Community Development and Conservation:

A Case Study from Maputo Special Reserve, Mozambique

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Field Practicum Final Report

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Table of Contents

List of Acronyms & Initialisms

Administração Nacional de Áreas de Conservação National Administration of Conservation Areas	ANAC
Community action plan	CAP
Community development programme	CDP
Foreign direct investment	FDI
Frente de Libertaçao de Mocambique	Frelimo
Human-wildlife conflict	HWC
International Union for Conservation of Nature	IUCN
Maputo Special Reserve	MSR
Millennium Development Goal	MDG
Official development assistance	ODA
Organization for Economic Cooperation and Development	OECD
Protected Area	PA
Peace Parks Foundation	PPF
Ponta de Ouro Partial Marine Reserve	PPMR
Resistência Nacional Moçambicana	Renamo
Transfrontier Conservation Area	TFCA
United Nations	UN
World Bank	WB

Introduction

The main goal of Peace Parks Foundation (PPF) is the conservation of biodiverse transfrontier conservation areas (TFCA's) in Southern Africa. However, the foundation's mission has grown since its founding 20 years ago to incorporate the active engagement of communities that live in and around these areas. PPF has learned from the extensive experience of their employees (project managers, field technicians, and technical experts alike) that conservation efforts are far more effective when they are considered within the framework of the four C's: conservation, community, commerce, and commitment.

Through the engagement of local communities, the beneficial multiplier effects of growing ecotourism industries could be amplified in communities, pressure on natural resources within the TFCAs could be alleviated, and the rewards of conservation could reach more people. These benefits incentivize communities to conserve natural resources, and to shift away from more extractive and unsustainable practices.

PPF's community development programs engage communities through the provision of 1) alternative energy solutions, 2) access to reproductive health resources, 3) strategies to address food security, 4) alternative livelihoods, and 5) increased capacity for the sustainable management of resources. These five strategies address demonstrated needs in rural and impoverished communities around PPF TFCAs.

This field report will focus on Maputo Special Reserve (MSR) which is a part of the larger Lubombo TFCA. Through 11 weeks of fieldwork with PPF, I evaluated their community development program in MSR, focusing on four main projects, and provided recommendations. MSR has made exciting progress recently with the restocking of wildlife, its merger with Ponta de Ouro Partial Marine Reserve (PPMR), the construction of new roads and infrastructure, and the growth of the ecotourism industry, including a large investment from the World Bank in June 2018. As PPF deals with rapid growth and expansion, it

will be important to maintain an adaptive community development program to ensure that the growth and investment across various sectors brings sustainable development to these communities.

There are also larger implications coming out of this report regarding the ongoing discussion of population growth around protected areas. Conservation areas are changing, and subsequent policy will need to also adapt to new considerations like demographic change, sustainable resource use, and the role of ecological conservation in larger sociopolitical and economic systems. Hotspots of biodiversity such as Maputo Special Reserve are increasing in value and policy will need to reflect this increase.

Literature Review

Peace Parks Foundation

The need for peace parks in southern Africa was articulated in a 1990 conversation between Dr Anton Rupert, then president of the World Wildlife Fund-South Africa, and then-President Joaquim Chissano of Mozambique. These leaders were interested in linking protected areas in South Africa, Zimbabwe, and Mozambique. Over the course of the next seven years, discussions of the feasibility of this project continued, involving the International Union for Conservation of Nature (IUCN), the World Bank (WB), and the governments of South Africa, Mozambique, Swaziland, and Zimbabwe (Peace Parks Foundation, 2018).

In February 1997, Peace Parks Foundation was established to coordinate these transfrontier conservation areas (TFCAs) and bring them the attention they deserved. Given that wildlife does not recognize arbitrary human national boundaries, these peace parks are extremely helpful in facilitating the movement and growth of healthy wildlife populations. TFCAs were also recognized to be a potential engine for economic growth in southern Africa as the ecotourism industry began to flourish (Soto, Munthali, & Breen, 2001). PPF took on the formidable task of coordinating governments, donors, and park management to preserve some of the most biodiverse parts of southern Africa. Its founding patrons included Dr. Anton Rupert, His Royal Highness Prince Bernhard of the Netherlands, and Nelson Mandela.

Seven TFCAs were established in Southern Africa. These TFCAs span Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe (Figure 1). Five additional TFCAs are currently in the development (their current status is unclear, however they are not considered "established" by PPF) will expand PPF's mission into the Democratic Republic of Congo, Gabon, and Tanzania.

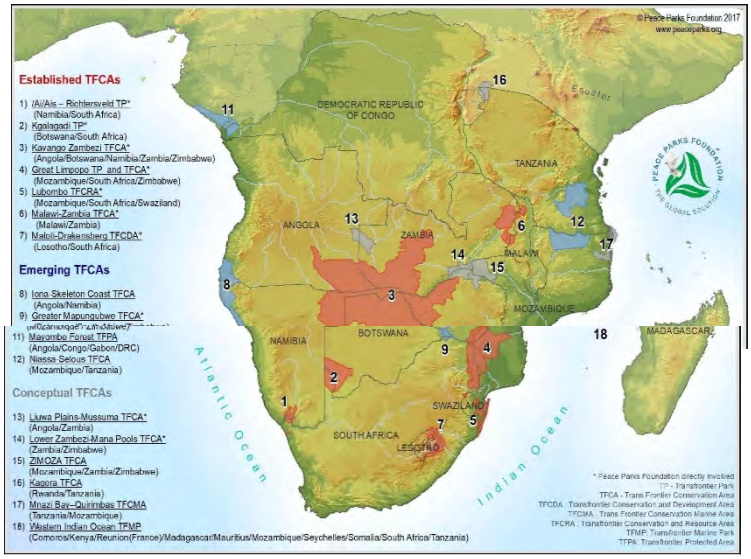

Figure 1 Map of TFCAs in Southern African (Peace Parks Foundation, 2018)

In addition to facilitating ecological conservation, PPF implements initiatives that are intended to control wildlife disease, reduce wildlife crime, and facilitate community development. PPF also coordinates with the Mozambican government on both national and municipal levels to promote ecotourism in and around the Mozambican parks PPF supports: Maputo Special Reserve, Ponta de Ouro Marine Reserve, Limpopo National Park, Banhine National Park, Gorgongosa National Park, and Zinave National Park. This endeavor began in 2005 when the World Bank provided a loan to the Mozambican government to improve the infrastructure and accommodations available in Maputo Special Reserve (MSR). In 2006, the agreement between Mozambique (specifically the Ministry of Tourism- National Administration of Conservation Areas) and Peace Parks Foundation to develop and expand MSR was signed and the expansion of MSR is ongoing (Peace Parks Foundation, 2018).

In June 2018, PPF signed a partnership agreement with the Mozambican government to further develop tourism in the area following a jointly-designed business plan. Initial funding for this project is 16 million USD, donated by the Reinet Foundation, Wyss Foundation, MozBio, World Bank, and other donors. Four new lodges and other touristic amenities are being constructed in the combined reserve of MSR and

Ponta de Ouro Partial Marine Reserve (MSR/PPMR) (see Figure 2 and Figure 4) and should be opened in 2019 (Peace Parks Foundation, 2018). This next step in PPF's involvement in MSR/PPMR will set the stage for a myriad of new economic opportunities in the area, aiming to stimulate infrastructural growth and job creation.

Using a multi-stakeholder approach, PPF promotes bottom-up, sustainable development strategies that focus on the ecological, social, economic, and institutional dimensions of integrated conservation and development programs. For example, the community development projects that are implemented by PPF in and around TFCAs are intended "to bring about the sustainable economic development of and benefit-sharing by communities, and to promote consultation and participation in developing nature-based tourism and conservation enterprises" (Peace Parks Foundation, 2018).

Geography

Mozambique is a sparsely populated country of less than 28 million (Central Intelligence Agency, 2018) on the east coast of southern Africa that borders South Africa, Swaziland, Tanzania, Malawi, Zambia and Zimbabwe. It sits at a low elevation, has a subtropical climate, and over half of land is currently used for agriculture (Central Intelligence Agency, 2018).

Maputo Special Reserve (MSR) lies 68 km south of the capital city of Maputo, in the District of Matutuíne, only 40 km from the South African border (Figure 2). The coastline establishes the boundary between Ponto do Ouro Partial Marine Reserve (PPMR) and MSR. Tembe National Park is located to the south connected with MSR via the Futi wildlife corridor, which was established in 2011 and fenced in 2012 (see Figure 2 and Figure 4). These conservation areas are all part of the larger Lubombo Transfrontier Conservation and Resource Area (LTFCA), which includes four parks in three countries (Mozambique, South Africa, and Swaziland). LTFCA is part of the internationally-recognized Maputaland

Centre of Endemism, an area where the unique ecosystems of the Maputaland-Pondoland-Albany biodiversity hotspot and the South East African Coast Endemic Bird Area overlap.

The Mozambican portion of the LTFCA includes MSR (1,040 km^2) and PPMR (678 km^2). The Futi and the Maputo rivers flow through MSR. The extensive lake system includes Piti, Xingute, and Munde. Keystone habitats in MSR are swamp forests, sand thickets, sand forests, wooded grasslands, open woodlands, dune grasslands, dune forests, hygrophilous grasslands, and riverine areas (Peace Parks Foundation, 2018). MSR supports abundant populations of hippo, reedbuck, elephant, duiker (red & grey), blue wildebeest, and zebra. Populations of impala, kudu, warthog, nyala, and giraffe are steadily increasing. Over 2,000 animals have been introduced over the past four years into the park as part of rewilding efforts to increase the density of wildlife populations (Peace Parks Foundation, 2018). Livestock are not allowed within park boundaries and this rule is well enforced, preventing disease from being a serious concern for now. However, these dynamics are sure to shuffle in future if carnivores are introduced. This appeared to be a long-term goal for PPF given the potential for attracting tourism, but is not currently viable given the communities situated within the reserve and no formalized plans were shared with me.

There are roughly 15 small communities in the buffer zone of MSR and 3 that lie within park boundaries. No specific demographic information was shared with me regarding the size of these communities, but I would venture to say that they are quite small. Although there is no formal buffer zone, the 5 km wide area that borders the south and west sides of the park and the Machangulo Peninsula is considered an informal buffer

Figure 2 Map of Lubombo TFCA (Peace Parks Foundation, 2018) Please note that this is an outdated map not reflecting the change in name from the Kingdom of Swaziland to Eswatini.

zone for the parks. Due to the presence of these people in and around the park, MSR should be classified as a Category VI protected area (PA). Category VI PA's are demarcated for "sustainable use," which refers to ecological conservation that is mindful of traditional resource management and other associated cultural values (IUCN, 2018).

Historical Background

After a decade of war, Mozambique won its independence from Portugal in 1975. The Soviet Union, China, and other socialist countries in Europe backed Frelimo (Frente de Libertaçao de Mocambique), the socialist liberation movement which had led the fight for independence. Emerging from the conflict with Portugal (and, by extension, NATO), Mozambique formed as a one-party socialist state . Shortly after independence, the country fell into a 17-year civil war lasting until 1992. The central conflict was between the ruling party Frelimo and Renamo (Resistência Nacional Moçambicana), a guerilla force that demanded a constitutional reform allowing for a multiparty system (Our World in Data, 2018).

The conflict between Renamo and Frelimo was extremely layered in that it touched on larger cultural, political, social, and economic issues, many of which were deep-seated. Frelimo drew popular support from the northern part of Mozambique where the Portuguese influence was weakest, an area dominated by several ethnic groups including the Makonde. Renamo, conversely, was based in southern Mozambique and the Changana ethnic group made up much of their support. To complicate the ethno-geographic tension, conflict between the two groups was capitalized on by foreign governments using Mozambique as a geopolitical battleground for the Cold War. While Western powers backed Renamo (through the apartheid-era South African government), Frelimo enjoyed the support of the Soviet Union, China, and their allies. This resulted in a brutal civil war and widespread ethnic violence in which over 900,000 Mozambicans died. In addition, more than 3 million people were displaced, starvation was widespread throughout the country, and infrastructure was severely damaged (Finnegan, 1993). Almost

2 decades of war adversely impacted Mozambique's natural environment. Ecosystems and wildlife populations were devastated by overharvesting, hunting, and lack of infrastructure for conservation area management. Reliance on extractive use of natural resources increased during these prolonged years of conflict (Boer & Baquete, 1998).

After 17 years of war, the General Peace Accord was signed in Rome in October 1992 following a 2-year negotiation process in which Frelimo accepted the establishment of a multiparty system and increased oversight from the UN (Walter, 1999). This coincided with the end of the Cold War, the end of apartheid, and major aid donors adopting democratic reform as a necessary precondition for aid recipients (Manning & Malbrough, 2010).

Even so, every president of Mozambique since independence has been a member of the Frelimo party. Renamo has contested every single election (both presidential and parliamentary) since the end of the war in 1992. Renamo's inability to transform from a guerilla warfare movement to an established party (despite significant financial backing from the UN Trust Fund and Italian government) has been blamed on internal tensions, difficulty to follow-through on campaigning promises, and poor management of funds. (Vines, 2017) Afonso Dhlakama, Renamo's leader for almost 40 years, passed away in May of 2018 and this is publicly regarded as a challenge for the party to unite its already splintered factions.

Political stability remains an issue as Frelimo has retained most of the political power and the presidency since 1975. The current president, Filipe Nyusi, and the prime minister, Carlos Agostinho do Rosário, are both Frelimo party members. However, the government has pivoted away from its socialist origins to support a number of economic and social reforms to make room for compromise and collaboration with the Global North. Following the 1992 peace agreement, in an effort to attract foreign investment to Mozambique, the government has adopted policies that are consistent with a capitalist, free-market

economy, loosening state controls over the economy through a process of decentralization, and allowing for more progressive models of land tenure (Lunstrum, 2008).

Since the end of the civil war in 1992, Mozambique has been termed a "donor darling" (Whitfield, 2008). It is the 7th largest recipient of aid in Africa (OECD, 2018) (Figure 3). However, Mozambique struggles to manage the large amount of aid it receives due to aid dependence and "bureaucratic overload" (Renzio & Hanlon, 2007). The country received 5.4 billion dollars in aid (Net ODA) between 2014 and 2016 cumulatively, but the GNI per capita in Mozambique decreased during that time from 620 USD to 480 USD (OECD, 2018). Some suggest that the lack of a national agenda has been a central challenge for Mozambique's growth (Renzio & Hanlon, 2007). Aid is passed from the top down and national institutions struggle to implement localized agendas, amplifying the fragmentation and misappropriation of aid monies.

2.2.7. Top 10 ODA recipients in Africa

USD million, receipts from all donors, net ODA receipts

		2013	2014	2015	3-year average	% of all recipients
1	Egypt	5 513	3 538	2 488	**3 846**	7%
2	Ethiopia	3 886	3 585	3 234	**3 568**	7%
3	Tanzania	3 434	2 649	2 580	**2 888**	5%
4	Kenya	3 308	2 661	2 474	**2 814**	5%
5	Democratic Republic of the Congo	2 584	2 400	2 599	**2 528**	5%
6	Nigeria	2 516	2 479	2 432	**2 475**	5%
7	Mozambique	2 313	2 106	1 815	**2 078**	4%
8	Morocco	2 009	2 240	1 369	**1 873**	3%
9	South Sudan	1 399	1 964	1 675	**1 679**	3%
10	Uganda	1 700	1 635	1 628	**1 654**	3%
	Other recipients	28 146	29 043	28 742	**28 643**	53%
	Total ODA recipients	**56 806**	**54 299**	**51 036**	**54 047**	**100%**

Figure 3 List of ODA recipients in Africa in USD millions (OECD, 2018)

Mozambique struggles to reach targets for the 2030 Sustainable Development Goals. With more than 46% of the population impoverished in 2014 and almost 25% of the population unemployed in 2017 (Central Intelligence Agency, 2018), the recent economic crisis has just exacerbated these issues. Access

to sanitation facilities, improved drinking water, and clean fuel for cooking remain as barriers for many is extremely limited (Our World in Data, 2018). In 2015, only 51.1% of Mozambicans had access to improved, reliable water sources and only 20.5% had access to improved sanitation facilities (Central Intelligence Agency, 2018). Reproductive health also poses a serious challenge in Mozambique. The unmet need for family planning in Mozambique remains at one of the highest rates in sub-Saharan Africa with almost 30% of women not receiving adequate support (UNDP, 2015). Forty-five percent of Mozambique's population is under the age of 15, the fertility rate is high (5.5 children per woman), and less than 40% of women complete primary school (the rate is 42% for men aged 15-19 and 55% for men aged 20-24) (Johns Hopkins Bloomberg School of Public Health, 2018).

However, Mozambique has made important progress towards the 2015 Millennium Development Goals (MDGs): reducing the maternal mortality rate by 63%, reducing poverty by 15% from 2009 to 2014, and increasing the number of parliamentary seats held by women to 39% (UNDP, 2015). Providing economic and educational opportunities to the young people of Mozambique is incredibly important in continuing this momentum and reaching the standards set by the 2030 Sustainable Development Goals.

The recent economic crisis in Mozambique poses a serious threat for the country's socioeconomic progress. In 2016, a previously undisclosed loan of 2 billion USD from Credit Suisse and VTB to contractors backed by the Mozambican government came to light. Most of these funds remain unaccounted for. These defaulted loans, worth nearly 10% of the GDP, catapulted the debt-to-GDP ratio to 125% by the end of 2016 and caused inflation and devaluation of the Mozambican metical (African Development Bank Group, 2018). This severely affected the day-to-day life of Mozambicans, especially in highly impoverished communities. While the mining industry is growing rapidly and foreign direct

investment (FDI) continues to be a key driver of economic growth, political instability and growing threats of conflict from Renamo mean the economic position of Mozambique is precarious.

Maputo Special Reserve

Maputo Special Reserve (MSR) is a conservation area established in 1932 as a hunting ground for Portuguese colonists (Soto, Munthali, & Breen, 2001). It became the Maputo Elephant Reserve and then the Maputo Special Reserve in the early 1990s. It has grown in size and scope as a result of increased interest from conservationists and ecologists due to the endemic biodiversity of the area (Ntumi, 2002). MSR is a key component of the Lubombo TFCA and since PPF's involvement began in 2006, the park was expanded from 800 km^2 to 1,040 km^2 with the opening of the Futi Corridor (240 km^2). This wildlife corridor south of MSR opened in 2011 and links MSR to Tembe National Park in South Africa.

From its establishment in 1932, the reserve infringed on the land rights of local people in the form of several attempted relocations and extremely restrictive policies about rights to use the land and natural resources there (marine life, wildlife, plants, timber, etc). The Tsonga people who have inhabited the area for centuries, resisted the Portuguese colonizers who established the original Maputo Elephant Reserve as a hunting ground in the 1930s resulting in several alterations to the borders of the park (Soto, Munthali, & Breen, 2001).

In 1980, following Mozambique's independence, the newly established government decided to maintain MSR's status as a conservation area and took it under the jurisdiction of the Mozambican government's Ministry of Tourism- National Administration of Conservation Areas (ANAC). They then decided to remove the people living within MSR by force to ensure the Reserve's protection and in an effort to reduce conflict between communities competing for resources as well and between communities and the Reserve officials (Soto, Munthali, & Breen, 2001). This was attempt to relocate communities was

unsuccessful as some key leaders did not agree to relocate and almost immediately returned to their homes.

Additionally, during periods of conflict (both the fight for independence and the civil war), the wildlife in MSR was devastated due to poaching from communities as well as Renamo rebels who occupied part of the Machangulo Peninsula (Boer & Baquete, 1998). The government almost completely lost control of the area from 1978-1992 and forced relocations of people from the park weakened trust between local communities and park management. Remaining residents of MSR and Machangulo (the peninsula north of the park) were forced to flee for Inhaca, Maputo, or South Africa as raids from Renamo increased in 1986. They returned only after the peace treaty was signed in 1992 (Brouwer, 1998).

There is a great deal of cultural significance to local peoples when it comes to MSR and surrounding areas, especially Machangulo Peninsula and Inhaca Island. The ancient Nhaca Kingdom established its seat in Inhaca and resisted the Portuguese colonial rule until 1888. In order to undermine the sociocultural infrastructure (and therein, the ability of the Nhaca people to resist), the Portuguese installed their own allies to replace the Nhaca chiefs, exiling many former leaders in the process (Brouwer, 1998). Many of the Nhaca remained under the thumb of colonial rule until independence in 1975 and the subsequent outbreak of civil war. Later in the conflict, fighting increased in southern Mozambique near the border of South Africa and in 1986, Renamo raids targeting communities in Machangulo and Inhaca intensified. In 1987, most of the inhabitants of the island fled. Only at the end of the war in 1992 did some of these refugees return (Brouwer, 1998). The people who live in Machangulo and the MSR buffer zone now therefore have very strong ties to their land which they have fought for the right to inhabit.

In 1996, the IUCN resource management plan for MSR recommended incentivizing local communities who had returned to their ancestral lands to move out of MSR, in order to promote conservation (Soto,

Munthali, & Breen, 2001). However, the Land Law passed in 1997 provided new rights to the people who had been excluded from their ancestral homes for so long throughout Mozambique. This law serves three main purposes: 1) it protects land rights of people who currently are occupying land, 2) it delegates decision-making capacity to landowners, and 3) it promotes private investment from foreign developers (Lunstrum, 2008). This was part of the aforementioned shift in the Mozambican government's policies to try and attract foreign investment. In a country that has a primarily rural population dominated by the agricultural sector, this law was considered by academics as revolutionary and empowering to rural people, marking a change in the Mozambican government's attitude towards land ownership. Unfortunately, there have been many implementation challenges with this law as it conflicts with other parts of the legal framework of land ownership in Mozambique (Lunstrum, 2008).

Conservation areas like MSR face particularly significant challenges in balancing their mission to conserve natural resources with respect for local peoples within this complicated legislative framework. PPF has made it a core part of its mission in MSR to involve local communities in the buffer zone (the area within 5 km of the park border) and inside the park in decision-making processes regarding management of MSR. This has, to date, manifested in PPF's Community Development Programme (CDP) through which PPF offers community members technical support and community structuring they need to develop sustainably.

In the past ten years that the CDP has been ongoing, there have been genuine efforts to address community needs like water, food security, healthcare, and employment opportunities through the CDP. These efforts have been significantly hampered by distrust from local communities. One interviewee I spoke with, a Mozambican man who spoke the same language as the MSR communities (Changana) described to me the hostility that he experienced from the community members at the start of the CDP. He felt unsafe wearing PPF shirts, driving PPF vehicles, or any other display of the PPF logo. It has taken ten years of hard work and trust-building to create the CDP that I evaluated during my short time in

MSR. The same interviewee now feels comfortable representing PPF, but also has developed close relationships built on mutual respect and trust with community members in his ten years working in MSR.

That being said, PPF is a white, Afrikaans-led organization from South Africa and MSR is an investment they'd like to see a return on, and ecotourism is preferred option to help improve MSR's economic viability. Unfortunately, ecotourism necessitates continued rewilding, increased development, and increased presence of non-native people in MSR. This is not very compatible with local people continuing to reside in MSR, many of whom have negative perceptions of the wildlife in the park and those who manage it. Communities in the Reserve are prohibited from building new structures, tilling new fields, allowing livestock to graze in the reserve, and have hugely limited access to health and education facilities. They are also experiencing human-wildlife conflict (HWC) and I was told of several violent incidents involving community members and elephants that had happened just prior to my fieldwork.

The unofficial position of PPF is that the CDP will create "development nodes" just outside of the park (in previously established buffer communities) which will incentivize families to move out of MSR. This could be seen as a workaround to the increasingly restrictive legislation in Mozambique regarding resettlement of local people which has made resettlement an extremely expensive option. But by many in PPF, moving local people out of the Reserve is considered a necessity if the Reserve and its wildlife is going to be protected and promoted.

Project Overviews

In theory, the CDP projects attempt to improve the lives of community members by responding to direct requests from those community members such as the need for food and water but will also provide opportunities and resources that reduce the pressure on local people to deplete the natural environment through slash and burn techniques, poaching, overfishing, and more. The hope is that reducing time and financial burdens, community members will be freed up to pursue new opportunities and economic avenues such as jobs in ecotourism, conservation, sustainable beekeeping, or sustainable agriculture. Furthermore, these projects are part of the creation of "development nodes" outside the park which are meant to incentivize those in the park to move out of it, thus allowing PPF to continue rewilding the park (perhaps even introduce predators in the future to attract more tourists) without the risk of increasing HWC. Due to the limitations placed on communities inside the reserve in terms of building new structures, plowing new fields, and livestock grazing, these communities do not host any projects except for the Health Project.

PPF is involved in numerous projects with various multi-levels stakeholders within MSR, with at least sixteen currently ongoing. There were four projects that my supervisor at PPF requested I evaluate that I will refer to throughout this report as the Honey Project, the Health Project, the Water Project, and the Conservation Agriculture Project. Each differs in objective and scope, yet all the projects except for the Health project operate only within the buffer zone of the park and not in the park itself. These four projects are all part of PPF's Community Development Programme (CDP) which has dedicated five staff members solely to MSR- four technicians and one managerial position.

The CDP is informed heavily by the vision detailed in the 2014 Community Action Plan (CAP) produced by the Mozambican government's Ministry of Tourism- National Administration of Conservation Areas (ANAC) in 2016. This document outlines four community benefit objectives: reductions in human wildlife conflict, engagement in alternative livelihood options that enhance ecosystem services, capacity

building through partnerships in tourism development opportunities, and support to local and economic development through the allocation of 20% of MSR revenues to local communities. I would like to note here that I was unable to determine during my time in MSR how this 20% is being distributed, to whom, and how it is being utilized in the communities. Although it is assumed that money will simply buy support, the linkage between tourism and increased revenues did not seem obvious to community members in interactions that I witnessed. Although PPF's CDP team repeatedly tried to describe how increased tourism in MSR was mutually beneficial, community members seemed skeptical and slightly confused. Increased transparency regarding these cash flows could be very helpful in demonstrating the value of participation in ecotourism schemes to community members.

The CAP also highlights two key challenges faced by PPF's CDP: community distrust of MSR management and subsequent resistance to change or movement, and tourism development challenges relating to infrastructure, staffing and signages. While this CAP provides a comprehensive overview of various ongoing projects in MSR, it fails to address head-on the links between conservation and the CDP. The plan lacks a long-term strategic perspective as well as the input of local people for whom moving may simply not be an option despite the increased risk for HWC. Ultimately it seems that PPF is reluctant to draw that link between the CDP and their active encouragement of resettlement.

Park management for MSR (ANAC) prohibits further development within the park (i.e. ploughing new fields, constructing new structures) which precludes communities within MSR from receiving some of the benefits of PPF's CDP.

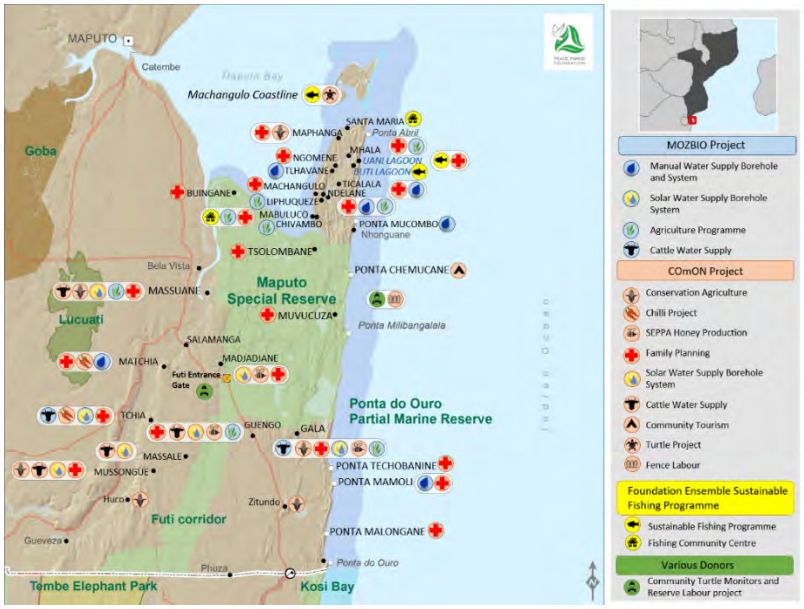

Figure 4 Map of communities in and around MSR and the corresponding projects in each

The Honey Project

Several communities around MSR have historically collected honey from wild African bees (Apis mellifera) and sold it to supplement household incomes. However, this practice was often unsustainable as gatherers would burn the brush surrounding hives in order to sedate the bees and gather honey without being harmed by the bees. This approach to collecting honey did not allow for hive repopulation and continued honey production by the hive. Community members who kept hives in large pots or vessels would sustain painful bee stings when harvesting honey because they lacked the appropriate protective gear. They also lacked the equipment to scale up honey production to generate greater financial returns.

PPF's project began in 2014 and aimed to discourage the collection of wild honey, replacing this practice with small-scale commercial beekeeping. The honey project was intended to provide communities with new economic opportunities, promote conservation of native flora and fauna by preventing the burning of native habitat, and help mitigate HWC through strategic placement of hives to deter elephants and other wildlife entering villages or raiding crops. The honey project is currently implemented in two communities, Guengo and Gala. Guengo also has an apiary school with 30 hives. Both these communities lie in the buffer zone outside of the park.

Figure 5 Harvesting of honey in Guengo apiary school, January 2018, photographed by Tiago Nhazilo

Technical experts from a contractor called SEPPA come to the apiary school to demonstrate sustainable honey production practices to interested community members, as well as to provide advice and expertise on how community members may improve their honey production. SEPPA also manages the collection and sale of the product, acting as a middle man in this supply chain between community members and a larger market in Maputo.

Currently 63 community members participate in the honey project with 310 hives distributed among them. The participants were given safety equipment and hives, have access to technical expertise, and are involved in the monitoring and evaluation process to document hive development and honey production. Two new facilities have recently been built where honey will be processed and packaged for distribution. Honey is already being sold in regional markets through a contractor. To date 105 kgs of honey have been produced, with 62 kgs sold from January to May 2018. The project is yielding much less honey than originally projected and although I was unable to determine the specific profit margin for the communities, I was told by several sources that community members were making less from when they sold honey in regional markets themselves. The issue of profits, logistical challenges, and communication issues were causing the relationship between SEPPA and community members to deteriorate.

Figure 6 Members of Guengo community standing next to honey harvest, January 2018, photographed by Tiago Nhazilo

The Health Project

Mozambique has socialized healthcare, but access to healthcare services in Matutuíne District is extremely limited. Access to even the most basic health services through public infrastructure is complex throughout Mozambique due to the difficulty of transportation, the scarcity of health professionals, the challenge in accessing medical resources, and the long queues. The lack of reproductive health and basic sanitation services are especially concerning. Staff in local clinics lack training even around basic protocols like sanitization. PPF's health project trains activistas to act as liaisons between these clinics and the communities to supplement the clinics' limited reach.

This project intends to address a very demonstrable need in the MSR communities by providing basic reproductive health services and educational materials. While helping to address the unmet need for family planning services, it also tackles the issue of HIV/AIDs and other sexually transmitted diseases and infections spreading in this community. That being said, the direct linkage between this project and conservation outcomes remains a little obscured. One informant in my interviews suggested that the Health Project would help curb population growth in the park, removing pressure from the conservation area.

The health project started by PPF aimed to address concerns about reproductive health by training community health workers (activistas) in the communities in and around MSR. These women would be expected to administer birth control devices (DEPO shots, birth control pills, condoms, etc) to local women as well as track all the information surrounding these commodities. At this point these workers have only been women, however the project aims to incorporate men in order to promote holistic discussions in community decision-making structures. Activistas' are meant to act as a contact point for sexual health accessible to the entire community including men. A core philosophy of this project is that by encouraging dialogue between male and female community members about sexual health, decision-making becomes more equitable and accessible which in turn advances the efficacy of the project.

Through the activistas, condoms (male & female) and birth control pills have been distributed, household visits to promote discussion of health issues have been conducted, and information about access to health resources has been disseminated. Altogether, 17 activistas have been trained and From January to May 2018 they were able to engage 537 women and 177 men in discussions of reproductive health issues, distribute over 3,500 male condoms and 30 female condoms and administer 49 DEPO injections. In the future, PPF hopes to engage schoolchildren and to broaden the scope of discussions to promote environmental health and sanitation issues.

The health project is most widely implemented in MSR with 21 participating communities. However, only 17 activistas have been trained to date, meaning that some are operating in more than one community, or at least expected to. This is the only project I evaluated that operates within park boundaries and not just in its buffer zone.

Figure 7 Trained and certified activistas, Bela Vista, May 2018

The Water Project

The MSR buffer zone communities and their livestock are severely affected by limited access to water. They are largely dependent on a small number of boreholes or the Maputo River. PPF's water project (in collaboration with the World Bank-funded MozBio project) aimed to provide clean water through manual water pumps (four to date installed in communities in Machangulo--Ticalala, Mabuluco, Mhala, and Thlavane) and multi-use solar powered systems (four to date installed in Tchia, Massohane, Gala, and Guengo). These multi-use systems include troughs for livestock and capacity for crop irrigation.

Figure 8 Woman in Tchia demonstrates new water pump, generated by the solar panels to the rear, May 2018, photographed by Fiona Hogan

This project addressed a need that communities themselves were very vocal about. It also removes the necessity for locals in the buffer zone to traverse into the Reserve to access the lakes and Maputo River, reducing the potential for HWC and other damage to that environment. Previously, community members would often bring their livestock into the Reserve to reach water sources. With the multi-use systems, community members will be able to reliably access water for their livestock and expand their agricultural output.

"Water committees" were formed in each community to oversee maintenance of the new systems, and to collect monthly dues from community members using the pumps. These committees were formed of volunteers each of which received training from the technicians who installed the systems, the local office for water supply and sanitation (SDPI), and a PPF technician jointly. Committee members are responsible for determining the amount in dues community members will need to pay to access the water. Dues will be used for pump maintenance and range from 20 – 100 meticals (.33 – 1.67 USD). The amount of the dues and the system for collecting them is collectively decided by the community to ensure affordability for participants. Each community had also appointed a treasurer, and during

training session it was discussed with them the importance of securing and monitoring the money, as well as the importance of saving in case of malfunctions.

As the project progresses, it will be important to monitor how the due collection process is monitored and enforced (or isn't) and the tensions that may arise as a result. If such a situation occurred or there was any malfunction with the equipment and a water committee is unable to provide the collected dues for maintenance, there will be need for support from PPF, SDPI, or MozBio. Committee members have received training on how to collect and account for dues as well as document expenses that may be incurred by any maintenance, however this training was conducted in a single day and to a large group.

Figure 9 Water committee training in Gala, January 2018, photographer unknown

The Conservation Agriculture Project

PPF implemented the conservation agriculture project in six MSR communities (Gala, Zitundo, Huco, Mussongue, Massohane, Maphanga) in 2014 and appointed a field officer to train lead farmers in several communities. Since then, the project has expanded to involve more community members, incorporate composting practices, and increase cultivation areas thanks in part to the MozBio water project.

The introduction of conservation agriculture techniques to local farmers by PPF in Zambia's Simalaha County was incredibly successful, with increases of 77% in maize yields over conventional farming. So far, in Matutuíne district, these practices increased yields 50% or more and reduced environmental impacts of agriculture. PPF's appointed field technician helps to oversee these six plots of land, each about an acre in size, and provide guidance to local farmers, teaching them techniques like crop rotation and composting to improve yields. Community members also received educational instruction regarding soil quality, nitrogen fixation, and nutrient depletion.

The intent with the Conservation Agriculture project is twofold: to address food insecurity in the MSR communities as well as to provide designated areas for agriculture that may entice farmers to participate and not farm within the Reserve. If community members become frustrated that they cannot farm within the Reserve, this project allows PPF to simply point to the many opportunities to farm outside of the boundaries with the additional incentive of technical expertise and support.

Figure 10 Conservation agriculture plot in Mussongue, June 2018, photographed by Fiona Hogan

Conceptual Contextual Framework

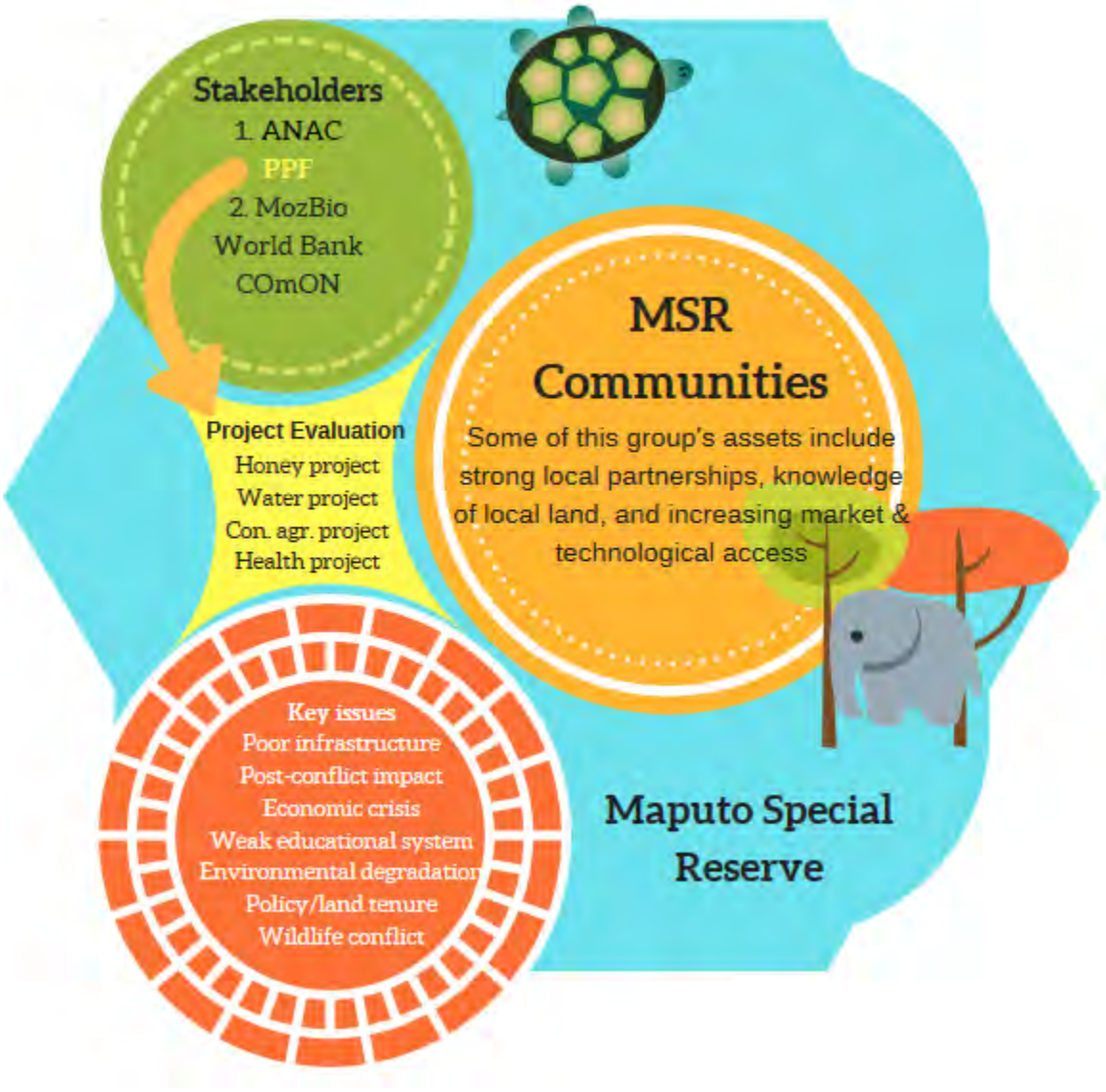

Figure 11 Conceptual contextual framework: This conceptual contextual framework outlines various dimensions of the field practicum activities undertaken in summer 2018. The circular figures represent stakeholders, the assets of MSR communities, and then key external issues that threaten positive outcomes. The diamond represents the role of the evaluation I carried out with the support of PPF. These four spheres all operate within the context of MSR and are highly interrelated.

Methods

From May to July 2018 I collaborated with PPF to evaluate their community development program in MSR, focusing on four specific projects: the Honey Project, the Health Project, the Conservation Agriculture Project, and the Water Project. Using a mixed-methods approach that employed both Participatory Rural Appraisal (PRA) and an Appreciative Inquiry (AI) approach, I identified strengths of, and challenges facing the ongoing projects, characterized community residents' attitudes towards and perceptions of PPF and park management, and observed how local people interact with their natural environment and wildlife.

Using a mixed methods approach helps to add context to nuanced issues like that of park management (Browne-Nunez, 2008). I analyzed data collected by PPF, conducted a comprehensive document review, carried out participant observation, and engaged in semi-structured informal interviews (15 informants) to inform my evaluation.

At the request of my supervisor at PPF, I also maintained a photo journal documenting the various sites and projects I had the opportunity to visit. These were compiled in a Google Drive and made available to all PPF staff. The intent of this was to provide a collaborative, easy-to-access space for all field technicians to upload photos. This would help provide information about the progress of various projects and facilitate comparison of different sites and projects. This also allowed my supervisor, Federica Ferrari, and other PPF employees to see the progress made on projects without having to travel into the field personally.

I travelled with PPF members to field sites and communities, but also collaborated with local community members, members of MozBio, the World Bank, the Mozambican National Administration of

Conservation Areas (ANAC – Administração Nacional de Áreas de Conservação), District Services for Planning and Infrastructure (SDPI- Serviço Distrital de Planeamento e Infra-estruturas), other local government representatives, and contractors involved in the projects. While most of my work focused on MSR and the surrounding Matutuíne District, I also was fortunate enough to visit Limpopo National Park and Zinave National Park, both of which are Mozambican parks managed with the help of PPF. This visit provided some broader context for understanding the role of PPF in conservation in Mozambique.

The purpose of my evaluation was fourfold: (1) To assess to what degree project objectives are being achieved, (2) to examine changes that resulted from the projects throughout MSR communities, (3) to document lessons learned, and (4) to provide recommendations on now to improve ongoing projects. I was asked by PPF to consider my project evaluations within the framework of the "4 C's" which they use throughout their institution: conservation, community, commerce, and commitment. Furthermore, PPF has established that their community development program has five prongs: alternative energy, reproductive health, food security, alternative livelihoods, and sustainable resource use. All of the data analysis, participant observation, and informal interviews conducted as part of my evaluation were considered with these two frameworks in mind.

Each project evaluation was based on the OECD guiding principles for monitoring and evaluation: relevance, effectiveness, efficiency, impact, and sustainability. I rated each project on a scale of 1 (very low) to 5 (very high) for each of these five factors, generating an overall score out of 25. These scores were generated based on careful deliberation alongside Programme Coordinator Federica Ferrari using the guiding questions provided by the OECD in their "Criteria for Evaluating Development Assistance" (OECD, 2018). See Figure 12 below for more details.

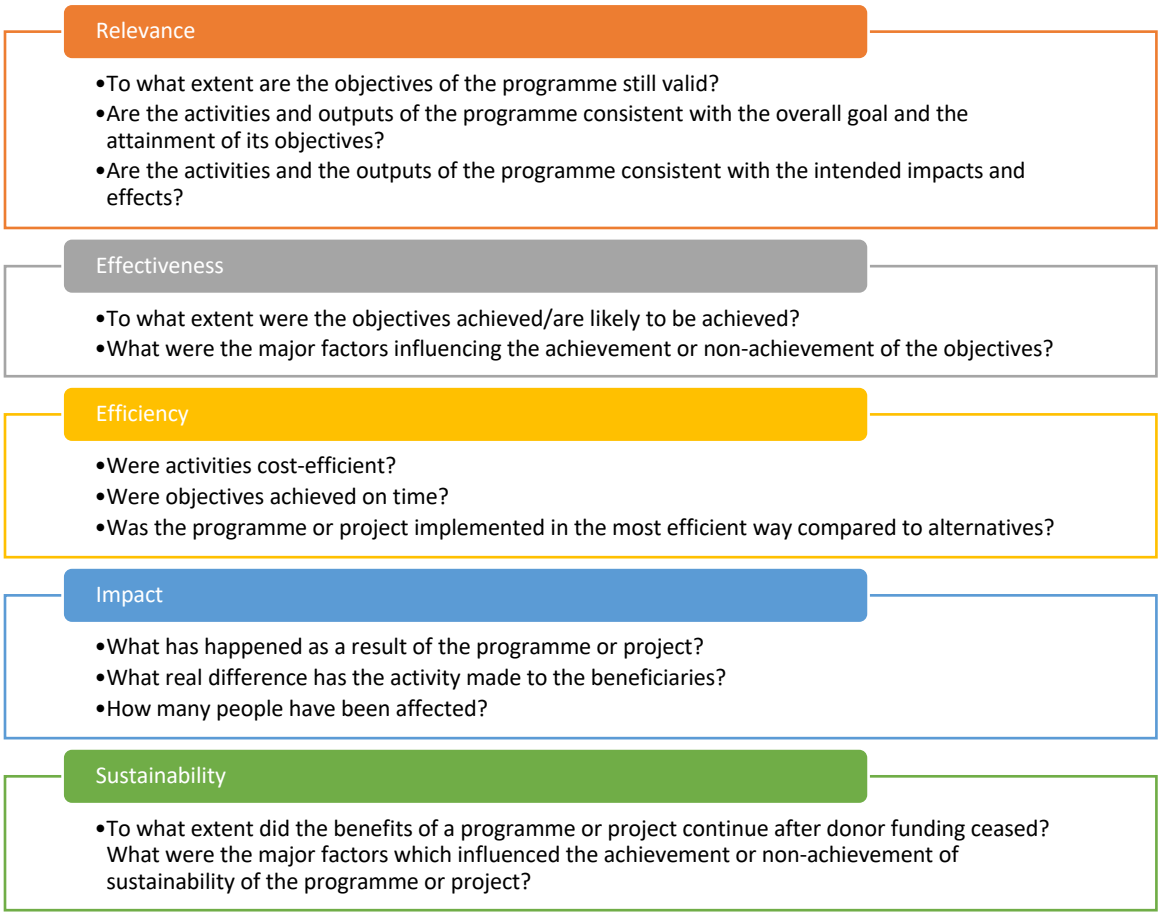

Figure 12 OECD's DAC Criteria for Evaluating Development Assistance (OECD, 2018)

I also provided recommendations to PPF for each project which were discussed at length with stakeholders at varying levels in the hopes that some of my recommendations would be applicable beyond MSR. Also, while I was asked to evaluate specific projects and the MSR CDP, I couldn't help but to notice some of the larger systemic issues within PPF and felt obligated to address them. I provided recommendations for the community development program in MSR as a whole, based on my experiences and the project evaluations. My findings emphasized larger strategic issues and capacity building opportunities.

The comprehensive review and evaluation were presented to my supervisor, Federica Ferrari, at PPF in July 2018 and discussed at length with other PPF members. The feedback I received from members at

various levels of PPF was critical in shaping my final recommendations. I have included a list of PPF employees who greatly shaped my report and their role here:

- Federica Ferrari, Socioeconomic Development Community Manager (oversees CDP's in several PPF parks including MSR, Zinave, and Limpopo)
- Tiago Nhazilo, Technical Adviser (oversees the CDP specifically in MSR)
- Hannes van Wyk, PPF pilot and long-time PPF employee
- Miguel Gonçalves, Warden of both MSR and PPMR
- Geraldo Saranga, Field technician focusing on Conservation Agriculture Projecy
- Denicio dos Santos Muari, Field technician
- Gil Gomes Muthemba, Field technician
- Dr Brian Child, Community development adviser to PPF
- Dr Moscow Marumo, Community development adviser to PPF
- Brian Neubert, Oversees rewilding in MSR
- Tanya Alexander, Tourism and development specialist

The results below were shared with Dr Brian Child, Dr Moscow Marumo, and Federica Ferrari. They are informing a revamped CDP that emphasizes genuine community participation. My experiences also paved the way for new UF researchers to work in MSR this summer (2019), building upon some of the needs for closer research and analysis that I've touched upon throughout this document.

Results

The following are summaries of the results and subsequent evaluations that I provided to PPF for each of the four projects I observed. In addition, I provide an overview of the CDP and other emergent issues.

The Honey Project

This project scored lowest with regards to efficiency and impact in that outcomes are not being achieved as predicted, the contractor (SEPPA) has not met performance expectations, project participants are not clear on data collection methods, communication with community members was poor, and only 30% of community hives were populated as of May 2018. Less than half the honey produced and supplied to SEPPA had been sold.

One of the main issues I identified was that this project was poorly integrated into the community. Previously, community members had harvested wild honey or kept their own hives using traditional methods. They were able to sell their product at local markets. While they were in need of technical tools and expertise like improved hives, safety equipment, and smokers, the presence of a third party, SEPPA, to manage the sale of the honey was unnecessary. SEPPA technicians, community members, and PPF extensionists shared that community members were harvesting honey from the PPF hives early and selling it themselves rather than waiting for SEPPA to manage the sale for them. Early harvesting diminishes hive population over time, which resulted in lower honey production than was projected by PPF and SEPPA, and lower economic returns to communities.

Furthermore, it was hard to verify that SEPPA was visiting these communities regularly to provide guidance. Most of the SEPPA technicians did not speak Changana and struggled to communicate with community members who were unclear about data collection. SEPPA attempted to collect data on the number of hives populated and the number of hives actively producing honey, but this data appeared to be fairly unreliable given that community members did not understand what was being asked of them in

the interactions I witnessed. Many of the hives were not populated and SEPPA technicians did not offer suggestions to try and bolster hive populations, whereas a private consultant was able to identify several things (planting of native flowering species, using bee "bait," making sure water sources are nearby and available to bees, etc.) that could potentially make a difference.

My recommendation to PPF was to re-negotiate or end their contract with SEPPA. Their extensionists struggled with the logistics of accessing the hives and beekeepers, but also did not communicate well with community members about data collection. The result was diminished trust between communities and SEPPA, which may have encouraged community members to revert back to the supply chain that they had previously used. I am not aware of what the difference in profit for the communities was between selling to local markets and accessing regional markets through SEPPA, but it appeared that the local supply chain was favorable because funds were more quickly available and there were pre-established relationships with vendors. While technical tools were highly useful to beekeepers, the supply chain SEPPA provided access to was not.

The following is a narrative summary of my evaluation of the project and recommendations made to PPF:

> *"This project had major challenges with scale and implementation, exacerbated greatly by the contract with SEPPA. These communities do not currently have the capacity to scale up production to the level desired by PPF or estimated by SEPA. Basic needs such as communication, infrastructure, and education need to be addressed first.*
>
> *This project required very strong monitoring and evaluation mechanisms that neither SEPPA nor the communities had the capacity to implement. For the communities, this capacity could be built up with training, provision of educational resources, and the facilitation of more reliable*

communicative channels. On SEPPA's side, there were failures with regular site visits, effective communication with communities, data collection, and program design.

However, even taking these steps would not have been enough to produce honey at a level high enough to produce reliable income for many people. This project does not appear to be sustainable or to be capable of having a large enough impact to be viable in the long-term.

That being said, there are many beekeepers who, prior to the project, produced honey in extremely painstaking and inefficient ways. Now they have the equipment to produce honey on a larger scale (hives, storage facilities) and also more safely (smokers, protective suits). Moving forward it would be far more efficient to focus on these few highly motivated individuals who have already received benefits from the project and to simply ensure that they have access to technical expertise and advise. The challenges of overseeing production are too complex currently, but community beekeepers have demonstrated that they do have access to markets to sell their product already. Instead of having PPF create a whole new supply chain from scratch, perhaps it would be a more efficient use of PPF's time, money and resources to support nodes of the existing, robust market for honey. I suggest ending the project, but to build on what has been learned from it by investing in the few engaged individuals and ensuring they have access to technical advise in the future should they wish it. They already have the equipment (thanks to PPF) and access to the market that they need to succeed and develop their own capacity. "

The Health Project

Some of the key challenges this project faced are as follows:

- *Ineffective monitoring system*- While activistas were selected by community leaders for literacy and capacity, many of the women struggled to keep track of their supplies stock and types of engagement which really reduced the quality of data collected for monitoring of this project. Many could benefit from further training.
- *Stock depletion*- When activistas ran out of items like condoms, DEPO shots, or birth control pills, the time to replenish their stock was extremely long at times (up to a month) which made access to their services unreliable.
- *Poor coordination with other stakeholders and local infrastructure*- Although there are some local clinics (especially in Machangulo) there was little to no coordination with those clinics or their employees. Doing so could provide more educational and social resources for activistas as well as new avenues for stock replenishment.
- *Lack of cross-training for activistas*- Activistas lacked training in monitoring, communication, and seeking further health resources as needed. Many were involved in more than one PPF project, too, so providing additional training could be useful beyond just the scope of this project.
- *Logistical and communication issues*- Activistas do not have reliable transportation or the time to frequently travel to serve distant community members or access other health structures. While many had cell phones, cell signal is extremely limited in the Reserve and facilitating meetings or trainings with all activistas was very difficult. Finding ways to help activistas effectively communicate amongst themselves more easily could also help them establish a network of health resources in the area.
- *Community engagement and trust-building*- There was a lot of distrust between community members and a PPF technician who was later terminated as he had been taking money from the activistas. He had also provided inconsistent information throughout the project which made community members skeptical. Moving forward, it is essential for there to be a focus on rebuilding this badly damaged relationship.
- *Lack of basic WASH (water, sanitation, and hygiene) training*- I witnessed activistas administer DEPO shots without washing their hands or sanitizing the area before injection which significantly increases the risk for disease transmission. Unsanitary procedural risks could be easily avoided if basic WASH training was incorporated into the activistas' training curriculum.

While this project was rated highly for its relevance, its effectiveness, impact and sustainability scored very poorly. Some of the effects of these issues were diminished community trust, proliferation of risky health practices, and little to no monitoring or evaluation. The following is my written recommendation I provided to PPF about this project:

> *"While this project has the potential to be hugely impactful in these communities, it is not being implemented effectively largely due to staff and logistical breakdowns. Momentum from activist training is now being lost as the project continues to stall. These issues must be addressed as soon as possible. The project should become integrated into previously-existing health systems in order to engage communities and ensure sustainability.*
>
> *Furthermore, other health issues must be addressed to benefit larger community development program goals, especially WASH principles, issues of basic hygiene and environmental health concerns (litter, wildlife contact). Overlooking these issues exacerbates a multitude of challenges MSR faces in ensuring this project's sustainability and efficacy.*
>
> *Most of all, better connectivity and communication with activists must be maintained moving forward in order to build trust and enhance capacity of these women. They need to feel engaged, supported, and comfortable accessing resources."*

My recommendations amounted to a total restructuring of this project, first calling for reconvening activistas to gauge the project's impact so far. This would allow for strengths and challenges to be identified, clear communication regarding per diem and other payments, strengthening of the activistas' network, the highlighting of basic WASH principles and environmental health concerns, and joint mapping of community health resources. This would also enable activistas to provide feedback, although there is a concern that they will not be forthright given the diminished trust with extension officers.

I also recommended capacity building for these activistas. Educational materials should be translated into local languages like Chanagana to improve their utility. While these women have self-identified as literate, I noted some struggled during a training session and suggest that they be provided the option of literacy training.

Well-regarded men in the community have the capacity to act as gatekeepers for activistas to engage men as well as women. Men have largely been left out of the project except to identify candidates for the activistas' training, however I recommended their continued engagement through family planning education workshops. This might improve their willingness to offer logistical, physical, or emotional support for activistas and help raise awareness among other men about the benefits of family planning.

Finally, I recommended that PPF cross-train all of their CDP staff in MSR to be able to accommodate activistas they may encounter during fieldwork. Many of the activistas are involved in other PPF projects or are prominent community members that extension officers may come into contact with during their fieldwork. Providing these extensionists with the knowledge to support these activistas (if needed) would help build the local health network significantly.

The Water Project

The Water Project was the highest rated of the four projects I evaluated. It addressed a very clear need and was implemented with little issue. Most of the challenges I identified for this project were anticipatory and related to the water committees that were formed in each community that received this project. These water committees were expected to collect data on use of the pumps and perform any necessary upkeep and maintenance on the pumps, with support from SDPI (the district infrastructural planning office). Unfortunately, the formation of these committees needs to be revisited since the data on who the key members were was found to be incorrect. When reviewing the list of members of the water committees in several communities, there were many errors found (people missing from the list, people who didn't live in that community on the list, etc.). Identifying these members and the lines of communication to reach them is key moving forward for PPF.

These water committees were expected to collect data about water use from the structures, but many of the people thought to be serving on the committee were not able to attend the training and therefore will likely run into issues when servicing of the structures is necessary or information requests are made. Also, the local officer from SDPI showed little interest in collaborating with these communities and lacked even the necessary transportation to reach field sites. These are issues that may affect the long-term sustainability of this project.

Furthermore, committee members are expected to collect fees from those who use the water pumps. There was a lot of variation in charges per family in different communities and how management or storage of those funds would be overseen. Without formal bank accounts (which would most likely require several days travel to obtain), there is a risk of corruption or mis-management of these funds.

I recommended that PPF conduct a follow-up training for the water committees to identify resources should there be issues moving forward, to define and clarify the fiscal controls of the project, and to

identify and address any gaps in training retainment relating to servicing the pumps. My full narrative recommendations and evaluation for this project is below:

> *"This is a highly successful project because it addresses a very obvious and critical need. Although access to water is not secured for everyone in the buffer zone, this greatly increases availability for many of the community members. The new systems provide clean water, whereas prior to their installation much of the water was contaminated. This project also should reduce time poverty as it cuts down greatly on the amount of time community members are forced to spend travelling to obtain water. There are also new opportunities for agricultural use and livestock use that should positively affect economic development in the area, offering potential for alternative livelihoods.*
>
> *Although these systems require relatively little maintenance, it will be important moving forward to make sure that if there are issues with them, community members contact SDPI and PPF for guidance moving forward. This will require that water committees are functioning and collecting funds regularly. To date, these committees have been very disorganized and retainment for training appears to be low. Ensuring their capacity is developed will be necessary to maintain the sustainable use of the systems in the future.*
>
> *Finally, another important consideration with this project as it plays out will be exclusivity. Who is being denied access to the systems and why? For whom does their installation not make a difference due to geographical or financial constraints? And if the population of those excluded from use it significant, how can their needs be addressed?*
>
> *Access to clean water for very little money is a game changer for these communities, and moving forward it will simply be important to document how this plays out and to be adaptive should new issues arise. Ongoing monitoring and evaluation will be key."*

As mentioned in the narrative, further research is needed regarding exclusivity in the management of local resources and to ensure that monitoring and evaluation mechanisms are operational. I feel confident that if my recommendations are considered and implemented, this project has a strong change of long-term success.

Conservation Agriculture Project

The following is the narrative evaluation and recommendation I provided to PPF:

> *"A major limitation of my research on this project was that it was the down-season for agriculture in Mozambique. It was not a planting or harvesting time and few people were in the fields unless they were clearing them for future use. Skills transfers between technicians and community members were not occurring at this time and Farmer Learning Groups were not convening either.*
>
> *That being said, I visited many of the conservation agriculture fields with technicians. I noted the very strong and positive relationships between community members and technicians (Gil, Geraldo, & Denicio). In Guengo, I witnessed the new fields being plowed and the intense commitment of community members (especially the core group of women) in the endeavor. In Mussongue, I saw how compost piles were being created and fields were being cleared with the active help of Gil.*
>
> *This project has intense relevance and addresses several nodes of the PPF community development strategy: alternative livelihoods, sustainable resource use, and ensuring food security. However, issues of transportation, access to technology, and the overworking of local technicians are currently barriers in improving progress. "*

Given the limitations of my methods, I was not able to collect sufficient data for my evaluation of this project to be specifically useful. I was able to speak to several community members and extensionists about it, and this project seemed very well-received broadly.

Program Evaluation

The scores given to each project have been compiled below:

Projects	Relevance	Effectiveness	Efficiency	Impact	Sustainability	Total
Health	5	1	3	2	2	13/25
Honey	4	3	1	2	3	13/25
Water	5	4	4	4	4	21/25
Conservation Ag.	5	4	4	3	4	20/25
Total	19/20	12/20	12/20	11/20	13/20	67/100

Figure 13 Points allotted to each project according to OECD guidelines (OECD, 2018)

While the water and conservation agriculture projects scored strongly, the health and honey projects scored significantly lower, which aligns with what I observed in the field. Also, the key issues PPF's program struggles with are impact, efficiency, and effectiveness according to this framework.

The first point of action should be to create new community action plans (CAPs). The last CAPs were designed in 2016 and are out dated. These CAPs should also include clearly defined programme goals as this was a point of confusion among PPF staff during my time there. Furthermore, there should be active community participation in the design of projects and in the definition of CDP objectives.

Another issue that deserves much further research is the 20% of MSR revenues that are distributed to communities. I was unable to determine the actual mechanisms for the disbursement of these lump sums let alone who the recipients are. Studies need to be conducted to evaluate how the money is being disbursed, who the recipients are, and how these sums are being spent in order to determine whether or not this mechanism is actually increasing the buy-in of community members. There is a serious transparency issue and it seemed to me that even PPF's field technicians did not understand the process by which this revenue transfers to the community. Addressing this deficit so that the CDP staff in MSR feel confident explaining that system of revenue could improve buy-in from community members in ecotourism schemes.

Finally, there is an issue with the level of participation community members have in helping to design and implement projects. Their input is critical to the success of the CDP as is maintaining open and reliable channels of communication with PPF so that community members can voice their concerns, suggestions, and feelings. Given the strong cultural and historical ties these communities have to their land, it is imperative that PPF continue to develop a relationship where transparency, accountability, and mutual understanding come first. Prioritizing community members' perspectives is foundational to those relationships. Using effective monitoring and evaluation tools to make sure that outcomes link to intent will also help ensure that any ecotourism development or project is actually beneficial to communities beyond a superficial scale.

One thing that could help improve this relationship and facilitate communication is more black Mozambicans working with and within PPF beyond the local level. There is a large body of research that suggests that communities struggle to trust organizations that don't reflect their values and don't look like them. When PPF staff visit field sites and insist on speaking Portuguese or English, this is not as effective as hiring Changana speakers to interact with communities. The issue of racial and linguistic identity came up repeatedly in my fieldwork. Most of PPF administration is made up of white Afrikaaners while field technicians are black Mozambicans. This stark difference and lack of representation was pointed out to me repeatedly, indicating that it is a salient factor in the experiences of technicians. Increasing representation at higher levels within PPF administration could help facilitate trust-building and community engagement.

Overall, I would suggest that the PPF community development program shift from large-scale initiatives to smaller, easier to implement, shorter-term and more adaptive actions that address clearly defined needs. Rapidly changing infrastructure and market access in Matutuine District means that anticipating challenges and changes in communities is difficult. Taking advantage of smaller but profound windows of opportunity becomes more important. This requires better communication amongst staff so that

there is an encouraging environment where needs can be voiced and addressed with short turnaround. PPF's relationship with communities is positive, but also fragile and necessitates trust-building. Small-scale projects that target individual gatekeepers and changemakers enables those people to become ambassadors of Peace Parks. This would require better understanding of public relations and communications tools to help accommodate donor and management pressures. Photography, daily logs, and other creative tools are inexpensive and easy to access.

Some larger issues emerged during my time in MSR, and I have included comments below on each hoping that it informs project steering, design, and implementation in future.

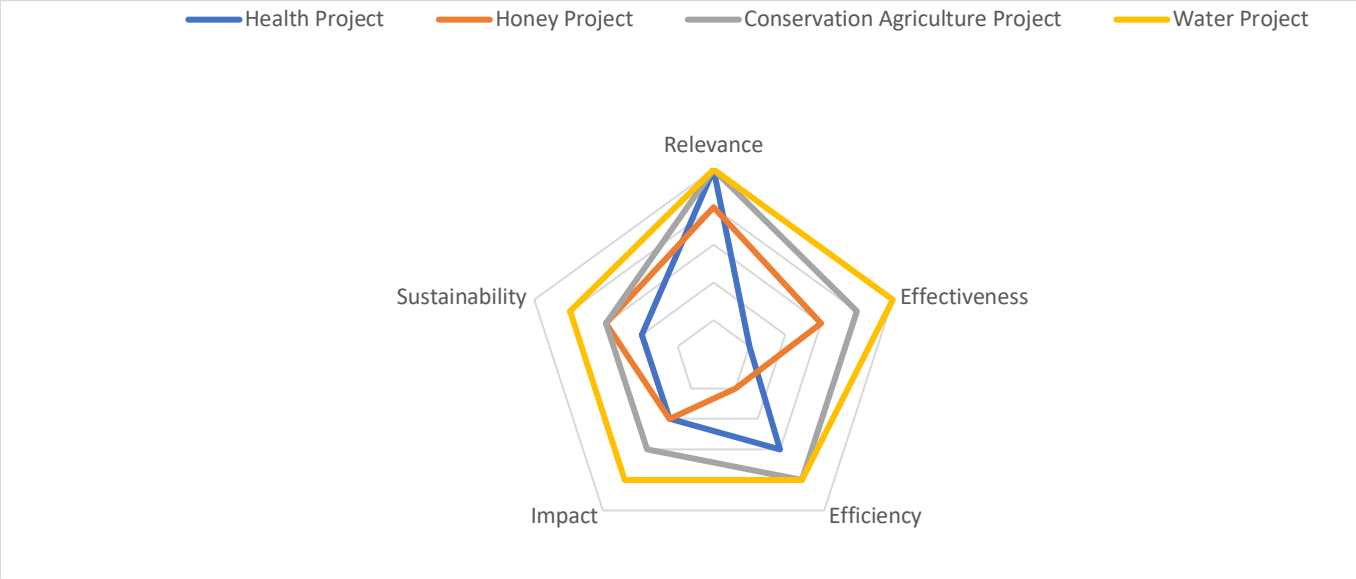

Figure 14 Mapping out the points of each project for the 5 OECD qualities to determine programme success (OECD, 2018)

Education

Throughout my interactions with communities in MSR and in conversations with technicians and other park staff, I found that a barrier for many of the community members was education. I visited many schools where teachers lamented the lack of books and other teaching materials. Transportation to and

from schools was communicated to be an issue for many especially in the more isolated Machangulo area. There is a desperate need to strategize and bolster the educational networks in these communities. One park staffer commented to me that education has the power to "resettle people slowly"- to provide them opportunities to explore new lives beyond the park areas. PPF's plan to create "development nodes" should include increased educational opportunities for community members.

I also noticed that project design did not always take literacy into account. Some community members were asked to keep notes (e.g. the water committees, honey project, & health project) or help track data and seemed to be unable to complete this not always understanding what was expected of them. These were people committed strongly to their respective projects but were unable to participate fully because of the expectation of literacy.

I would suggest in future that PPF consider educational outcomes and barriers in their project design. There is a demonstrable need for more educational resources and opportunities. This could include, but is not limited to, educational materials produced in Changana (not Portuguese), literacy workshops, student sponsorship projects, or mentorship programs.

While education is not necessarily within the scope of PPF's work, I think it is a necessary consideration at least for MSR as a whole as they continue to engage these communities.

Capacity building for community members

There is also a need for other types of training and skills transfers beyond educational initiatives. I am curious to see how the upcoming microfinance project that was being discussed while I was in MSR will play out. I did notice that PPF staff helped facilitate access to park management jobs for community members, and I anticipate that some of the new positions created employing locals. Branding some of these people employed by MSR as ambassadors to the communities could be positive. Exchange

programs wherein community members visit different projects in different communities could also facilitate the creation of a more supportive, communicative network amongst project participants.

Renewed needs assessments would be instrumental in identifying individual changemakers and gatekeepers. Facilitating increased access to technological or educational resources for these people could also improve the trust and relationship between PPF and communities.

Capacity building for PPF staff

From my experience, I noted that PPF's staff, especially technicians, are under extremely high pressure. They are expected to act as enumerators, translators, or hosts to visitors. They fill multiple roles and deal with transportation, communication, or other logistical challenges constantly. This constant pressure and disorganization were not conducive to a positive work environment and feedback was not encouraged. I observed this work environment for just a few months, but it became very clear from conversations with technicians that they need more support badly.

This support could come in the form of increased staffing, access to more training (M&E, language, IT, etc), regular forums/seminars with experts, and access to other workshops, dinners, retreats, or conferences. Convening staff bi-weekly or monthly for brainstorming and idea sharing could improve communication within the team, also. There are some very talented people working with PPF and I believe they could be far more effective with more top-down support.

Furthermore, the position of project manager needs to be separated out from a community liaison or volunteer/research coordinator position. A person expected to perform all these duties would be overwhelmed immediately.

For the sake of future volunteer researchers and students such as myself, I would strongly recommend that PPF create a coordinator position to help ensure transportation and accommodation for them. It

was unreasonable to expect the already overwhelmed MSR staff to oversee taking a researcher into the field regularly or to facilitate a productive relationship with the communities.

Community Action Plan

The Community Action Plan (CAP) produced by the Mozambican Ministry of Tourism and ANAC in 2016 is in desperate need of updating. While this CAP addresses some issues well (especially those relating to tourism), there are some key points of information missing that should be included in future. These include definition of the buffer zone area, clarification of PPF's strategy to create "development nodes" meant to encourage people living in the park to move out, a plan for how to minimize human wildlife conflict as rewilding continues, and future research priorities. One of the primary recommendations I made to PPF was to conduct livelihood surveys to understand the demographics of the communities in and around MSR and to then create an updated, more detailed CAP based on that information.

Discussion

The major challenges faced by PPF's community development program are not unlike those faced elsewhere in southern Africa: poor infrastructure, logistical challenges, communication barriers, low education and literacy rates, and determining program capacity. When there are so many issues to tackle, it is difficult to know where to begin and where to end.

However, the future looks bright because Matutuíne District and MSR are about to become much more accessible with the new road connecting the South African border to Maputo, passing through the MSR Futi Corridor. A bridge connecting Catembe to Maputo will open before the end of 2018, reducing the travel time to Matutuíne District from Maputo from roughly 4 hours to 2. The new World Bank investment in MSR's ecotourism sector has the potential to drive infrastructural improvement and economic development in the area. This will alleviate the logistical challenges project managers currently face.

Improving educational outcomes in Matutuíne remains a major challenge, and one that falls outside of the scope of PPF's abilities unfortunately. Few children in the area are able to able to attend school through primary school, often walking long distances to be taught in Portuguese (not their native Chanagana), with very little access to books and other materials, high student-teacher ratios, and crowded classrooms. Improving educational outcomes would have a positive effect for communities and PPF by increasing local residents' ability to participate in projects and other new livelihood strategies. There is also a need for further technical skills training and education amongst adults, whose literacy rates also remain dismally low.

Currently, the scope of PPF's work is expanding past their capacity, a byproduct of the rapid economic and infrastructural growth in the area and the myriad of community needs. Staff are overextended trying to address the issues, and partners are needed to address the larger needs in infrastructure,

education, and access to health resources. Although PPF has responded to these needs as expressed by the communities, this rapidly expanding NGO is struggling to keep up with the immense workload. This highlights the age-old truism that development is both a blessing and a curse—as issues are addressed and attended to, new ones emerge in their wake. PPF's highly adaptive team responds well to challenges by employing flexibility and creativity, and by maintaining the participation of local communities. However, often with an overextended staff, focus is mainly given to immediate issues like conflicts over resources (food, water, wildlife, etc) to an extent that root causes of conflict may be left unaddressed. Human-wildlife conflicts especially usually have little to do with wildlife and much more to do with groups of humans with conflicting agendas or values surrounding that resource (Redpath, Bhatia, & Young, 2015). A framework for better understanding and managing conflict could prove extremely useful for communication between different stakeholders. For example, Moore's Triangle of Interests and Needs (Moore, 1986) was a useful tool for me to map out some of the underlying points of contention for the communities in the buffer zone of MSR.

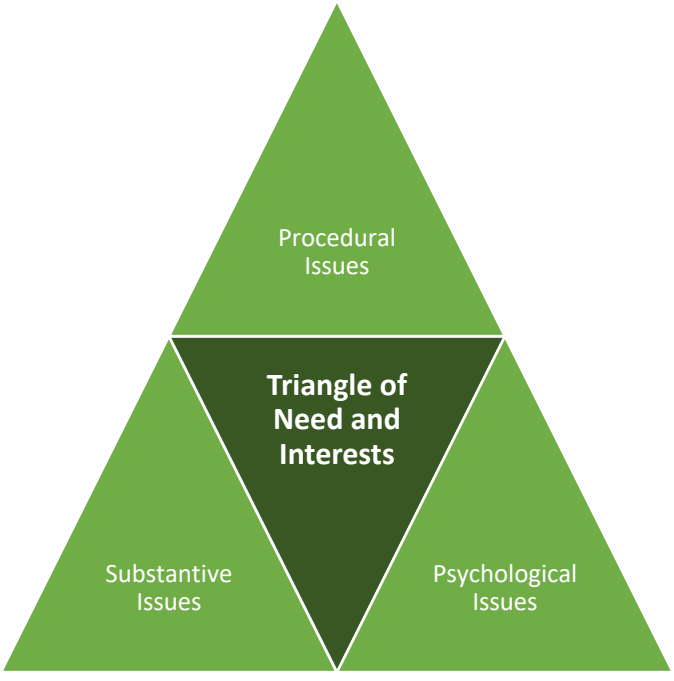

Figure 15 Triangle of Needs and Interests (Moore, 1986)

Procedural Needs & Interests	Substantive Needs & Interests	Psychological Needs & Interests
• Transparency • Inclusion • Influence	• Land tenure • Infrastructure • Security • Infrastructure	• Trust • Respect (for person, culture, community, history) • Security of persons (dignity)

Figure 16 Mapping out the layers to the needs and interests of the MSR buffer zone communities (Moore, 1986)

There is much potential for further research in the area of community development as it relates to protected area management, as well as research specifically addressing MSR's challenges. First and foremost, increased respect for local contexts, history, and communities needs to be a central concern for conservationists in park management. Baseline livelihood surveys, literature review, and document analyses are necessary in order to develop an updated Community Action Plan. I also encountered varying definitions of what constituted the MSR buffer zone and felt that that deserved clarifying, both for the sake of policy, but also the communities.

Cross-Discipline and Cross-Scale Implications

This research highlights some incredibly relevant global issues that I feel are worth addressing. The first is the trend in accelerated human population growth on PA edges that is being witnessed globally (Wittemyer, et al., 2008). While conservation areas used to be valued for being pristine and isolated from development, it seems that that is no longer a reasonable expectation. As these demographic trends around PA's continue, PPF's model for community development integrated into conservation strategies will become more relevant and applicable. Their work now could help to set the standard moving forward in a more crowded world where sustainable use of natural resources with respect to cultural heritage is imperative. Balancing these oft conflicting issues is a challenge that PPF is helping to write the blueprints for handling.

However there is a need for such a framework to be developed and testing. Human population growth at protected areas' edges is expected to continue increasing rapidly, emphasizing the need for creative solutions like transfrontier wildlife corridors or multi-use areas to foster sustainable (i.e. does not increase pressure on the natural environment) development in rural communities around protected areas (Wittemyer, et al., 2008). PPF does not hold the answers, but their case studies throughout south-central Africa offer insight into conservation area management useful to ecologists, conservationists, developers, economists, and development professionals alike. Protected areas can preserve biodiversity while simultaneously acting as economic engines for underrepresented communities under the right conditions.

The social impacts of conservation areas like MSR are also noteworthy from a more anthropological and historical point of view. In MSR, I found it was extremely important to pay attention to the cultural symbolism of the area. The people who live in Machangulo and the MSR buffer zone have resisted several relocations, survived a war for independence, survived a 17-year-long civil war, and continue to return to MSR to build their homesteads. They have very strong ties to their land which they have

fought for the right to inhabit time and time again. It is easy to see how PPF and the park administration more generally have come to represent larger issues- distrust in government, distrust towards symbols of colonialism, distrust in anyone who might take their land from them.

This brings up the issue of access rights, which Dahlberg et al. identify as a key indicator of a decentralized management system we can trace back to the very attitude and intent of conservation area systems and infrastructure (Dahlberg, Rohde, & Sandell, 2010). By ensuring access rights, communities in and around MSR are guaranteed not only a seat at the table, but influence over management strategies. There are those I encountered at PPF who would like to completely revoke the access rights of local communities, and I argue firmly against this proposition. In fact, the very act of suggesting those rights be revoked acts to deteriorate trust between MSR administration and locals.

West et al. discuss how conservation areas represent a force of globalization wherein culture and nature cannot be separated and to do so has negative social impact (West, Igoe, & Brockington, 2006) This is extremely true in MSR where the land has such strong sociocultural symbolism but also provides the resources upon which communities rely. More anthropological research in this area would be incredibly valuable in better understanding interests, need, leverage points, and tension as PPF continues to work with these communities. This would also allow for better understanding of the intangible values of the protected area that local people consider most important (Harmon, 2003).

In particular, issues with human-wildlife conflict (HWC) need to be considered more seriously within larger contexts for the PPF protected area network. There are many mitigation strategies that are designed using local knowledge such as memory fences (Le Bel, et al., 2011) and other holistic approaches (Ecoexist, 2019) that PPF may want to consider in the future. MSR faces difficulty with HWC especially between humans and elephants, but this conflict is largely between human groups (Redpath, Bhatia, & Young, 2015). While MSR administration are doing their best to protect elephants from

poachers and encourage the population's growth for ecological, economic, and touristic reason, local peoples struggle to adapt to living in proximity with animals that raid crops, damage structures and threaten safety. Engaging holistic approaches to handle this conflict and demonstrate the shared value of a healthy elephant population (economic, touristic, ecological) could be a useful framework for MSR.

Hayes and Ostrom assert that protected areas are not the only way to conserve natural spaces (Hayes & Ostrom, 2005), but still agree upon the same premise repeated throughout this report- linking local, national, and international infrastructure to facilitate participation, especially from local communities, is key to effective conservation area management. This will require an interdisciplinary approach in MSR and other areas, making room for academic experts (economists, anthropologists, geographers, ecologists, etc), policy-makers on various levels, but also, most critically, local communities.

Conclusions

The challenges faced in MSR is not unique and represents a transition in the role of parks or conservation areas in socioeconomic landscapes. Increased population growth at the edges of protected areas (Wittemyer, et al., 2008), issues of land rights (Lunstrum, 2008), and concerns about sociocultural ties to land (Soto, Munthali, & Breen, 2001) are driving the transition away from the American model that originated with Muir and valued preservationist ideals. Instead, African parks are becoming engines of socioeconomic growth in and of themselves, making it increasingly important to understand the dynamic role of communities. I suspect this aspect of park management has often been overlooked by conservationists will become critical in the future on a more populated Earth when natural resources are scarcer.

During my time in MSR, I felt myself oscillating between two prevailing concerns. The first is that conservation is of immediate importance to our global community and should be ensured at any cost, especially in high endemism and high biodiversity protected areas like MSR. The second is that the rights of local people must be protected. The history of violence and exploitation of the peoples living in and around MSR has marginalized them and negatively impacted their socioeconomic outcomes.

The question that PPF wrestles with constantly is how to balance these two objectives when they frequently conflict with each other. Clear-cut answers may not exist, but what is valuable is that PPF is making room for discussions to take place so that communities have a voice. Adaptive management is a central mechanism in their projects, allowing for failures to become lessons learned and successes to be expanded upon. PPF actively engages in difficult discussions and wrestles with challenges that often lie outside the scope of their abilities or mission. In truth, I feel this is the only way for conservation in Africa to succeed, because too often marginalized people have paid for the conservation goals that ecologists have defined and championed. Top-down conservation breeds contempt and distrust

between local communities and conservationists, does nothing to change extractive natural resource use, and ultimately undermines the protection of flora and fauna. Ecotourism for profit's sake, especially when that profit is consolidated amongst a few wealthy individuals, is not sustainable. The model employed in MSR allows for collaboration between communities, park management, and foreign investors to promote an industry that is profitable, but also shares those profits with the surrounding communities.

There is also a place for more appreciative inquiry frameworks to be implemented in PPF's current programming. I argue that, in such a complex system such as that behind park management, recognizing and investing in central nodes, especially community gatekeepers, are the keys for success. It builds social capital while also promoting community participation. Historically, park management traditionally has used gap analysis to address concerns around protected area management. This is not mutually exclusive from appreciative inquiry, but I do believe that a stronger appreciative inquiry framework will be invaluable for PPF moving forward.

Another key mechanism for encouraging community participation in MSR's management will be through addressing the main concerns of the people there, especially education. Promoting educational programming may be beyond PPF's core mission, but through effective partnerships PPF could help address this need.

Peace Parks Foundation involves communities in conservation, creating mechanisms that instill a value for parks in these local people through benefit sharing. The sustainability of conservation areas and the ecotourism industry is enhanced by local participation and the important relationship between these people and Maputo Special Reserve that Peace Parks Foundation has created and maintains.

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