews, and SA workshops findings suggest that resources are becoming less abundant as a result of over-use. Despite understanding the decreases in natural resources and the importance of these resources for survival, community members have yet to address the issue of resource depletion.

The results of this study suggest several key recommendations for addressing development and natural resource conservation in Mangalane, Mozambique. First, is to encourage community management of natural resources in order to avoid continued declines in resource abundance. Training in governance and monitoring conformance to governance principles is vital to ensure that all community members are able to benefit equitably from the resources in their area. It is also important to encourage and support community land use planning and economic development. There is much potential for increased economic contribution from wildlife, fish-farming, and improved agriculture. However, it will be important to carefully manage land-use in order to incorporate these activities without losing important land for grazing or other cultural activities.

Perceived value of wildlife is low in this region as a result of false promises made by the game-park, the continuation of human-wildlife conflicts, and the lack of benefits. A successful CBNRM program should bring financial benefits from trophy hunting to communities in an
equitable manner. Ensuring that 20% of the trophy fees are distributed to the community is vital. Outside of this financial benefit, SGP can improve the situation by fulfilling some of the outstanding promises and improving meat distribution. By distributing one whole carcass of a buffalo, hippo, or other large animal to one village at a time, it will be easier to account for pieces missing before delivery (due to SGP staff). This will also reduce the opportunity for elite capture within the village, as there will be enough for everyone to get a portion and without refrigeration, leaders will have difficulty keeping more than their fair share. By improving the logistics of the meat distribution alone, the relationship between SGP and the communities stands to improve greatly.

Even if communities begin to benefit financially and poverty is reduced, attitudes toward conservation may remain high if the perceived cost is higher than the perceived benefit regardless of actual cost benefit ratio. Education can help tackle differences in perception and reality by providing feedback on actual human-wildlife conflict levels. If people begin to understand that the frequency of conflicts is low, their perception may change despite the severity of events when they do occur. A more participatory method of addressing perceptions would be to have communities themselves monitor incidences of human-wildlife conflict and report findings at quarterly meetings. With this information, communities may develop methods of further preventing human-wildlife conflict incidences and/or compensating affected individuals (assuming they are receiving financial benefits with which to do so).

The findings of this case-study are primarily from qualitative data. When quantitative methods were used, the sample size was often too small for certain statistical analyses. The objective was to understand the local context and to develop a baseline for before-after comparisons in the future. Any extrapolation of this data to other regions would be inappropriate although a comparison of different CBNRM sites using similar methodology is possible. This comparison could show similarities and differences in communities neighboring protected areas. It could also be used to support CBNRM and generate funding if it shows that these projects are able to achieve their goals of improved conservation and reduced poverty.

The methods used in this Situational Analysis have been applied to different CBNRM projects, but not compiled together as in this research. While each component of research provided useful information on its own, the different components supported each other as well. Interviews improved the development of the survey and survey results helped shape SAWs and information from SAWs and surveys were validated and explained in further interviews. As this specific combination of methods is new, several potential improvements were discovered during the case study, which are described in the methods and results sections. Furthermore, future applications of these methods will likely lead to greater knowledge and more improvements. When applying these methods, adjustments should always be made to adapt to the specific context and can easily be incorporated into the participatory methods. As the governance training program was a pilot project, having a specific methodology for the situational analysis portion of this program is valuable to SAWC as they continue to expand the program. The methodology is also useful for
other conservation organizations that are attempting to initiate or improve CBNRM programs. Applications in Mozambique or other SADC countries will likely require fewer adjustments than applications in other parts of the world.

The research methods described in this paper were completed in a span of five weeks by two individuals (and additional translators at times) with few supplies. Given the importance of the local community and the relative simplicity of these research methods to quickly and cost-effectively analyze the situation, there should be no reason for not gaining an understanding of the local context before designing or implementing a community-based conservation initiative.

References:


**Appendices:**
Appendix A: Photographs

Participatory mapping in Mukakaza

Interviews with women from Mavanguana

Borehole in Mavanguana (one of only 2 boreholes in the region)

Cattle kraal with thorny fence to protect from predators/theft

Cattle are an important source of wealth

Traditional home with clay pots for brewing marula beer
Walls of traditional homes are constructed with rocks then covered with mud.

The team visiting an environmental education facility in South Africa.

Elephants are plentiful in the region and can be a good source of trophy fees.

Leopards, lions, and buffalos generate much of the trophy fees in SGP.

Ndindiza School

Small tuck shop in Mavanguana.
Participatory mapping exercise in Mavanguana

Author conducting a livelihood survey

Thabisile Sibuye and Dr. Brian Child explaining participatory budgeting

Environmental Education outreach

Theresa Nube explaining the government rules for receiving the 20% from trophy fees

Elected Committee of 10 individuals in Mukakaza
Thabisile Sibuye conducting a governance dashboard questionnaire

Locals traditionally relied on wildlife for meat as well as products like this “bag”

Woman in Baptine requesting chairs/desks for the school be added to the budget

Forget Sithole leading a community meeting on CBNRM and governance
Sign at SGP main gate

The “classroom” for theoretical training at SGP

Author with Thabisile Sibuyi after completing fieldwork in Mozambique

Mukakaza community meeting

Ivonne Ubissi (Mukakaza trainee) leading a community meeting on the value of wildlife

SGP staff Alex McDonald and Shadreck Midzi explaining trophy hunting
Process of Trophy hunting fees to the government and 20% back to communities

Drinking water source in Mukakaza

Hand-drawn mapping exercise with Killion Mabunda

Mukakaza clinic
Appendix B: Overview of Governance Training in Mozambique

Day 1:

In addition to trainees, local headmen/leaders and some of Sabie staff attended the session on the first day. The morning began with a prayer and introductions of everyone present as well as a brief introduction to the program. In short, Sabie Game Park (SGP) approached the Southern African Wildlife College (SAWC) asking for assistance to improve their relationship with the local communities. They wanted to develop a “best-practice” example that could be used as a model throughout the Southern African region. Next Fernando (from the board of directors for SGP) gave a history of Sabie and local leaders responded with more information about their history. [INSERT summary of agenda]

History:

In 1998, they began to plan for Sabie Game Park and a lodge. They had previously developed Zongweni Lodge in Xai Xai district on the coast which was successful, but they also wanted a lodge in the bush away from the coast. The project plans would take a lot of time and patience, but they were persistent. The Paramount Chief in the area quickly agreed that a wildlife park like Kruger would be beneficial to the community. Then, the Counselor of Ministries had to approve the purchase of any land over 10,000ha. When the land was approved, they began to make roads and put up a fence. There was a lot of concern over land mines in the area and workers were hesitant to make roads until after the area had been cleared of mines. The construction process was stalled for a long time and the agency that clears land mines never came out. Finally, the manager convinced the workers to resume work and he would ride the tractors with them so if there was a land mine he would be the first to die. Fortunately, they did not come across any land mines during the construction of the roads. In the beginning, there were practically no animals in the entire 30,000 ha reserve, but by now the wildlife densities are growing. In 2009, they received the first hunting permits from the government. The trophy fee for each animal killed must be paid to the government and then 20% goes back to the community from the government and the meat from each animal killed is to be distributed to the communities. To date, the community has not received any money from the government for hunting and in reference to the money we were told “once it is in the crocodile’s mouth, it is difficult to get back.” In 2008, Sabie built a school and a clinic in Baptine village. They have also attempted to dig boreholes and make dams to provide water for the people as well as their cattle. According to Fernando, “we have made some progress, but there is still more work to be done to better the lives of the community.”

The community acknowledges that Sabie is trying to improve the relationship and they are thankful to the new manager, Ferdie for his efforts. However, they need more help from Sabie, particularly with water, which is a major concern. People were living in the area during the time when the Portuguese ruled, but as the war became too intense, most of the people moved away. After the war ended in 1992, people slowly began to return to the area. At first, it was just the
Paramount Chief in the area because the headmen had not returned yet. It was the Paramount Chief who approved SGP. As the fence was being erected, the people realized that their water sources and the graves of their ancestors were inside the park and they would no longer have access to them. They would need no water sources and they would no longer be able to hold traditional ceremonies to honor their ancestors. Mukakaza village refused to move from their homes so the fence had to be shifted to go around. Sabie made a dam in the north, but it no longer provides water. They built boreholes with solar, but the solar panels disappeared so there is no water for the people. They do get some meat from Sabie, but they need to also get the 20% that is owed to them. They are excited to have all these people from other countries to bring new ideas. They hope that they are on the right path now and that the project will actually help them.

Value of Wildlife:

Professor Brian Child explained his experiences working with white farmers in Zimbabwe as a government extension agent. Originally, everyone was farming cattle because they could own the cattle and sell it, wildlife on the other hand was owned by the government. In 1975, a new law in Zimbabwe allowed farmers to own the wildlife that was on their land. Similar laws have also been established in Namibia and South Africa. Because wildlife is more profitable than cattle, the white farmers quickly switched to farming wildlife. Then, as an extension agent, he began working to get the locals to also switch from cattle to the more profitable wildlife. Here a skit was presented to depict the value of wildlife. The farmer had a cow and then sold the cow and received the correct value for this cow. Then another farmer had a buffalo when he sold the buffalo to the hunter he received the full value which is much more than the value of a cow. From this full payment he had to give some money to the government official and then the government official was supposed to give 20% back to the community. The buffalo represents money for two important purposes 1) to stop poverty and 2) to improve conservation or protect wildlife. In Mozambique, the communities are currently unable to benefit from the wildlife on their land because hunting is restricted to problem animals. There are many animals such as wild pigs and hippos that destroy their crops. When presented with the information on the relative prices of cattle and buffalo, the community was asked which they would choose to farm, assuming they could own and benefit from the wildlife. One community leader explained that “a cow sells for less money, but it gives us milk and labor” so it is more valuable than it appears and they would probably choose to continue keeping cattle.

Hunting:

Alex MacDonald who runs the hunting safaris at SGP, explained how the money is generated from hunting and where that money goes. First, they must estimate the number of each species living in the park and then give that information to the government when they apply for a quota. The quota is based on the number of each species that can be harvested sustainably. After obtaining the quota from the government, they sell these hunting permits to clients from all over the world. Then the client comes and pays to hunt specific animals, such as 1 buffalo and 1
leopard. Some of the money from the client goes to running the park because it is expensive to maintain roads, vehicles, and buy other necessary supplies as well as salaries for staff. Some of the money goes to the government to pay the trophy fee which is a set amount of money for each species that is shot. From this, 20% goes back to the community by law, although currently not by practice. The client keeps the trophy-skin and skull of the animal, but the meat generally goes to the staff and communities.

Community organization:

1. Who is a member of the community and how do you decide. Is it based on age, time spent in community, location of house…
2. Animals-how many of each species are included in the quota times the price per animal divided by the number of members will show the individual share for the year. For example 2 lions x $1000= $2000 + 5 buffalo x $500= $4500/100 community members=$45 per person.
3. Community meets to discuss how to use the money. They discuss priorities and then vote on each item until a decision is met. During this process, everyone must be allowed to voice their opinion and explain why they think a certain item should be considered a priority before the voting occurs. A precise budget must be developed according to the results of the vote.
4. Money is distributed to each individual ($45 in this case) and then each individual puts the agreed upon amount into the bucket for the project. For example, they agree that each person puts $20 toward a chigayo and $5 toward the school then they can keep the remaining $20. When each person has received their share and placed the correct amount in each project bucket, the bucket is given to the overseer of the project in view of everyone in order to create accountability. Everyone knows who took the money, so if the chigayo doesn’t come or the school does not get new desks, the people will know who is to blame.

It is valuable to establish a constitution in order to address issues and avoid fighting. The community will agree upon a set of rules which will be written in the constitution and followed in the future. When issues arise, the community can look to the constitution to solve the problem.

The treasurer reports the accounts back to the community every month at first and then every 3 months after the community is well organized and the committee is functioning properly. This is to ensure that if any money does go missing it can be inquired about and found before it is too late. If accounts are only presented annually, it is possible for large sums of money to disappear and it may be impossible to get them back after such a long period of time.

A minimum number of meeting must be held each year. While a committee is elected to handle the money and run the meetings, all decisions must come from the community as a
whole. They must be able to participate in the planning, discussion and voting to ensure that decisions are not forced on them. Bank accounts should have at least 2 signatures for money to be released, preferably one from the community and one from an NGO/government official to ensure that the community is complying with the rules and the money is benefitting everyone not just one or two powerful individuals. In Mozambique, the government requires 3 community members to sign the bank account for transparency and they expect a certain amount of community organization before money is released.

Conclusion:

Development requires the efforts of the communities. Outsiders can come in and give knowledge such as in this training project, but that is all they have to offer. When the training is finished, it is up to the community to use that knowledge in order to bring change and improve their own lives.

**Day 2**

Agenda:

1. 20% and rules
2. Community mapping/organization
3. How to divide the money
4. Rules, constitution, budget, and distribution
5. Oversight, monitoring, and training

20% and rules: Presented by Theresa Nube, government official

Money paid by SGP to the government in trophy fees

<table>
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<th>Year</th>
<th>Amount (USD)</th>
<th>20%</th>
<th>Amount After 20%</th>
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<tr>
<td>2009</td>
<td>970,170.00</td>
<td>194,034.00</td>
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<tr>
<td>2010</td>
<td>768,358.00</td>
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<td>2011</td>
<td>126,321.00</td>
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<tr>
<td>2012</td>
<td>405,375.00</td>
<td>81,075.00</td>
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</tr>
<tr>
<td>Total</td>
<td>2,270,224.00</td>
<td>454,044.00</td>
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</table>

Communities are required to elect a committee of 10 individuals and to have 3 of these individuals open a bank account for the community. Then, they government will release the funds to the communities.

Community Mapping:
Trainees and community leaders divided into groups according to each of the 4 villages, Mukakaza, Mavanguana, Bapetine and Ndindiza/Costine. Each group was given flip chart paper and colored markers and asked to draw a map of their community showing all the important elements. The foreigners were divided between the groups in order to help explain the process as well as to learn about the communities. After the maps were completed each group was asked to list their organizational structure or different organizations that are very important to the community such as the government, political organizations, SGP, etc. This process took longer than expected, but the groups developed very nice and colorful maps and then presented them back to the entire group at the end.

How to divide the money:

The money will be divided among the communities based on the number of adults living in each community. A census was conducted previous to the training to list all adults over the age of 18 and the lists were presented to community leaders to ensure their accuracy. In the future, the communities can change membership requirements and adjust the lists.

<table>
<thead>
<tr>
<th>Village</th>
<th>Number of households</th>
<th>Number of Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mukakaza</td>
<td>94</td>
<td>238</td>
</tr>
<tr>
<td>Mavanguana</td>
<td>75</td>
<td>264</td>
</tr>
<tr>
<td>Ndindiza</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>Costine</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td>Bapetine</td>
<td>73</td>
<td>201</td>
</tr>
</tbody>
</table>

Rules:

1. Every adult gets an equal share, but they choose how to use the money together as a community
2. Annual Group Meeting (AGM) where people decide how to use the money, create a budget for cash dividend, projects, wildlife management (later), and membership fee for administration (no more than 10%)
3. Elect a Committee annually and the people instruct the committee, they do not act apart from the community
4. Bank Accounts and financial books- no loans allowed
5. Monthly then quarterly financial report to the community and the government
6. Will only receive next year’s 20% if the rules are followed

The role of the government is to 1) conduct a financial audit to compare the budget for last year with the money that was spent 2) ensure participatory budgeting and development of a plan for next year’s money before it is released 3) ensure that a committee is elected to implement the community plans. In addition to these annual requirements, the government should ensure that
expenditures are presented monthly/quarterly to the whole community and compared to the budget that was agreed upon to ensure accountability.

Planning:

Discuss and develop a tentative agenda for the week to include an initial meeting and a follow-up meeting in each community. This gives the community time to contemplate the information and discuss the priorities for the budget before making a final decision which will then be presented at the follow-up meeting. The final two days will be reserved for cash distribution, assuming the money will arrive in time from the government.

**Day 3: Meeting in Mukakaza Village**

The meeting began with a prayer and introduction of visitors from SGP, SAWC, and government. The meeting was conducted in part by the trainees from Mukakaza village (practical training to help them learn the necessary skills for running community meetings) and other trainers from SAWC. [INSERT number of community members in attendance] Theresa Nube gave a summary of the 20% of the money and the requirements for the community to receive the money. The community had many questions about when they would receive the money in their bank account. They were informed that they need to first elect the committee of 10 individuals and have 3 people from the committee open a bank account. The community then presented the committee that had been elected and the treasurer, secretary, and president who would sign for the money at the bank. Surprisingly, 2 of the 3 bank members were women and the committee itself was fairly gender-balanced.

After the introductions to the program, there was a discussion and explanation of the relationship between SGP, the Government, and the community and how the money flows between the different groups. The process of selling animals from the quota to clients, then paying the required trophy fee amount to the government and then the government theoretically sending 20% back to the communities was explained. In addition this aspect of the meeting included information about the value of wildlife and the potential for wildlife to benefit the communities. One man was very concerned about the negative impact of wildlife on the community and voiced concerns such as “what about our goats and cattle that have been killed in the past,” “when can Sabie come to kill and make money from a lion that is killing a cow in the community?” and “they should start by killing the elephants that are destroying their fields.” To address the issue of predators taking livestock, it was explained that we are working to create a better future relationship and avoid similar issues in the future, but that this is not the appropriate forum to deal with past grievances. In reference to the elephants, it was explained that the communities do not own the wildlife on their land and therefore cannot benefit from selling them to hunters in the current situation. Instead, they are only allowed to shoot problem animals and even then they must report the problem animals to the government and wait for the government or SGP to come and shoot the animals for the community. In the future, it may be possible for the community to
apply for their own quota and then sell these to hunters in which case they would receive the full 100% of the trophy fee without the government keeping any of the money. When these issues had been addressed, other community members moved on to inquire about the money “when an animal is killed does the money go straight into the community bank account?” and “how are they able to access this money for the community?”

This was followed with an explanation of the trophy fees complete with current prices of each species, and a graph showing how much money Sabie paid to the government in trophy fees each year for the previous four years as well as the calculations of 20% for each of the 4 years and the total amount due to the communities. Here there was concern over the accountability when animals are being hunted, they asked “when people get into the park and shoot an animal, who sees them, who can collect the money.”

The process of dividing the money based on the number of adults in each community was explained. The community was shown the individual share that was calculated according to the recent census that was conducted. There was much concern over the accuracy of the census and people explained that the numbers could not be correct because there were more people in the area. They explained that the village is divided into two parts and the smaller part, or Mukakaza 2, was not included in the census. They agreed that this other section should be included and the committee was given their first task- to review and rectify the list of community members developed in the census.

After explanations of the benefit of wildlife, the requirements for receiving money, and the distribution process, they went on to discuss budget possibilities. At first, the community said they wanted to take all the money as cash and not use any for projects, which is allowed. Then they began saying that the individual share is so low that it would not even make a difference in the household. Instead it would be better to put their money together and do a project that can benefit everyone. They really like the idea of a chigayo or grinding mill, but said they would not be able to decide now because they have to discuss with other community members that were not at the meeting. This is why the training was set up to include a follow-up meeting, acknowledging the benefits of having time to discuss amongst themselves and think over the possibilities before reaching a final decision. At first they were hesitant to really discuss ideas, but eventually they opened up and debated different needs and priorities. Some of the hesitancy resulted from mistrust and they asked “why does Sabie want to control the money?”. There was fear that we were trying to tell them how to spend their money and what they should do. Others thought that no one from Sabie should be present because they feared that SGP was trying to “hide behind the 20% coming from the government” in an effort to avoid their obligation to fulfill promises like water and schools. Eventually they made a list of the top priorities for the community including water, cell network, chairs for the school, a chigayo. They know that Sabie should provide the water as promised, but worried that if they spend the money on something else and Sabie does not fulfill this promise then they will have no water and no money to provide water. While cell network is a top priority, they do not have enough money to get a
cell tower. Only a few women were concerned about the chairs in the school and the lack of windows, saying that children come home dirty every day because they have to sit on the ground. After discussing the options they requested two days to think it over and then they would vote and report their budget decisions back to us. However, they started discussing more and voted on the spot for a chigayo which everyone seemed pleased with. We were told there was no need to come back for a second meeting and we would wait until the money arrived to do the cash distribution.

**Day 4: Ndindiza/Costine Community Meeting**

Welcome and prayer led by a trainee from Ndindiza community and one of the community leaders. We went around introducing ourselves and gave an introduction to the program. No one from SGP or from the Government was present for this meeting only trainees through the SAWC. There were approximately 42 community members in attendance, which is a large proportion of the adults in the two villages. Because both villages are small, they had previously decided to combine for the purposes of opening a joint account and distributing the money. Community Based Natural Resource Management (CBNRM) was explained in general with specific examples from Namibia and other parts of Southern Africa. The agenda was the same as that for the meeting in Mukakaza he previous day, but it the process was smoother as it was the second time for the trainees and trainers to be presenting the information.

Some questions and issues raised by community members were:

- We have seen the road the money takes to get to the government, but we have not seen the road for the money to come back to the community- in response to the diagram of the flow of money.
- What about the water, school and other things that were promised by Sabie?
- There are issues with hippos eating maize and destroying fields. There are other conflicts with animals that destroy crops as well as predators that take livestock. When these problem animals are killed, the community does not benefit even if the wildlife is valuable. This issue was addresses by several different people. In the end, they agreed that they were relating these issues to the wrong people and declared that Sabie should be present in order to provide an opportunity for the community to discuss these issues.
- Sabie employs many people from far away instead of from the community- originally promised employment to the communities. This issue was refuted by a woman who works for Sabie that claimed Sabie does employ many people from the community, but if there are no skilled workers in the community, then they hire from outside. She said “these people came to help.”
- Concern that people may be missing from the list of Community members or that they were registered in the wrong village. They agreed to look over the list and make changes as necessary.
The community had already elected a committee of 10 people with 3 individuals to sign for the money at the bank. Therefore, after the explanation of the amount of money that was owed to them for the previous four years as well as the individual share based on number of adults in the combined villages, they were able to move to discussions of the budget. Most of the men wanted to take the cash to “eat” rather than working on a project. Even when combined, the two villages are much smaller than the other villages and the total cash when pooled is still not a large sum. They agreed to continue to discuss the budget and vote as a community. We would come back in a few days to learn of their final decision.

**Day 5: Mavanguana Community Meeting**

The agenda was the same as in the previous community meetings. Here, we faced fewer issues and everyone seemed supportive of the process. There were approximately 50 community members in attendance.

There was concern about the accuracy of the membership list, but in the end they agreed that everyone in the community was on the list. They understood the idea of a committee to represent the people and agreed that the committee must not decide for the people, but must act on behalf of the people. Like in the other communities, they had already elected the committee and the 3 signatories for the bank. When a list of attributes of committee members was presented, the discussed the possibility of including a local headman (the training discourages election of headmen or traditional leaders into the committee.) The headmen on the committee said he was elected not because of his role as a headman, but because the people know that he is a fighter and that he will fight to get the money to them. It is agreed that he will remain on the committee for now to ensure that money comes and next year he will step down and only retain his position as a traditional leader.

In discussing the budget, there was much interest in pooling the money and using it for a project. They agreed that the individual share was too small to make a difference, so it would be better to combine the money and do a project to benefit everyone. “The money is too small,” “it is not for individuals, but is for the whole group.” They all agree that they need a dam or a well for water, particularly for their cattle. However, some people do not want to use their funds to provide water since SGP promised to provide water and they should be made to fulfill this promise. In discussing the issue of water, they acknowledge that they do have a borehole, even if it is far. However, their roads are very bad and become impassable during the rains. They need a hospital in the area, but they also need better roads in order to be able to get to the clinic/hospital in Kaboka or to get to Maputo. They also need more than one school because currently some of the children have to walk very far through the bush in order to attend the school in the village and even then, it only goes through primary school. They request time to think about the decision for a few nights and will report their decision back to us later.
One man said “we were suspicious when you came that you wanted to take more land from us and shift us again. We are thankful for this and that Sabie has agreed to provide water for our cattle.” Many community members are thankful to Ferdie from SGP for helping them to get the money that they had in the past only heard rumors about. They thought the money was eaten by someone else and that they would never see it. Thankful to everyone helping in the process, but also request that the dam for cattle be built quickly as they are suffering from a water shortage.

**Day 6: Day Off**

**Day 7: Baptine Community Meeting**

The meeting followed the same agenda as the previous meetings and by now, the trainees from Baptine were prepared to conduct almost the entire meeting on their own which sped up the process. There were 93 adults in attendance which is a large proportion. A representative from SGP also attended the meeting. The community was very organized and prepared for the meeting.

In discussing the budget, they agreed that they need electricity, better roads, and a hospital to share with other communities. All these comments were from men, but later some women began speaking up and requesting a chigayo, saying that the men are able to rest every day and now they want to rest also. A man agrees that they need electricity, better roads and a hospital, but he declares that it is the government’s responsibility to provide these things and that the community itself should not have to pay for what the government is supposed to supply. He then supports the chigayo. They discussed the options for some time, but decided that they would wait to vote on their own and report back to us later.

**Days 8 and 9:** Final budget reports and revised membership lists back from the communities and Review for Trainees.

Mavanguana agreed to spend the money on road improvement. SGP agreed to provide the equipment and workers free of charge so the community only has to pay for the diesel to run the tractor and grinder.

Mukakaza was busy with another meeting so we had to wait and come back the next day. In the end, they also decided to repair their roads with the help of SGP.

Baptine voted to get a chigayo and agreed that they would charge community members a fee for grinding maize meal in order to pay for the fuel and repairs. If the money from the government is not sufficient to purchase a chigayo, then they can buy on credit and use the fees to help pay off the rest of the payment. Their community was very organized and prepared to present the results of their budget vote.
Ndindiza- when we arrived there were only a few individuals, some of whom were drunk. They explained that they had not yet voted and we would have to come back another time. In the end, they never reported back to us with a finalized budget.

On the evening of day 8, we drove through the park to the large dam where we had drinks and celebrated our work over the week of training.

Review: We discussed what had been learned, what still needed to be addressed in future training and how to move forward. On the final night, 1 trainee from each village was selected to take part in the second part of training to be held in South Africa at SAWC at the end of July. Trainees were evaluated from 1 to 10 based on key competencies. In order to attend the next training the student must obtain higher than a 5. In cases where both trainees from the same village received a score above 5, the student with the highest score would be selected. In the case of Costine village, neither trainee received a score of over 5 so neither student was selected to attend. Fortunately, there is still a trainee from Ndindiza that can help run community meetings and Ndindiza and Costine are combined for these purposes. We held a small graduation ceremony and presented each trainee with a certificate of completion for the course and announced those who would be attending the next training.
Appendix C: Household Livelihood Survey

Livelihood Questionnaire

Interview Code (Interviewer Initials, Date, Interview #) ______________________________

Name of Interviewer_______________________________________________

Village_______________________________________________________________

Survey Number _____________________________________________________

STATEMENT ABOUT INFORMED CONSENT:
  1. This survey should take one hour
  2. You do not have to answer any question you do not want to
  3. All information is confidential and anonymous; your name will not be connected
     with your answers
  4. No identifying information will be collected, and therefore none of your responses
     can be linked to your identity
  5. You can stop the interview process at any time
  6. You can ask for clarification on any question at any time

Provide a brief narrative description of this household:

Section A: Participant / Household Demographics

1. a. Have you always lived here?

   b. If no, when did you move here?

   c. Where did you move from? ________________________________

   d. Why? ________________________________

67
<table>
<thead>
<tr>
<th></th>
<th>Drought</th>
<th>2</th>
<th>Flood</th>
<th>3</th>
<th>Job</th>
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<td>5</td>
<td>Security/Safety</td>
<td>6</td>
<td>Government Program</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Other (Describe)</td>
<td></td>
<td></td>
<td></td>
<td>War</td>
<td>8</td>
</tr>
</tbody>
</table>
2. For each household member, please fill in a row of the table:
Enumerator: please account for each member of the HH that is part of the core family, and all other contributors, and all other dependents. Core family = live underneath roof for 6 or more months per year.
Other dependents = depend on the HH but live outside the house for more than 6 months per year.
Other Contributors = contribute to the HH but live outside the house for more than 6 months per year.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Relationship with head of household</th>
<th>Age</th>
<th>Gender</th>
<th>Education level</th>
<th>Salaried Employment</th>
<th>Ethnic group</th>
<th>How many months do you live here?</th>
<th>Where do you live during the other months?</th>
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</thead>
<tbody>
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<td>1 grandparent</td>
<td></td>
<td>1 Male</td>
<td>0 none</td>
<td>1 yes</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td>2 Female</td>
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<td></td>
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</tr>
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<td></td>
<td></td>
<td>3 child</td>
<td></td>
<td></td>
<td>2 completed primary</td>
<td></td>
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<td></td>
<td></td>
<td>4 nephew/niece</td>
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<td></td>
<td>3 some secondary</td>
<td></td>
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<td></td>
<td></td>
<td>4 secondary</td>
<td></td>
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<td>18</td>
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</tr>
</tbody>
</table>
### Section B: Access to Technology, Water, Market, Health Services

3. **Please mark the following assets your household owns or has access to:**

<table>
<thead>
<tr>
<th>Asset</th>
<th>Own</th>
<th>Borrow</th>
<th>Hire</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoe/boat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sledge/sley</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunting equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tin Roof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Storage Tank</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pit Latrine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Television</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cell phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator and/or solar panels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brick House</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ox cart</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorbike</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree Cutter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER (Write)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **Where does your household get drinking water?**

1 PUBLIC TAP  
2 WATER IN HOUSE/ STANDPIPE  
3 WELL/BOREHOLE  
4 RIVER/Dam  
5 OTHER ___

5. **In the past year, have any of your children had kwashiorkor?**

1 yes  
2 no

6. **How much time does it take you to get to closest hospital/ clinic?**  

---

70
7. How much does it cost to see a doctor? ____________________________
**Section C: Ecosystem Production**

8. We would like to know wild products that you use in your house *(goal – estimate value of ecosystem services)*

<table>
<thead>
<tr>
<th>Type of resource</th>
<th>Do you use it</th>
<th>How did you get it:</th>
<th>Units</th>
<th>Local prices of a unit</th>
<th>How many units did you use in a month?</th>
<th>How many months a year?</th>
<th>Enumerator to calculate total annual value produce by the HH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firewood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thatching grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wild fruit/amarula</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edible insects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicinal plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own hunting</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Meat from safari hunter</td>
<td></td>
<td></td>
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<tr>
<td>Other game meat</td>
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<tr>
<td>Charcoal</td>
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<tr>
<td>Other</td>
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</tr>
</tbody>
</table>

9. Wild products that you sell

<table>
<thead>
<tr>
<th>Product/material</th>
<th>Sold?</th>
<th>Number of months in last 12 months in which this was sold</th>
<th>Average income per month when sold</th>
<th>Total income over 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Fire wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Baskets</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3 Furniture made from wood from the bush</td>
<td></td>
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<tr>
<td>4 Wooden carvings (e.g. statues, mortars, spoons etc.)</td>
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<tr>
<td>5 Poles</td>
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<tr>
<td>6 Reed mats</td>
<td></td>
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<tr>
<td>7 Palm / Marula beer</td>
<td></td>
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<td></td>
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<tr>
<td>8 Marula nuts</td>
<td></td>
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<tr>
<td>11 Edible insects</td>
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<tr>
<td>12 Thatching grass</td>
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<tr>
<td>13 Twig hand brooms</td>
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<tr>
<td>14 Grass hand brooms</td>
<td></td>
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<tr>
<td>15 Medicinal plants</td>
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</tbody>
</table>
Section D: Farming

10. How many plots of land does the household own? ____________________________

11. Are these plots average sized, smaller, or larger than other plots? _______

12. How far are the plots from your household? _________________________________

13. Do you buy seed/fertilizer/chemicals etc. for farming? (explain)_______________

Q14. Which crops did your household grow in your yard or field outside the yard during the last 12 months?

<table>
<thead>
<tr>
<th>Type of crop</th>
<th>Grown in Last 12 months?</th>
<th>Production</th>
<th>Sales (or barter)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Where?</td>
</tr>
<tr>
<td>Maize</td>
<td>Yes</td>
<td>No</td>
<td>Garden/HH yard</td>
</tr>
<tr>
<td>Sorghum</td>
<td>Yes</td>
<td>No</td>
<td>Dryland</td>
</tr>
<tr>
<td>Millet</td>
<td>Yes</td>
<td>No</td>
<td>Field outside of yard</td>
</tr>
<tr>
<td>Peanuts</td>
<td>Yes</td>
<td>No</td>
<td>Other ...</td>
</tr>
<tr>
<td>Cow peas</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Watermelon</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Melons</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sweet reed</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Pumpkins</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

15a. Have your crops been damaged by wildlife last growing season? (not cattle)

1 ALL (100%) 2 MOST (>50%) 3 SOME (<50%) 4 NONE

15b. What species damaged the crops?
16. Please fill in the following table regarding the number of other livestock your household owns:

<table>
<thead>
<tr>
<th>Livestock species</th>
<th>Own #</th>
<th>Look after #</th>
<th>Where are they?</th>
<th># sold this year</th>
<th># eaten this year</th>
<th># died this year</th>
<th>Cause of death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Goats</td>
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<tr>
<td>Chickens</td>
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<tr>
<td>Donkeys</td>
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<tr>
<td>Sheep</td>
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<tr>
<td>Ducks</td>
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<tr>
<td>Other:</td>
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</tbody>
</table>
Section E: Livelihood Part 1

17. Please fill out the following table regarding your monthly expenditure for the household. Please list all activities regarding your primary needs and what is spent on each:

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>Bought? (yes/no)</th>
<th>Estimated total expenditure in last 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases of food</td>
<td>TOTAL EXPENDITURE ON FOOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bread / flour</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maize meal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rice /pasta</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vegetables</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tinned foods</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meat</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Salt</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cooking oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tea / coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alcohol/ cold drinks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household consumables (, toiletries,</td>
<td>TOTAL EXPENDITURE ON CONSUMABLES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house cleaning products)</td>
<td>Candles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Matches</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toothpaste</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Body lotion / Vaseline</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tissues/toilet paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sunlight soap/washing powder</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing (in year, and divide by 12)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Cell time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Home repairs (in year, and divide by 12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Farming supplies (in year, and divide by 12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Water and energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Water (including paying transport of water)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Paraffin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Firewood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Savings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Savings cooperative/ Funeral policy/Burial society Other savings accounts/policies/investments (bank, post office, etc...)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Debt and accounts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Paying back debt/accounts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Life insurance policy Medical aid/health insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Education (in year, and divide by 12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>School/university fees and tuition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Child care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Child care minder Creche</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Health care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Visiting dentists, doctors or nurses Hospital fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Medical supplies e.g. medicines and bandages Traditional healers fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Support to others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Support to a temporary migrant (including student) Support to relatives in other households Support to unrelated individuals or households</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Miscellaneous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Church and donations Domestic help (e.g. somebody to do washing)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
18. Please fill out the following table regarding cash income activities for the HH. Include regular work and piece work:

<table>
<thead>
<tr>
<th>Person</th>
<th>Activity (WRITE):</th>
<th>Employer</th>
<th>Sector</th>
<th>Location of work</th>
<th>Seasonality (months/year)</th>
<th>Income Earned (monthly)</th>
<th>Remittance to HH (monthly)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
19a. Did your household receive meat, cash loans, other cash income, or any sort of non-cash assistance (transport, clothes, etc…) from a trust, tourism lodge, hunter last year (2012)?

<table>
<thead>
<tr>
<th>Type</th>
<th>Last year (2009)</th>
<th>From whom? Sabie Game Reserve, Other (if other: WRITE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividends from Wildlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ploughing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (WRITE):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19b. Did your household receive meat, cash loans, other cash income, or any sort of non-cash assistance (transport, clothes, etc…) from government, churches or charities last year (2012)?

<table>
<thead>
<tr>
<th>Type</th>
<th>Last year (2009)</th>
<th>From whom? Govt, Other (if other: WRITE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Aid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pension (social security)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orphan Fund</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drought Fund</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (WRITE):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19c. What did you receive? (please list any items or cash, including food or employment)

__________________________________________________________________________________________________
__________________________________________________________________________________________________
__________________________________________________________________________________________________
Section F: Experience of hunger

Q20. Please think about what has happened in your household in the last 30 days and tell me how often you have experienced the following situation which I will read. (read the options: never, rarely (1-2 times), sometimes (3-10 times), or often >10 times)

<table>
<thead>
<tr>
<th>Household food insecurity and access scale</th>
<th>Never</th>
<th>Rarely (1-2 times)</th>
<th>Sometimes (3-10 times)</th>
<th>Often (&gt;10 times)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 How often was there no food in the house because there was not enough money</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2 How often did you or a member of your household go to sleep hungry because there was not enough food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 How often did a member of your household go a whole day without eating because there was not food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q21. Over the past 12 months has your household experienced a shortage of food? Yes / No

<table>
<thead>
<tr>
<th>Month</th>
<th>No</th>
<th>Rarely 1-2 days</th>
<th>Sometimes 3-10 days</th>
<th>Often</th>
<th>Cause (Key 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>July</td>
<td></td>
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<tr>
<td>August</td>
<td></td>
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<tr>
<td>September</td>
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<tr>
<td>October</td>
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<tr>
<td>November</td>
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<tr>
<td>December</td>
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<tr>
<td>January</td>
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<tr>
<td>February</td>
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<tr>
<td>March</td>
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<tr>
<td>April</td>
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<td></td>
</tr>
<tr>
<td>May</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Q22. Did you experience hunger in the past: (children have one or less meals in a day) Yes/No

<table>
<thead>
<tr>
<th>Year</th>
<th>Yes/No</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
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<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
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</tr>
</tbody>
</table>

Section G: Livelihood Part 2

23. What are the three biggest challenges to your livelihood that you are worried about?
   a. __________________________________________________________
   b. __________________________________________________________
   c. __________________________________________________________

24a. Compared to 5 years ago, is your household more or less prosperous today?

1 MORE PROSPEROUS  2 LESS PROSPEROUS  3 EQUAL  99 DON’T KNOW

24b. Please explain: ____________________________________________

25. Have you heard of a TFCA Trans-Frontier Conservation Area?/
   Do you know what a TFCA is?
## Section G: Trends in ecosystem services and other services (ten years ago)

26.

<table>
<thead>
<tr>
<th>Natural resources</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Don’t Know</th>
<th>Comment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil fertility is better now than it was ten years ago.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Firewood is easier to get now than it was ten years ago.</td>
<td></td>
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</tr>
<tr>
<td>Wild fruits and vegetables are disappearing from the environment</td>
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<tr>
<td>There are more animals to hunt now than ten years ago.</td>
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<tr>
<td>We are able to fish more than ten years ago</td>
<td></td>
<td></td>
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<tr>
<td>Predator attacks on livestock have decreased in the past ten years</td>
<td></td>
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<tr>
<td>I have access to clean water every day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>It is easy to find local building materials nowadays (grass, poles, reeds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Livelihood activities</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Don’t Know</th>
<th>Comment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>We farm more now than we did five years ago</td>
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</tr>
<tr>
<td>We have more jobs in tourism than ten years ago</td>
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<td></td>
</tr>
<tr>
<td>We have more jobs in town than ten years ago</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Services and health</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Don’t Know</th>
<th>Comment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking water has been easier to get in recent years.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>It is easy for me to get health care if I am sick.</td>
<td></td>
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</tr>
<tr>
<td>Children in the HH have access to a school.</td>
<td></td>
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<tr>
<td>The clinic provides good services.</td>
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</tr>
<tr>
<td>Members of the HH get sick from the water we use.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>My family’s health has improved over the past five years</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>In the event of sickness, members of the HH receive medical treatment.</td>
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</table>
### Appendix D: Governance Dashboard Survey

#### ASSESSMENT FORM for INDIVIDUAL SATISFACTION WITH COMMUNITY

<table>
<thead>
<tr>
<th>Number:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The AGM in 2013 was highly satisfactory</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>The AGM was very bad or not even held</td>
</tr>
<tr>
<td>2. We hold enough meetings in the Village to discuss community issues</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>We hold few or no meetings in the Village to discuss community issues</td>
</tr>
<tr>
<td>3. I am highly satisfied with the Constitution</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>The Constitution is bad</td>
</tr>
<tr>
<td>4. We meet regularly with Sabie Game Park to discuss issues</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>We never meet with Sabie Game Park to discuss issues</td>
</tr>
<tr>
<td>5. Relationships with Sabie Game Park are improving</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Relationships with Sabie Game Park are getting worse</td>
</tr>
<tr>
<td>6. People always come to meetings when called</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>People seldom/never come to meetings when called</td>
</tr>
<tr>
<td>7. I can choose the leaders I want</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Leaders are imposed on me</td>
</tr>
<tr>
<td>8. We were told how much money we got from hunting</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>We are never told anything about money from hunting</td>
</tr>
<tr>
<td>9. I participate fully to decide how community money should be spent</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>I have no say in deciding how to use Community money</td>
</tr>
<tr>
<td>10. Sabie Game Park does a lot for us</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Sabie Game Park does nothing for us</td>
</tr>
<tr>
<td>11. I know exactly how we have agreed to spend our money this year (i.e. I know the budget)</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>I have no idea how we have agreed to spend our money this year (i.e. I don’t know the budget)</td>
</tr>
<tr>
<td>12. I am told exactly how we spend our money. I understand / trust the report</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>I am never told not allowed to check on money</td>
</tr>
<tr>
<td>13. Money is used in the best possible way</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Money is wasted or stolen</td>
</tr>
<tr>
<td>14. The elections for choosing leaders are free and fair</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Elections are rigged</td>
</tr>
<tr>
<td>15. Leaders are honest and work hard</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Leaders are lazy and dishonest</td>
</tr>
<tr>
<td>16. Employment by Sabie Game Park is what we expected</td>
<td>😊😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>Employment by Sabie Game Park is much less than we expected</td>
</tr>
</tbody>
</table>
Date: ……… / 2009    Community:  …………………… Village:  ……………………………

My age is …… years; I am a male / female;

My education grade is: …………

Please tell us what you know about income. If you don’t know, write DK; If the answer is nil, write nil or 0

32. Last year the hunter shot …. elephant bulls and he paid M …………. each
33. Last year the hunter shot …. buffalos and he paid M …………. each
34. Last year, we earned M …………. from hunting,
35. Last year, M ………………. reached out village and M ………………. benefited my household
36. Last year, my household got ……kg of meat from wildlife
37. In our household, people have jobs: ….. in the Community; ….. in a lodge, campsite or hunting?
38. In the last year I went to ….. AGMs and ….. meetings about the Community

Do you have the following rights (tick the box if yes)?
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td>39.</td>
<td>□</td>
</tr>
<tr>
<td>40.</td>
<td>□</td>
</tr>
<tr>
<td>41.</td>
<td>□</td>
</tr>
<tr>
<td>42.</td>
<td>□</td>
</tr>
<tr>
<td>43.</td>
<td>□</td>
</tr>
<tr>
<td>44.</td>
<td>□</td>
</tr>
<tr>
<td>45.</td>
<td>□</td>
</tr>
<tr>
<td>46.</td>
<td>□</td>
</tr>
<tr>
<td>47.</td>
<td>□</td>
</tr>
<tr>
<td>48.</td>
<td>□</td>
</tr>
</tbody>
</table>
Appendix F: Digital Maps
Appendix G: Situational Analysis Report for Mukakaza

Mukakaza Community Report

Prepared June 28, 2013

Authors: 27 community members

Editors: Leandra Clough and Thabisile Sibuyi
History

1974: The first war started between Frelimo and the Portuguese

1982: Second war started between Frelimo and Renamo. There was a lot of suffering and problems for the people living in this area during the second war.

1980s: Most of the people from the region scattered, we fled to other regions or countries such as Maputo or South Africa/Swaziland. We had to leave our livestock, our houses, and most of our belongings here in the village when we fled. Only a few people stayed (approximately 15 families) but these people were running to hide in caves in the Lebombo Mountains along the border whenever the fighting got worse. It was 16 years of suffering for the people here. Even though many of us fled the region, others were also moving in to escape fighting in other regions of the country.

1992/1993: The war ended and people slowly started to return to the village. When we came back, we found that our homes and cattle etc., were all gone and we were forced to start their lives anew.

1990s: Chris from South African came here as a missionary to help us after the war and solicited more help from South Africa. Robbie and Lorens also came later to help us learn to stand on our own again after the fighting. They gave us clothes, food, meat, clean water, and other things.

2000s: Some people in our village are still struggling to rebuild their lives after the war.

2000: School was built

2004/2005: Representatives of Sabie Game Park came and made a lot of promises to us (for borehole, school, clinic, houses, network, etc.) but they never fulfilled them.

2009: Clinic was built

2010: Woman killed by an elephant

Helps

- Mariana, Robbie, Laurence from South Africa
- Clinic-built by Spaniards in 2009
- School-built by Portuguese in 2000
- Clinic-built in 2004 but it is just a building, it was never operating as a clinic

Hindrances

- Sabie Game Park made empty promises
- Predator attacks on livestock
- Elephants eating crops
Relationships

Sabie Game Park: We do not have a good relationship now because there is too much mistrust. They have made many false promises such as water, school, clinic and have not fulfilled them so we do not trust Sabie Game Park. We must see some benefits from the wildlife, like the 20% and meat for the community, before we can work together with Sabie. Then we can help them by reporting the poaching activity that we see or become aware of, but for now we cannot help them.

Traditional Leaders: We have traditional leaders within the community that hold some power, however, since the war, the chiefs and traditional leaders have less power and respect in the community than they used to.

Private Cattle Rancher: We respect the one private rancher that lived near the community because the community was able to benefit from the ranch. Even though, we used to steal from other cattle farmers in the area, we never stole from this man because we respected him.

Vision for the future

- Increased employment (currently no formal jobs)
- Water-need boreholes for drinking water
- Better roads (transport is very bad in the rainy season)
- Clinic needs more medicine (if the clinic does not have the proper supplies, people have to travel very far to Kaboka and the roads can be a problem especially in the rainy season)
- Bridge (over the southern river to allow travel during the rains- it’s fine during the dry season)
- Houses to live in (some people do not have houses and others need more secure structures)
- Support for orphans and elderly- pensions, food aid, orphanages etc. from the government
- Cell phone network
- Windows for the school (they are all broken or missing) and chairs/desks for the students and teachers to use (just sitting on the ground for now)
- School- need to add higher grades because after grade 7, students often cannot continue since the secondary school is far.
- Community Tractor for ploughing all the fields
- Preschool/crèche for younger children
- Possibly want a commercial farm for fruit or something so we can have a lot more jobs in the area. The private cattle farmers in the area do not employ many people

**BOLD:** top 5 priorities
Natural Resource Use

- Trees - poles for building, hand grinder for maize meal, firewood, charcoal, marula, jackleberries, sour plum, other wild fruits
- Stones - for building houses
- Clay soil - for pots and houses
- Grass - for thatching
- Fish
- Wild Animals - rabbits, guinea fowl, francolin, small antelope
- Water - for drinking and for cattle
- Land for grazing and for farming
- Edible insects: locust, flying termites

Trends in Natural Resource Abundance

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Appendix H: Situational Analysis Report for Mavanguana

Mavanguana Community Report

Prepared June 27, 2013

Authors: 25 community members

Editors: Leandra Clough and Thabisile Sibuyi
History:

1960s: Many Portuguese were living in this area. They kept cattle and planted large fields of cotton. The people from the community were forced to work for the Portuguese farmers, but we did not receive payment for the work. If a Portuguese found someone who looked clean, that person was reprimanded for not working hard enough. The Portuguese did build towns and open shops where we could buy some supplies.

The chief used to collect 2mt from each household annually as a tax. He also took the best portion of meat from any animal that was slaughtered. Each year we would hold a festival together where the chief would perform a ritual so that the rains would come.

We used to take our cattle into Skikuza (where Sabie Game Park is now) to get water in the dry season.

1974: Frelimo came and started the war against the Portuguese. When the Portuguese left there were no more shops to buy supplies near the village. After Frelimo came, the traditional leaders had less power over us and they no longer collected the taxes.

1975: Frelimo flag was put up

1980s: Many of us moved away from this area to escape the fighting.

1990s: We slowly began returning to the community after the fighting was over.

1994: The first school and clinic were established in Mavanguana

1996: Many diseases started to afflict us such as Malaria, Cholera and HIV/AIDS. It was very difficult because there was no hospital or clinic.

2005: Sabie Game Park took half of the land for Mavanguana and those of us who were living on that land had to shift to outside of the new park.

2010: Lions and leopards came out of the park and attacked livestock in our communities.

2013: June, one person lost 50 goats to predators like leopards.
Helps

- School
- Clinic
- Clean water from the borehole

Hindrances

- Elephants come and destroy crops. When we complain to Sabie Game Park, we do not receive any assistance
- Only one borehole- it is not enough and it is too far for some people in the community
- Sabie Game Park promised jobs, but there is no one from Mavanguana who is employed by the Game Park
- Currently, the nurse is sick and in hospital outside of the village and there is no one else to run the clinic
Vision for the future

- Bridge over the river to improve transport in the rainy season (currently children are unable to cross the river for school during the rainy season)
- Water for cattle during the dry season
- Water for people, need more boreholes for the other side of the village
- Hospital (currently just a small clinic- sometimes there is no nurse or no medicine so we have to travel all the way to Kaboka village which is far)
- More employment (many people are not working now). We know that job creation is the only way to help develop the village.
- Want to expand the school to have more classrooms and to include higher grades (currently it only goes to grade 7)
- Need a grinding machine or hammer mill (currently the women must grind all the mealies by hand)
- Tractor for the whole community to plough their fields. Many of us have large fields and the oxen get too tired from pulling the plow
- Need food aid and/or seeds for farming- we are hoping the government or an NGO can assist them
- Pensions or grants for the elderly and the disabled who are unable to work and support themselves-should come from the government like it does in South Africa.

**BOLD:** indicates top 5 priorities
Natural Resource Use

- Trees - poles for building, hand grinder for maize meal, firewood, charcoal, marula, and other wild fruits
- Stones - for building houses
- Clay soil for pots and houses
- Grass - for thatching
- Wild Animals - rabbits, guinea fowl, francolin
- Water - for drinking and for cattle
- Land for grazing and for farming
- Edible insects: locust, flying termites

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Trees were abundant when we were young, before the first war. The trees were slowly declining over time as they were cut down for household uses. By the time the fighting was severe and we left the area, there were few trees remaining. When we returned after the war, we found many...
trees had grown while we were away. Since then the trees have slowly been declining due to human use, but we still have enough trees in the area now.

We do not have fish within our community. If we want fish, we have to go and fish at the big dam or we buy fish from other people. In the past we were able to buy fish very easily, but now, there are fewer fish to buy. A purchase is now limited to three or four small fish for 50mt when we used to get larger fish for the same price.

Wild Animals were plentiful when we were younger, before the war. Each decade the animals were fewer and fewer and by now, there are very few animals left. It has become very difficult for us to hunt, because so few animals remain in this area.

Wild fruit abundance fluctuates annually depending on rain and other factors.
Appendix I: Situational Analysis Report for Baptine

Baptine Community Report

Prepared July 1, 2013

Authors: 29 community members

Editors: Leandra Clough and Thabisile Sibuyi
History:

1970s: The Portuguese were living here. People used to work for the Portuguese in their rice, potato and cotton farms. We did not get paid in cash, only received a meal at the end of the day, but it was not enough to share with our family at home. We would spend all day bent over in the fields and if we stood up, we would be kicked with boots for not working hard enough. Most of us used to live farther north near the other villages before the wars.

1980s: From the time the Portuguese left, there were no shops left. Even if you had money, there was nowhere to buy supplies. Also, there was no water in this area, so we used to go to the border with South Africa to collect water from a river there.

1982: A severe drought occurred and many of our cattle died for lack of water and grass to feed on.

1986: The second war- Frelimo versus Renamo. At this time everyone moved out of the area for safety. Many went to South Africa, although some moved to other parts of Mozambique.

1990s: After the war, people began moving back into the area, but we mostly settled inside what is now Sabie Game Park.

2000s: A few Tuck shops opened to sell basic supplies, but for other things you still have to travel far. There is no formal employment for the area, people are just farming and raising livestock. Each year hippos come out of the dam and destroy fields, but we are not allowed to kill them.

2000: The big dam was constructed and flooded the area where some people were living. Now there is water closer, but also problems with hippos.

The school was built by Italians.

2001: We moved out of the game park and settled in Baptine where we are currently living. We were promised houses and water for moving out of the park, but these promises have not been fulfilled. Many of our cattle have died from shortages of water. We were also promised jobs, but the jobs have gone to people from other communities.

2007: A Leopard came out of the park and took six cows. When we reported it to Sabie Game Park, we were told that the gate was never opened to allow the leopard out- nothing else was done about the situation.

2008: Sabie built a clinic for the community

2013: Five buffalo came into the area. Children were unable to attend school for some time because it was too dangerous to walk with buffalo around. We reported the buffalo to Sabie, but nothing was done.
Helps:

- Foreigners came (possibly from Italy) after the war to give them food, mosquito nets, pangas and other things in an effort to help them get resettled.
- School was built in 2000
- Clinic was built by Sabie in 2008

Hindrances:

- Not enough classes in the school- it ends at grade 7 and there are only 2 classrooms for everyone to share
- Many relatives died in the war- now elderly are without children to care for them, many children were orphaned, people were widowed
- Many issues with wildlife- they destroy fields, take livestock and cause safety issues for the people
- There is hunger every year
- Poverty- there are not enough houses, and many of the houses are not built well enough to provide adequate protection from the rains
- Nurse at the clinic only works part time, and there are not always enough medicines
**Relationships**

**Sabie Game Park:** The relationship is very important, but so far it is not a good relationship. We need Sabie to fulfill its promises and also want Sabie to help us kill problem animals and even let us use the tractors for ploughing our fields each year.

**Traditional Leaders:** They are close and we can go to the traditional leaders, but there is not much that the leaders can do for us.

**Government:** A very distant relationship, but also important because the government can provide the hospital, roads, secondary school, pensions, food aid and other things we need.
Vision for the Future

- Clean drinking water for people
- Adequate water for cattle
- Employment
- Roads
- Electricity
- Seeds for Farming
- A hospital
- Houses that provide better protection from the rain
- Meat from Sabie when there are hunters in the camp
- A tractor to use for ploughing—want to borrow from Sabie
- Dip for cattle
- Want a good relationship with Sabie so we can get help with problem animals when necessary
- Government support— in other areas people were given 1 cow or other things to help them start over after the war
- Need the government to come here to process ID applications because it is too far to Maputo and there is not enough money for transport
- Food aid from the government for those who are unable to farm—the elderly or widows that stay alone
- Pensions for elderly and disabled—especially those whose children were killed during the war

**BOLD:** top five priorities
Natural Resource Use

- Trees - poles for building, hand grinder for maize meal, firewood, charcoal, marula, other wild fruits
- Stones - for building houses
- Clay soil - for pots and houses
- Grass - for thatching
- Fish
- Wild Animals - rabbits, guinea fowl, francolin, small antelope
- Water - for drinking and for cattle
- Land for grazing and for farming
- Edible insects: locust, flying termites
- Medicinal plants for treating illnesses

Trends in Natural Resource Abundance

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Timeline

[---Colonial Rule---] [-------Civil War-------] [--------Post-War Recovery--------]
Trees were abundant in the area in the past, but they slowly declined as they were used for firewood, building material, and cleared for fields. When we moved in the early 1980’s, there were few trees left in the area. However, by the time we returned, a decade later, many new trees had grown and were plentiful in the area. From then until today, the trees have been slowly declining again due to human use primarily for charcoal and firewood.

In the past, there was not enough water to support fish in the area. After the dam was constructed and the region where we used to live was flooded, the fish population developed. Now we are able to fish in the dam, but the population size has been decreasing as a result of overfishing.

A long time ago there were plenty of animals to hunt in this region. The animals, like the trees began to disappear in the decades leading up to and during the war. When we left the region during the bad fighting, there were few animals left to hunt. By the time we returned in mid 1990s, the animals were plentiful, but have since begun to decline again. Most likely the populations were restored to high levels because no one was here to hunt the animals. Now that many people have moved back and begun hunting again, the animals are fewer.

Marula and other wild fruits fluctuate annually. It depends on the rain, the weather and other factors; therefore, it cannot be graphed in the same way as the other natural resource trends are shown by decades. However, we agree that there have been fewer marula fruits presently than there were at times in the past and it is possible that the fruits are disappearing from the environment.
Appendix J: Additional Graphs

Graph 1:

It is Easy for Me to Get Health Care if I am Sick

Graph 2:

The clinic in Kaboka Provides Good Services

Graph 3:
Graph 4:

My Family's Health Has Improved Over the Past Five Years

Graph 5:

In the Event of Sickness, Family Members Receive Treatment
Graph 6: 

I Have Access to Clean Water Everyday

Graph 7: 

Members of the Household Get Sick From the Water We Use
Graph 8:

Drinking Water is Easier to Access Than it Was 10 Years Ago

Graph 9:

Children in the Household Have Access to School
Graph 10:

We Have More Jobs in Tourism Than 10 Years Ago

Graph 11:

We Have More Jobs Outside of Tourism Than 10 Years Ago
Graph 12:

We Farm More Now Than 10 Years Ago

Graph 13:

Do You Consider Your Family More Prosperous than 5 Years Ago
Graph 14:

**Predator Attacks on Livestock Have decreased in the Past 10 Years**

Graph 15:

**It is Easier to Find Building Materials (Poles) Now Than 10 Years Ago**
Graph 16:

We Are Able to Fish More Now Than 10 Years Ago

Graph 17:

There Are More Animals to Hunt Now Than 10 Years Ago
Wild Fruits Are Disappearing From the Environment

Graph 18:

Firewood is Easier to Get Now Than 10 Years Ago

Graph 19:
Graph 20: Soil Fertility is Better Now Than 10 Years Ago

Graph 21: How satisfactory was 2013 AGM?
We hold enough Village meetings to discuss issues

Satisfaction with the constitution

Graph 22:

Graph 23:
We meet regularly with Sabie Game Park to discuss issues

Graph 25:

Relationships with Sabie Game Park are improving
People always come to meetings when called

I can choose the leaders I want
We were told how much money we got from hunting

Graph 28:

I participate fully to decide how community money should be spent

Graph 29:
Graph 30:

Sabie Game Park does a lot for us

Graph 31:

I know exactly how we agreed to spend the money (i.e. the budget)
Employment in Sabie Game Park is what we expected

I know exactly how many animals were shot

Graph 32:

Graph 33:
Wildlife is important to our future

Sabie Game Park is an excellent idea

Graph 34:

Graph 35:
The game fence is a good thing

Graph 36:

Our relationships with Sabie Game Park are excellent

Graph 37:
In our area we should combine cattle with wildlife
Appendix K: Household Membership Lists by Village

Community Membership List For Mukakaza

All adults 18 years and above that live within the borders of Mukakaza are listed below and the list is divided by household. There are a total of 238 adults living within the 94 households in Mukakaza.

HH1:
1. Rosa Silonia Tsani
2. Ivone Carlos Ubissi
3. Dercio Jjose Tsani
4. Admina Manuel Ngombamo
5. Felislierto Ndzovo
6. Media Sibuyi
7. Salvo Nelson Ubissi

HH2:
8. Jose Vilanculo
9. Maria Jeromias Chivambo

HH3:
10. Marta Chilengue

HH4:
11. Jaim Fernando Makamu
12. Olga Mkondo
13. Fernando Makhamu

HH5:
14. Izaia Mbiza

HH6:
15. Joaquine Arimando Vilanculo

HH7:
16. Marta Ubisse

HH8:
17. Lague Bungele

HH9:
18. Davida Mathue

HH10:
19. Vironica Ubisse

HH11:
20. Mirando Simango

HH12:
21. Morisi Chavango

HH13:
22. Matilda Sibue

HH14:
23. Roti Cossa

HH15:
24. Sipho Mulhovo

HH16:
25. Visenti Cossa

HH17:
26. Batriz Ubisse

HH18:
27. Eva Machave

HH19:
28. Sibongile Cossa

HH20:
29. Meri Ngonhama

HH21:
30. Jemise Cossa

HH22:
31. Amessi Mulhovo

HH23:
32. Jooani Mulhovo

HH24:
33. Leti Madosele
34. Pindile Mabivila
35. Maria Sitole
36. Colen Mulhovo
37. Crisente Mulhovo
38. Nomotandozo Mulhovo

HH13:
39. Pedro Ubisse
40. Aida Ubisse

HH14:
41. Winase Mulhovo
42. Filora Mulhovo

HH15:
43. Pita Ubisse
44. Nsacani Ubisse

HH16:
45. Francisco Mulhanga
46. Argentina Nhadevele
47. Paulo Mulhanga

HH17:
48. Amosse Nduvane
49. Ivone Chabgnhambi
50. Gesani Mambani

HH18:
51. Sipo Nduvani
52. Bongi Nuvunga

HH19:
53. Rimemba Machave
54. Artimissa Marengule

HH20:
55. Afiyossi Richavaa
56. Rasa Mulhovo

HH21:
57. Elson Machave
58. Jotal Wanzani

HH22:
59. Rosar Movan

HH23:
60. Isague Nduvan
61. Ana Masinge

HH24:
62. Aida Chanti

HH25:
63. Nomisa Nduvani

HH26:
64. Talivina Simango
65. Nhico Chavango
66. Obea Chavango
67. Alivina Muconto
68. Macoya Tembe

HH27:
69. Sidowele Richava Nduvane
70. Berta Mulhovo
HH28:
71. Nhelete Macuvele
72. Zandi Chaugue
73. Fatima Mulhovo
74. Abugel Mulhovo
75. Alda Mulhovo
76. Samaria Mulhovo

HH29:
77. Jovita Ubisse
78. Antonio Timani
79. Carlo Timani
80. Ericilia Sitoi
81. Argentina Mucaveli

HH30:
82. Saimon Ngonhama
83. Robia Macuvele
84. Sipiwa Ngonhama

HH31:
85. Filisberto Marengule
86. Mateos Marengule
87. Inesguecivel Marengule
88. Filorinda Cossa

HH32:
89. Jezemia Madosele
90. Fatima Madosele

HH33:
91. Jose Mbiza

HH34:

HH35:

HH36:

HH37:

HH38:

HH39:

HH40:

92. Salimina Masinge
93. Rosan Ubisse
94. Marcos Mbiza
95. Lefranca Mbiza
96. Vitorino Mbiza
97. Luiz Ubisse
98. Brenda Ubisse
99. Sadra Sitowe
100. Paulo Ubisse
101. Sonia Mambo
102. Eufrazia Xivure
103. Alfredo Matsinhe
104. Robetí Simango
105. Marta Minisse
106. Saizose Malhaela
107. Regina Masinge
108. Crestina Ubisse
109. Zo zomira Ubisse
110. Rafael Ubisse
111. Ivone Ubisse
HH41:
112. Fernando Timba
113. Inogue Timba
114. Glora Cossa
115. Golisa Muconto
116. Alise Mbungele

HH42:
117. Alfredo Cossa
118. Cristina Macuvelo

HH43:
119. Erigue Samanhanga

HH44:
120. Tomas Tivane
121. Lino Tivane
122. Mario Tivane
123. Vitoria Manhico

HH45:
124. Ernesto Simango
125. Melecina Malhule

HH46:
126. Ana Mucava
127. Siphiwa Mucave

HH47:
128. Aida Ubisse

HH48:
129. Jorge Sibui

HH49:
130. Lindia Molhavani

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131. Elviz Machel
132. Carlos Machel

HH51:
133. Metol Sitoe

HH52:
134. Palmira Bila

HH53:
135. Antonio Matsimbe
136. Borje Nhanal

HH54:
137. Promis Zitha

HH55:
138. Lucasse Muconto
139. Solesta Chavango
140. Robete Muconto
141. Nkhesani Cossa

HH56:
142. Eva Muconto

HH57:
143. Sara Chivambo

HH58:
144. Amerco Cossa
145. Joise Cossa
146. Talvina Ihongo
147. Nosinat Muzinba
148. Silva Mbunguel
HH59:
149. Mapase Sibui
150. Anabela Zitha
HH60:
151. Julase Mbunguel
152. Maria Marengol
HH61:
153. Joana Sitoe
154. Lucia Sitoe
HH62:
155. Zabela Ndima
HH63:
156. Rosalina Chavango
HH64:
157. Safira Mazivila
HH65:
158. Castigo Mulula
HH66:
159. Argentina Sitoe
HH67:
160. Elfasse Mulhovo
HH68:
161. Gidion Mkondo
162. Angelca Mazivila
HH69:
163. Phineas Mkondo
164. Johannes Mkondo
165. Amelia Chavangu
HH70:
166. Joaque Matsinhe
HH71:
167. Lukas Mbungele
168. Selina Mbungele
169. Maria Mbungele
HH72:
170. Falima Mbungele
171. Sinna Mbungele
HH73:
172. Simion Ubissi
HH74.
173. Mario Ubissi
174. Lizenta Ubissi
175. Vetina Ubissi
176. Johana Ubissi
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<td></td>
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<tr>
<td>194. Audris Mathebale</td>
<td></td>
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<td>195. Kelemelina Mathebale</td>
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<tr>
<td>196. Lacy Mathebale</td>
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<td>197. Jinoca Mathebale</td>
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<tr>
<td>HH81:</td>
<td>HH85:</td>
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<tr>
<td>198. Jana Mathebale</td>
<td>213. Amos Machele</td>
</tr>
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<td>199. Amenti Mathebale</td>
<td></td>
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<tr>
<td>HH82:</td>
<td>214. Zaura Machele</td>
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<tr>
<td>200. Derik Mathebale</td>
<td></td>
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<tr>
<td>201. David Mathebale</td>
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<tr>
<td>202. Roberto Chavango</td>
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<tr>
<td>203. Fina Chavango</td>
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<tr>
<td>204. Ana Chavango</td>
<td></td>
</tr>
<tr>
<td>205. Katarina Ubissi</td>
<td></td>
</tr>
</tbody>
</table>
HH88:
  223. Falinta Mandosele
  224. Abenico Mandosele
  225. Givine Mandosele

HH89:
  226. Peresina Ubissi

HH90:
  227. Reshent Ndlovu
  228. Kessani Ndlovu

HH91:
  229. Dendro Manyise
  230. Maiilina Manyise

HH92:
  231. Elimon Chavango
  232. Felisandondi Chavango

HH93:
  233. Jona Mandosele
  234. Bekisisa Mandosele
  235. Kaributo Mandosele

HH94:
  236. Jambu Ubissi
  237. Jetina Ubissi
  238. Nwamement Ubissi
Community Membership List for Mavanguana

All adults 18 years and above that live within the borders of Mavanguana are listed below and the list is divided by household. There are a total of 264 adults living within the 75 households in Mavanguana.

HH1:
1. Zakaria Moconto
2. Zabel Khosa
3. Lidiya Sibuyi
4. Crestina Ubisi
5. Ruti Muconto
6. Sailenci Muconto
7. Julia Muconto

HH2:
9. Afiyosi Mathosi
10. Jona Mathosi
11. Joyisi Mathosi

HH3:
13. Albino Chihezi
14. Eliza Msimangu
15. Fatima Msimangu
16. Lurda Ubisi
17. Rosi Ubisi
18. Elvis Chihezi
19. Erick Chihezi

HH4:
22. Javulan Chihezi
23. Thavis Chihezi
24. Gilda Chihezi
25. Dindile Chiesi
26. Eleni Chihezi
27. Busi Chihezi
28. Anatersa Chihezi

HH5:
31. Talita Mkonto
32. Lex Mkonto

HH6:
34. Fenias Sibuy
35. Natalia Sibuy

HH7:
36. Elfasi Khosa
37. Seleste Khosa

HH8:
38. Simon Suthu
39. Eneya Suthu
40. Yugin Suthu
41. Laura Suthu
42. Violeta Suthu

HH9:
43. Nelson Zitha
44. Siphiwe Mabunda

HH10:
45. Margarida Tivana
46. Jose Zitha

HH11:
47. Sebastao Zitha
48. Fatma Machava

HH12:
49. Luis Chihesi
50. Lida Chihesi

HH13:
51. Lili Chihesi
52. Sol Chihesi
53. Gift Chihesi
54. Siphiwe Chihesi
55. Khenet Chihesi
56. Benet Chihesi
57. Julias Msimangu

HH14:
58. Gilora Msimangu
59. Nkateko Msimangu
60. Promis Msimangu
61. Jodid Msimangu

HH15:
62. Vasco Khosa
63. Madalena Khosa
64. Fina Khosa
65. Boaventura Khosa
66. Agelca Kkhosa
67. Jeque Khosa
68. Penina Khosa
69. Domingo Khosa
70. Isaura Khosa
71. Chico Nkanyi
72. Selestina Khosa
73. Tomas Nkanyi
74. Carlos Masangu
75. Elisa Masangu
76. Marta Masangu
77. Neli Masangu
78. Rosa Masangu
79. Jorge Masangu
80. Alsino Masangu
81. Nomsa Masangu
82. Delfina Masangu
83. Felgimina Masangu
84. Daito Masangu
HH18:  
85. Jose Mundlovu  
86. Nomia Mundlovu  
87. Vitora Mundlovu  
88. Alisi Mundlovu  
89. Ivona Mundlovu  
90. Atalia Mundlovu  
91. Elvis Mundlovu  

HH19:  
92. Emelina Mukhonto  
93. Rofina Mukhonto  
94. Gabriel Mukhonto  
95. Dalina Mukhonto  

HH20:  
96. Joanqui Thovela  
97. Elen Thovela  

HH21:  
98. Jose Thovela  
99. Florina Thovela  
100. Fatiminha Thovela  

HH22:  
101. Daniel Bila  
102. Alcina Bila  

HH23:  
103. Domingo Matseve  
104. Floriana Matseve  
105. Lazaro Matseve  

HH24:  
106. Nora Matseve  
107. Agelca Matseve  
108. Nomsa Matseve  

HH25:  
109. Moses Sibuy  
110. Marieta Sibuy  
111. Madala Sibuy  

HH26:  
112. Nomia Sibuy  
113. Luis Sibuy  
114. Laila Sibuy  
115. Khesan Sibuy  

HH27:  
116. Abiner Mathosi  
117. Rabeca Mathosi  

HH28:  
118. Moses Mathosi  
119. Veli Mathosi  

HH29:  
120. Jaime Mathosi  
121. Fatma Mathosi  

HH30:  
122. Lianora Ubisi  
123. Samson Ubisi  
124. Simon Ubisi
HH31: 125. Zakaria Mazive 126. Elina Mazive
HH33: 129. Calari Manhlavana 130. Vironica Mvanaanha
HH37: 143. Paulo Mhelembe 144. Rishet Mhelembe
HH38: 145. Pedro Mhelembe 146. Carlota Mhelembe 147. Rosita Mhelembe
HH44: 162. Quesar Manhlavana 163. Crimilda Manhlavana
HH45: 164. Fikile Mkhonto 165. Filmao Mukhonto
166. Ronaldo Mukhonto
167. Delina Mukhonto
168. Cristina Mukhonto
HH44:
169. Celina Mukhonto
170. Fred Mukhonto
171. Dani Mukhonto
HH45:
172. Iseck Mukhonto
173. Selestina Mukhonto
174. Monica Mukhonto
175. Isac Mukhonto
176. Sara Mukhonto
177. Lusi Mukhonto
HH46:
178. Elmon Sibuy
179. Regina Sibuy
180. Maria Sibuy
181. Olga Sibuy
182. Thulisile Sibuy
HH47:
183. Solomun Mukhonto
184. Eliza Mukhonto
185. Joseph Mukhonto
HH48:
186. Tomas Mukhonto
187. Petrosi Mukhonto
HH49:
188. Morisi Vuma
189. Thembisile Vuma
HH50:
190. Nwadeyingana Vuma
HH51:
191. Isac Sibuy
HH52:
192. Javulan Sibuy
193. Musa Sibuy
194. Glendisi Sibuy
195. Rainita Sibuy
196. Manuel Sibuy
HH53:
197. Sofi Mbambu
HH54:
198. Makisi Mbambu
199. Krestina Mukhavele
200. Olga Mukhavele
HH55:
201. Amosi Zandamela
202. Olivia Zandamela
HH56:
203. Carlota Mbambu
204. Veregina Mbambu
205. Detarens Mbambu
206. Delefina Mbambu
207. Ripo Mbambu
208. Nikholasi Mbambu
209. Melba Mbambu
210. Milion Mbambu

HH57:
211. Percina Zitha
212. Matilina Zitha

HH58:
213. Nea Xiviti
214. Amina Makamo
215. Laurinda Ubisi

HH59:
216. Julias Mukhonto
217. Lenat Mukhonto
218. Ana Makhuvele
219. Thandi Ubisi

HH60:
220. Petros Mukhonto
221. Sizekele Mukhonto

HH61:
222. Antonio Madosele
223. Rotina Khosa

HH62:
224. Eliot Ubisi
225. Flora Manhlavana
226. Jobe Ubisi
227. Dina Manhlavana

HH63:
228. Luisa Ubisi

HH64:
229. Lorens Thovela
230. Flora Khosa
231. Sara Khosa

HH65:
232. Jorge Sibuy
233. Joana Manhlavana
234. Thandi Sibuy
235. Agel Sibuy

HH66:
236. Elvis Mukhonto
237. Airina Khosa
238. Nostina Mukhonto

HH67:
239. Elvis Sibuy
240. Ali Chabangu

HH68:
241. Fatima Mhelembe
242. Loren Mhelembe

HH69:
243. Inock Sibuy

HH70:
244. Julias Sibuy
245. Elvis Sibuy
246. Nalia Thovela
Community Membership List for Baptine

All adults 18 years and above that live within the borders of Baptine are listed below and the list is divided by household. There are a total of 201 adults living within the 73 households in Baptine.

HH1:
1. Elias Carlos Ubissi
2. Spiwe Silvestre Mulhovo
3. Carvalho Carlos Ubisse
4. Paulina Matlavana
5. Sindile Carlos Ubisse

HH2:
6. Roslina Kossa
7. Fatima Mashava

HH3:
8. Lianora Tovela

HH4:
9. Ema Kumbana
10. Catarina Nkuna
11. Beta Magagule
12. Sfisso Sbuyi
13. Thulane Sbuyi

HH5:
14. Mozisi Sbuyi
15. Sbusiso Sbuyi
16. Roza Matlhavana
17. Thembekile Sbuyi
HH6:
18. Rabeka Sbuyi
19. Joao Ntimana
20. Alsina Nkuna
21. Lukas Ntimana

HH7:
22. Mandey Mathevule
23. Melita Mashava

HH8:
24. Tomas Xivite
25. Tereza Sbuyi
26. Laurinda Ubissi

HH9:
27. Alisse Zitha Nkuna
28. Thulane Nkuna
29. Jossef Nkuna
30. Egnes Madonssela
31. Joana Ubissi

HH10:
32. Magreta Nkuna
33. Tuli Gumbe

HH11:
34. Diolinda Ubissi
35. Alfredo Madonssela
36. Jhon Madonssela

HH12:
37. Rossia Madonssela
38. Dumigo Sbuyi

HH13:
39. Jose Mudlovu
40. Regina Mbendane
41. Guiloria Nguenha
42. Marta Nkuna

HH14:
43. Eliot Mbokodo
44. Inacia Mbokodo
45. Mario Mbambo
46. Salia Mbokodo
47. Thuli Sibuyi

HH15:
48. Lukas Ntuyi
49. Sandra Mudaka
50. Atonio Mbendana
51. Rozita Chauke
52. Rossina Nhati

HH16:
53. Ezekia Mokonto
54. Lurdes Kossa

HH17:
55. Erik Matlhavana
56. Thulissile Makamu

HH18:
57. Nomssa Mulhovu

HH19:
58. Ernesto Xivumbe
59. Anita Mudlovu
60. Elvis Xivumbe
61. Selia Mpinga
62. Themba Xivumbe

HH20:
63. Maria Mudlovu
64. Thomas Mashevele

HH21:
65. Aroni Mazivi
66. Muzeria Shambali

HH22:
67. Roslina Mudaka
68. Emelina Mbokodo
69. Anita Matlavana
70. Ernesto Makamu
71. Perssina Makamu

HH23:
72. Adelina Makamo

HH24:
73. Egnes Chauke
74. Semu Makamu

HH25:
75. Elfassi Nhambi
76. Selemina Kuboyi
77. Eliza Xongo
78. Neli Mukonto
79. Busi Mukonto
80. Kenssani Nhambi

HH26:
81. Silivetri Mudlovu
82. Nostina Massinga
83. Nikiwe Nhambi
84. Zanele Mudlovu

HH27:
85. Amos Mashava
86. Ema Kossa

HH28:
87. Wiliasi Mbambu
88. Selina Nhalungu
89. Selemina Sibuyi
90. Jossofina Makuvela
91. Delefina Sibuyi

HH29:
92. Samuei Mbambu
93. Sindile Ubisse

HH30:
94. Josani Mathevule
95. Thembi Mathevule

HH31:
96. Lazaros Mbambu
97. Thoko Ntamelo
98. Ana Nkuna

HH32:
99. Johannes Mbambu
100. Atalia Makuvele
101. Alissi Simangu
HH33: 102. Lussia Kossa

HH34: 103. Alifiado Nhati

HH35: 104. Zabela Nkuna 105. Merri Sibuyi

HH36: 106. Thembi Nkuna 107. Nomiya Manhissa


HH38: 111. John Madonsele 112. Lurde Nhambi

HH39: 113. Joao Xirindza

HH40: 114. Selia Manhissa 115. Samihel Mnissi

HH41: 116. Katilina Mudlovu


HH46: 138. Ximunu Chavango 139. Simoni Tembe 140. Rozalina Ubissi

HH47: 141. Andres Nuvunga 142. Romia Tivana
143. Saritina Kosa
144. Niko Nuvunga
145. Elmoni Nuvunga
146. Nora Nuvunga
147. Thembi Nuvunga

HH48:
148. Soli Sibuyi
149. Gressi Mbambu

HH49:
150. Aroni Munamati
151. Atalia Zinko

HH50:
152. Piter Zitha
153. Salimina Xitivi
154. Delefina Mudaka
155. Lussia Sibuyi
156. Krestina Mpinga

HH51:
157. Betiriza Zitha

HH52:
158. Fabiao Sitole

HH53:
159. Elimoni Mudlovu
160. Ivoni Amanda

HH54:
161. Alissi Mambunda

HH55:

HH56:
162. Mundawu Mavila
163. Rosalina Tivana
164. Krestina Tivana
165. Selesta Tivana
166. Thuli Nwandzu
167. Sem Mavila
168. Alberto Nhongo
169. Karlos Mbahula

HH57:
170. Roza Zinka
171. Fernando Zinka

HH58:
172. Aroni Sibuyi
173. Sara Nhati
174. Distens Sibuyi
175. Fennios Sitoe
176. Maria Chauke

HH59:
177. Joze Matlavana
178. Karlina Ntimana
179. Thuli Kossa
180. Simbongile Chauke

HH60:
181. John tivana

HH61:
182. Milioni Gumana

HH62:
Community Membership List for Ndindiza

All adults 18 years and above that live within the borders of Ndindiza are listed below and the list is divided by household. There are a total of 69 adults living within the 24 households in Ndindiza.

HH1:
1. Fernando Alberto Zevute
2. Luntis Luis Zavala

HH2:
3. Jose Howana
4. Satira Sitoе

HH3:

HH4:
5. Agosto Kuna
6. Izabel Babila
7. Visset Kuna

HH5:
8. Maria Zitha
9. Vuss Mathevul

HH6:
10. Ressa Mathevul
11. Tholi Sibui
12. Karlota Simago
13. Aida Mathevul

HH5:
14. Joseph Goveni
15. Samaria Thovela
16. Theli Goveni

HH6:
17. Lukas Mawelele
18. Vironika Mawelele
19. Selestina Inoki Kumako

HH7:
20. Mario Tembe
21. Zabela Melembe
22. Saulina Melembe
23. Sipiwa Melembe
24. Ortega Melembe
25. Sibusso Mario Tembe

HH8:
26. Miliassi Mathevul
27. Atalia Malil
28. Selina Ubissi

HH9:
29. Rithet Thovela
30. Rute Tyuzi
31. Cristelia Simamgo
32. Timphalo Bambo
33. Mathavu Bambo

HH10:
34. Lidia Zitha
35. Jouna Vibente

HH11:
36. Pemina Jonas Goveni
37. Lazaro Bambo
38. Julias Mathevul
39. Floridi Chavago
40. Telima Mathevul
41. Pehissi Mathevul

HH12:
42. Marieta Juliuss Mathevul
43. Angeli Mathevul
44. Ana Mathevul
45. Mateus Matussi
46. Filora Luna

HH13:
47. Robina Zitha
48. Piluti Pendro Bambo

HH14:
49. Andribi Sitoe
50. Cretina Alberto Mazie

HH15:
51. Elile Mubhovo
52. Sofi Wakana

HH16:
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Community Membership List for Costine

All adults 18 years and above that live within the borders of Costine are listed below and the list is divided by household. There are a total of 46 adults living within the 23 households in Costine.
HH1:
1. Regina Mbissa
2. Wiliamo Alberto Cossa
3. Beneti Fernando Tovela

HH2:
4. Amerco Mucosse
5. Lintiwa Sibui

HH3:
6. Esimeta Mucasse

HH4:
7. Samania Ubisse

HH5:
8. Lima Mulhovo

HH6:
9. Costantino Julhoa Gumbe

HH7:
10. Mosseses Mucasse
11. Tuli Jose Mulhovo

HH8:
12. Sabina Guilana Matheule
13. Eliasse Jose Mulhovo
14. Elvise Jose Mulhovo
15. Pedro Jose Mulhovo
16. Nora Nelssone Sibue
17. Lidia Simango
18. Figuile Nhambi

HH9:
19. Amos Xichava
20. Ndeima Malavi
21. Jona Machava

HH10:
22. Josefa Machaba
23. Ruthi Tivana
24. Anrieda Tivana

HH11:
25. Celina Mambice
26. Elisabeti Ncomana
27. Emelina Mudhovo

HH12:
28. Abel Alberto Jaine Vilanculo
29. Antonio Puanibera

HH13:
30. Felesmina Pedro Sitoi
31. Lorenzo Timbane
32. Marta Timbane
33. Bussi Mbambo

HH14:
34. Mavassana Changue
35. Bussi Ubisse

HH15:
36. Elimone Ubisse

HH16:
37. Antonio Khosa
HH17:
38. Elisa Lamula

HH18:
39. Jona Mbambo

HH19:
40. Emilia Mbambo

HH20:
41. Rita Mucanto

HH21:
42. Artur Ubisse

HH22:
43. Tovana Muconto

HH23:
44. Josuwa Ubisse
45. Laura Vondade
46. Tabito Cossa