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CONSERVATION ALTERNATIVE LIVELIHOOD ANALYSIS (CALA)

**SUSTAINABLE INCOME-GENERATING OPPORTUNITIES IN
MOZAMBIQUE'S LUBOMBO CONSERVANCY AREA AND
GORONGOSA PARK**



REPORT NO. 26



Photo Credit: ACDI/VOCA

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DISCLAIMER

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ACRONYMS

ANAC	National Conservation Areas Authority
BAGC	Beira Agricultural Growth Corridor
BRC	British Retail Consortium
CTA	Confederation of Economic Associations
DECA	Desenvolvimento e Comercialização Agrícola
FTF	Feed-the-Future
GNP	Gorongosa National Park
GRP	Gorongosa Restoration Project
IFAD	International Fund for Agricultural Development
IGBZ	Integrated Gorongosa and Buffer Zone (Program)
KNP	Kruger National Park
MAFAP	Monitoring African Food and Agricultural Policies
MHC	The Mozambican Honey Company
MOU	Memorandum of Understanding
MT	Metacais (Mozambican currency)
NMRC	Natural Resource Management Committees
SAWC	Southern African Wildlife College
SNV	Stichting Nederlandse Vrijwilligers
TH	Tongaat Hulett

EXECUTIVE SUMMARY

Blessed with valuable natural resources and stunning wildlife, two of Mozambique's emerging tourism destinations, Gorongosa National Park (GNP) and the Lubombo Conservancy Area, are experiencing a revival after decades of civil war. Tourism investors and conservationists alike are seizing the opportunity to explore the territory that had been previously unreachable. However, local populations that inhabit the area rely largely on low-value subsistence agriculture and unsustainable exploitation of nature to survive, including poaching of endangered species and overfishing. This puts them in direct conflict with tourism developers and conservationists who are looking to preserve and replenish the natural environment.

USAID is seeking solutions to continue to promote tourism and conservation, while preserving and assisting the impoverished populations to improve their livelihoods.

THE CHALLENGE

Wildlife crimes are challenging conservation goals and tourism development in these two regions of Mozambique. The illegal wildlife trade is estimated to be worth over \$10 billion per year and has drastically reduced many wildlife populations around the world.¹ The urgency in recent years has escalated due to the soaring global demand for endangered species parts such as rhino horns or elephant ivory, especially from emerging markets in Asia. The growing middle classes of China and Vietnam, for instance, have increasing wealth and are purchasing these (now illegal) products in greater volumes. This has raised prices astronomically, up to \$600,000 reportedly for one average-sized rhinoceros horn.

With this growing demand, global syndicates are entering wildlife areas to source these valuable supplies. Illegal wildlife traders are contracting local populations that know the terrain well and can expertly track animals, offering them prize sums that are luring villagers to join the poaching trade. Lubombo and its neighboring Kruger Park are home to 40 percent of the world's remaining rhino population and are therefore major target areas for poachers. GNP, despite seeing its animal populations decimated by decades of war, still has poachers targeting its animals; and as the park works to replenish its fauna, the lure of poaching will increase even more. On the other side, poaching is a dangerous business, and many local men are losing their lives in pursuit of quick wealth.

THE PROPOSED SOLUTION

To address these challenges, this assessment proposes livelihood solutions in the form of income-generating opportunities. The goal is to provide jobs and support legal business opportunities that will disincentive local communities from participating in poaching activities. This assessment analyzes the full range of economic livelihoods in both regions and selects four that show the most promising opportunities for growth as well as for achieving conservation goals.

However, it must be understood that creating income opportunities and accompanying economic development will be just one of the tools to fight poaching. A strategy of enforcement, education, and awareness, among other tools, must be deployed as a primary driver to reduce poaching.

¹ *Rhino Demand 2012–2014*, study performed by Wild Aid.

A screening process resulted in the selection of four livelihoods in each region as the focus for intervention. Livelihoods were selected based upon fulfillment of four key criteria: 1) income opportunity (including level and sustainability as well as the inclusion of women); 2) scale of population impacted; 3) improved conservation; and 4) competitiveness of the local offering. It should be noted that the value chain analyses that were performed as part of this study were of a first screening nature; additional analysis will be essential to inform future program design and interventions.

LUBOMBO: SELECTED LIVELIHOODS

The selected livelihoods for Lubombo leverage existing natural resources while taking into account basic economic conditions and socio-cultural factors. The nascent tourism industry and its related wildlife efforts, though presenting some conflict at the onset, show promise to attract greater investment and prosperity into the region.

The following summaries analyze the four key livelihoods:

Cattle. As one of the fundamental staples of the regional economy, opportunities exist to improve this livelihood source by investing in livestock production and services, improved market linkages, and local meat processing capacity. As Maputo and surrounding areas grow, there is increasing demand for meat and meat products. Currently, local meat is not competitive on the urban/Maputo market with imports coming mostly from South Africa. Thus, the focus should be on increasing production for local markets, with a longer-term strategy of improving quality for urban and regional markets.

Fresh vegetables. Almost all small farming households in the region grow a portion of fresh vegetables alongside other crops. These higher-value products are sold locally or to traders at highly volatile prices; with some assistance in improving agricultural practices, market information, and linkages, there is a potential for farmers to earn higher, more stable prices. In the medium term, the tourism industry presents a possible end market for these products.

Marula and medicinal plants. Native to southern Africa, the Marula, which is a nut in the cashew family, comes from a single-stemmed tree with a wide, spreading crown that grows up to 18 meters tall in low altitudes and open woodlands; it grows prevalently in the region and has marketing potential as a table snack, traditional medicine, wine and animal feed supplement. A second range of products to consider are the varieties of local plants such as the Bangala, which healers use to treat dysentery. Non-commercialized to date in the region, these natural products represent a significant opportunity to leverage existing assets. There are potential opportunities identified for both domestic and export markets. A portfolio approach could help to determine which of the many varieties of medicinal plants and which of the value-added Marula products will provide the most rewarding livelihoods for local populations.

Tourism. The nascent tourism industry will bring new investment as well as new jobs and business opportunities for local people. However, some immediate challenges in terms of natural resources should be addressed so that the communities and tourism development can co-prosper. In addition, skill levels must be improved to meet labor requirements, and donor assistance is needed to advise on the structure of new tourism investments.

For the most effective implementation, USAID partners could explore partnering with active projects such as the International Fund for Agricultural Development's (IFAD) Prosul agriculture intervention as well as private partners such as Sabie Game Park and their current engagement with the Southern African Wildlife College (SAWC).

GORONGOSA: SELECTED LIVELIHOODS

The local communities have not reaped substantial benefits from GNP's revival over the past decade, and on several occasions, they have come into conflict with the park's conservation agendas. However, with a participatory partnership, the communities stand to improve their livelihoods greatly in both the short and longer term.

Specifically, communities could generate additional income from the following four sources:

Honey. Beekeeping is already a common livelihood in the region as local households practice traditional beekeeping and sell relatively low-quality product on the roadside. Potential partners, including GNP and TCT Dalmann (a Cheringoma-based social enterprise), are proposing to work with local beekeepers to improve their production processes, build their capacity, and link them with end markets. End buyers exhibit consistent demand, and they are open to exploring sourcing from domestic sources if supply chains are improved in terms of quality and price. Buyers also value a home-grown brand (whether "Save the Rhino" or "Gorongosa National Park") and take pride in buying Mozambican products. This offers a tangible, actionable opportunity to generate recurring income.

Fruit. Fruit, including mangoes and pineapples, grows abundantly in the region but has yet to be commercialized as a functioning livelihood. One of the biggest barriers is a lack of transport options and a lack of market linkages. GNP has initiated a venture to dry and package fruit for sale on national and export markets but requires financial, technical, and management assistance to fully launch the venture. This is an opportunity to leverage an existing market actor to increase incomes for small farmers.

Maize. Maize is one of the staple income earners for small farmers in the region. However, small farmers are currently at a great disadvantage in terms of timing of sale, inventory management, and pricing. This is a challenging livelihood for small farmers because trading relationships are informal and unpredictable. Reducing market information asymmetries, improving market linkages, and introducing technology such as mobile money schemes could empower small farmers to generate additional and more secure incomes.

Tourism. Despite recurring security challenges, Gorongosa's revival as a tourist destination continues. However, to date, operators have had difficulty sourcing labor, business services, food, and other products from local communities due to low skill and capacity levels. There have also been mixed results in integration of community involvement in tourism activities; improving these offerings could raise incomes and create new jobs.

This assessment shows how these eight livelihoods were selected and then analyzes each in terms of their viability to serve existing and new end markets. A rapid value chain assessment provides the analytic underpinning for this exercise; however, the assessment was not an exhaustive study of each of the target value chains. The areas for future analysis suggest private partner engagement opportunities, areas for technical focus, and illustrative activities. Areas for future study are pointed out where additional interviews and research were not possible due to the rapid nature of this assessment.

METHODOLOGY

The consultant team performed an assessment of alternative livelihoods with the goal of creating income-generating opportunities in the target region in order to deter wildlife crimes. The team consisted of three individuals, including one international expert and two local consultants: one individual to focus on each region. The team spent six days each in the Lubombo and Gorongosa regions, with an additional four days of meetings in Chimoio, Beira, and Maputo. See annex B for the full list of stakeholders consulted.

In each region, the team completed the following multistep assessment process:

1. **Compilation of universal list of existing and potential livelihoods.** The team gained a holistic understanding of how the populations in the regions earn their livelihoods. This was meant to be all-inclusive as a basis for analysis including both positive and negative sources as well as potential sources that may be developed. The project compiled a list of the top 22 livelihoods in Lubombo and 15 in Gorongosa.
2. **Understanding of negative livelihoods.** Wildlife crimes were studied at a high level to understand the barriers to overcome in order to propose income-generating opportunities to disincentive pursuit of these livelihoods. This study was grounded in desktop research, with some essential “ground truthing” to understand the specific challenges of the communities in question. However, it should be noted that this was not the focus of interviews but rather emerged during general conversations about the livelihoods of the people.
3. **Screening of a universal list of positive livelihoods for support.** The assessment team then analysed each of the top livelihoods in the aforementioned compilation against the four main screening criteria, as defined in the section below. This rapid assessment was done in parallel with a deeper investigation, which comprises Step 4. Table 1 below defines these criteria.

Table 1: Screening Criteria - Conservation Alternative Livelihood Analysis

Criteria	Definition
Income opportunity	<ul style="list-style-type: none"> • Amount, frequency, and sustainability of income generation
Impact scale	<ul style="list-style-type: none"> • Population size impacted • Number of new jobs created
Improved conservation	<ul style="list-style-type: none"> • Deterrence of wildlife crimes • Biodiversity and water resources • Climate change resilience, mitigation, and adaptation
Competitiveness/end market	<ul style="list-style-type: none"> • Competitiveness of local offering • Feasibility of overcoming bottlenecks

4. **Rapid, deeper livelihood analysis: four per region.** Four livelihood opportunities emerged that were explored further. Due to time constraints, data collection for Step 4 was performed simultaneously with data collection for the full range of value chains in Step 3; additional desktop research and interviews

were performed post-field trip to bolster the analysis. The result of this deeper analysis is a rapid livelihood assessment comprised of value chain analysis where relevant. Areas for future study are highlighted. This analysis includes the following sections:

- a. **Income opportunities and impact scale.** Identifying (mapping) the key stakeholders to consider in supporting the livelihood.
- b. **Conservation.** A brief summary of how support for chosen livelihoods would affect conservation results.
- c. **End markets.** A summary of end market requirements for each selected livelihood opportunity to determine whether target communities are capable of competing in the market. This includes findings related to vertical and horizontal relationships with the end market within the target value chain that the livelihoods depend upon; the focus here is on the aspects that affect a particular livelihood. An analysis of other constraints with potential solutions are included as possible.
- d. **Suggestions for future analysis.** Areas for future exploration including potential partners and further understanding of risks and opportunities. The report identifies potential partners in all target livelihoods that are ready to discuss follow up and potential program design with USAID. This assessment highlights specific leverage points and illustrative activities that could achieve the stated goals; however, additional research is necessary to pursue any opportunities or to directly inform program design.

CAVEATS & RISKS TO CONSIDER

There are several risks and caveats to consider in designing a program to generate new income opportunities for the target populations. Achieving this goal is not a straightforward solution to ending the poaching problem and, in some cases, may make it even worse.

Additional migration to the area. With new economic opportunities available, more people may actually be attracted to move into the area, which could then create the following additional problems:

- **More potential poachers.** People attracted by new opportunities may become poachers themselves. Also, additional people may come into greater conflict with wildlife than is already occurring.
- **Co-existence of livestock and wildlife increasingly conflicting.** As game reserves and parks grow and replenish wildlife populations, there already is increasingly more conflict between the reserves and the cattle keepers. Strengthening livestock livelihoods may exacerbate this situation.
- **Limited natural resources.** New agricultural and livestock endeavors may put extra strain on the already limited resources, especially related to water.

Possible mitigation: One way to mitigate these risks would be to restrict eligibility for participation to people currently residing in the communities; however, this may be challenging to track and monitor.

Additional income may not deter poaching at all. Even if successful, increasing incomes through USAID-supported livelihoods may not actually decrease poaching.

- **Limited time required for poaching.** Poaching takes little actual time effort, so poachers may continue to work despite earning new alternative incomes.

- **No significant financial disincentive.** None of the proposed livelihoods could ever financially match the high payoff of poaching. Therefore, the programs will have to incentivize in other ways.
- **Demand is the real driver.** The promoters and key players in the poaching market are not locals. A growing global market worth billions of dollars is bringing more demand into the region with even greater incentives.

Possible mitigation: A focus on “keeping youth busy” and “building dignity” through alternative income generation is one way to deter crime, as evidenced in other alternative livelihood programs.² The focus should not be on providing exclusively financial alternatives as these will never match poaching. A multipronged approach would involve increasing incomes, enforcement, and sensitization.

Extremely low economic base. It must be noted that the geographical focus areas are some of the poorest in the country, suffering from extreme poverty. Many survive on handouts, and poaching income is itself supporting the livelihoods of several villages. The people have very low skill levels and live in remote areas with poor transportation. The drought has also worsened the situation in recent years. Any economic development plan will be challenged to provide assistance to many of these villages.

Possible mitigation: There are sparks of new investment and development in nearby areas (such as a Chinese telecommunications company in Moamba and eco-tourism entrepreneurs), which could be tapped into. However, capacity building must be designed to start from this low base.

² The UNDP’s [Local Economic Development \(LED\) Project](#) offers alternative livelihoods to piracy in Somalia by delivering skills and business training and small grants focused on vulnerable youth enabling them to gain access to skills and employment opportunities; as a result, local authorities have reported a decrease in criminal activity.

PART I: LUBOMBO CONSERVANCY AREA

The Greater Lubombo Conservancy Area (“Lubombo”) comprises an area of 2,483 square kilometers, bordering on Kruger National Park (KNP) in South Africa, which together are home to 40 percent of the world’s remaining rhinoceros.³ Unfortunately, the region is also home to the largest rhinoceros poaching syndicates, which often base their operations in Lubombo to reach their targets. In 2014 alone, an estimated 826 rhinoceros were poached from KNP, and according to KNP anti-poaching operations, 80 percent of the poachers originate from Mozambique.

A large source of the problem stems from the fact that KNP’s management reached an agreement with parks operating in Mozambique to allow for the mobility of animals across the border in order to better nurture the growth of the nature reserves. However, this lack of a restricted border has also allowed poachers entering from Mozambique to easily cross into KNP and return with their bounty unmonitored, as anti-poaching enforcement is much less effective in Mozambique than in South Africa.

Figure 1: Major Poaching Areas in Lubombo



Source: WWF

The map above (figure 1) shows the focus areas where these alleged poachers reside, highlighting the districts of Magde and Moamba in Maputo Province. This assessment focused on identifying alternative income-generating opportunities for the populations that are being recruited to poach animals.

POPULATIONS AND GEOGRAPHY

Moamba and Magde districts have a total population of approximately 127,000 (see table 2 below). According to game reserve managers and the local administrator in Moamba, many of the poachers are recruited from the subdistrict of Sabie. Within Sabie, inhabitants from the 900-person village of Mangalane are particularly involved in poaching activities because of their familiarity and proximity with the animal populations. Similarly in the Magde district, many poachers come from the village of Mapulanguene, with a population of 1,800,⁴ due to its border proximity, according to interviews with game reserve developers in the area.

These communities are also especially susceptible to being lured into a poaching ring: they are extremely poor with low levels of education, and they struggle to maintain food security.

³ *A strategic approach to combating the illegal trade and poaching of Elephant and Rhinoceros*, WWF Mozambique by Madyo Couto, June 2014.

⁴ 2007 national population census, National Statistics Office of Mozambique, www.ine.gov.mz.

Table 2: Populations

Lubombo Conservancy Area	Population - 2014 ⁵
District	
Moamba	66,000
Focus poaching area: Sabie	16,000
Focus poaching area: Mangalane ⁶	900
Magude	61,000
Focus poaching area: Mapulanguene	1,800
Total	127,000

Not designated as “buffers zones.” It is important to note that there are no officially designated “buffer zones” in these areas around the game reserves in Lubombo, which makes it more challenging to identify target populations for assistance or even for community relations efforts.

Gender issues. One notable social dynamic is the low male to female ratio. The male working population has largely disappeared due to i) migration to South Africa to seek work; ii) war casualties; and iii) death of men who work as poachers by anti-poaching enforcement officers. This has resulted in many widows who have become the heads of household, changing the traditional social dynamic. Statistics from 2007, which are the latest statistics to include gender breakdown, indicate a 5,000 person (9 percent) gap between male and female populations. See the gender breakdown table for more details.

Table 3: Gender Breakdown in Magude District

Subdistrict	Population 2007 (thousands)		
	Male	Female	Total
Magude Sede	16	21	47
Motaze	4	4	8
Mapulanguene	1	1	2
Panjane	2	2	4
Mahel	2	1	3
District Total	25	30	55

MAJOR POACHING ACTIVITIES

Rhinoceros horns are the major poaching activity and can be an extremely lucrative endeavor for the local population. Though the statistics are difficult to track, there are an increasing number of rhinoceros horns leaving through Mozambique, both by sea and by air. These pass through the ports and airports of Maputo

⁵ National Statistics Office of Mozambique, www.ine.gov.mz.

⁶ 818 estimate of people in the five villages that make up Mangalane (238, 264, 201, 46, 69); Situational Analysis of Mangalane, Mozambique for a Community Based Natural Resource Program, Leandra Merz, sponsored by the Southern African Wildlife Program, 2014.

and Beira and continue on to Nairobi or Addis Ababa before reaching end markets in Asia. In 2013, 20 rhinoceros horns were seized at Maputo International Airport, and another six were seized just in the first quarter of 2014.⁷

Local poachers can make between \$1,000-\$5,000 to track and successfully poach one rhinoceros.⁸ The local populations have a unique aptitude for tracking animals that makes them invaluable partners to (largely) foreign syndicates, which is why they stand to reap great profits for a limited, albeit very dangerous, effort.

Notably, the profit reaped by the local poacher represents less than 1 percent of the total end-market value. On the global market, largely in China and Vietnam at the moment, rhinoceros horns are typically valued at approximately \$200,000. A typical horn weighs 10 kilograms, and the price paid is an estimated \$20,000 per kilogram.⁹ A 2013 Dalberg report estimated rhinoceros horn prices to be even higher at \$60,000 per kilogram, which would bring the end value closer to \$600,000.¹⁰

Overall, it will be a great challenge, if not impossible, to create any meaningful financial counter-incentives to this scale of profit.

Antelopes. While rhinoceros are the main endangered animals in Lubombo, the local populations are also illegally hunting antelope, another endangered animal. Antelope meat is a local delicacy that can be found in informal markets and snack bars of Maputo. The counter-incentives proposed in this study would also benefit antelope populations.

Poachers are almost exclusively young males, and they must be directly targeted for any livelihood activity to have any potential reduction in poaching.

STAKEHOLDERS CONSULTED

The following stakeholders were consulted for this study. There is minor variation between Magude and Moamba districts, but this provides an overall picture of those consulted.

- **National government.** Conservation-focused government programs such as the National Conservation Areas Authority (ANAC) were consulted, and they provided a picture of the economic and conservation challenges.
- **Provincial administration.** Meetings were conducted in Matola to discuss tourism and conservation objectives.
- **District administration.** Administrators at both the district and subdistrict levels were consulted including head administrators; officers charged with agriculture, wildlife, and industry; and extension officers. Often these officials were able to provide references to local businessmen and other stakeholders in the target value chains.
- **Traditional leaders.** The assessment team also consulted the traditional chiefs in several key villages; chiefs were often also successful local business entrepreneurs.

⁷ WWF, June 2014.

⁸ Poachers can make about 40,000mt per rhinoceros tracked according to the Administrator for Magude.

⁹ *Rhino Poaching: A New Form of Organized Crime*, Professor Moses Montesh College Of Law School of Criminal Justice Department of Police Practice, 2013, http://www.dalberg.com/documents/WWF_Wildlife_Trafficking.pdf.

¹⁰ *Fighting Illicit Wildlife Trafficking*, a consultation with governments conducted by Dalberg, 2013.

- **Small farmers/cattle owners/small fisherman.** Representing the largest scale of the population and the most susceptible to be lured into the poaching trade, the team performed direct consultations with these stakeholders, in groups and individually.
- **Mid- to large-sized farmers.** These stakeholders are characterized by the ability to provide services to smaller producers and to aggregate products for sale.
- **Tourism/game reserve developers.** Both foreign developers and local counterparts of the major tourism developers in both the Sabie area and in Magude were consulted.
- **Associations.** Representatives from both national level and local level associations were interviewed for several of the focus value chains.
- **Irrigation schemes.** Two organizations were consulted that manage the delivery and management of irrigation activities. Previously supported by donor projects, the two that were interviewed struggle to maintain sustainability.
- **Small traders.** These individuals provide the links between markets, often traveling by train or rented car. Some have their own trucks. Market structure varies by value chain.
- **Large commercial traders.** These entities often handle competing imports from South Africa and would be appropriate parties to consult with in order to conduct further analysis of target end markets. Some of these traders, such as those working in the honey value chain, are already partnering with donors to enhance sourcing supply chains.
- **Anti-poaching operations.** NGOs and the game parks themselves have operations in place for anti-poaching.
- **Community programs.** The SAWC is implementing a wildlife training program in partnership with Sabie Game Reserve and is working directly with the community.
- **IFAD/Prosul.** This donor is implementing a value chain development program that includes the Moamba and Magude regions in its scope, among other districts. They plan to work in the red meat, vegetable, and cassava value chains.

SITUATIONAL ANALYSIS OF LIVELIHOOD ACTIVITIES (SCREENING)

Based upon stakeholder interviews, this assessment first identified all the major income-generating sources, both existing and potential. Each one was then analyzed based upon the criteria identified in the methodology section. Summary findings are presented in table 4 below, and four of the top livelihoods were selected for further analysis. Following the table, a brief discussion that highlights the end market analysis is provided for each livelihood from the table by category (i.e., agriculture and other). An in-depth analysis of the four selected livelihoods follows the brief discussion. A brief rationale for the evaluation is provided for each category, with a highlight on the end-market analysis.

The top rows in the table below are the livelihoods that were selected for intervention (score of 2.3 and above). Though maize also scored 2.3, the assessors made a strategic decision to focus on the other products as no strong leverage points were identified to meet the end markets. The basic rationale for inclusion or rejection for each potential livelihood is briefly described here. Please reference the summary end-market table (table 4) upon which the selection rationale was also based. A score of 3 indicates a strong opportunity with high potential for satisfy the criterion, while a 2 reflects a neutral opportunity; a 1 indicates a low or not yet existing baseline for achieving the objectives in the criteria. Negative scores were given to several livelihoods that had destructive impact.

Note: this section relates the basic rationale for the scoring and ranking. A detailed analysis of selected value chains follows in the next section.

Table 4: Screening of Existing and Potential Livelihoods to Support

LUBOMBO: EXISTING AND POTENTIAL LIVELIHOODS					
	Combined Score	Income opportunity	Impact scale	Improved conservation results	Competitiveness/end markets
<i>Agriculture</i>					
Cattle	2.8	3	3	2	3
Fresh vegetables	2.8	2	3	3	3
Marula nut & medicinal plants	2.3	2	2	2	3
Maize, other	2.3	2	3	2	2
Honey	2.0	2	2	2	2
Potatoes	2.0	2	2	2	2
Sugar	2.0	3	1	1	3
Poultry	2.0	2	2	2	2
Fishing	1.8	2	2	1	2
Charcoal/firewood/wood	1.8	3	3	-2	3
Cotton	0.8	0	1	2	0
Rhino poaching	0.5	1	1	-3	3
<i>Other livelihoods</i>					
Tourism	2.8	3	2	3	3
Carpentry/construction	2.0	2	2	2	2
Remittances	2.0	2	2	2	2
Mining (SA)	2.0	2	1	2	2
Retail/entrepreneurship	1.8	2	1	1	3
Pot making/artisanship	1.3	2	1	2	1
Government pensions	1.5	2	1	2	2

Ratings = +3 (best) to -3 (worst), Green Cells = contains key leverage points

AGRICULTURE/FORESTRY/WILDLIFE

Nature-based livelihoods present the greatest opportunities for sustainable livelihoods. Greater detail is provided for the top selections from this category, including cattle, fresh vegetables, and the Marula nut, following this summary.

Cattle (selected). As a fundamental base of the regional economy, many opportunities exist to improve related livelihoods. Currently, local meat is not competitive on the urban/Maputo market with imports coming mostly from South Africa. Thus, the focus should be on increasing production for local markets, with a longer-term strategy of improving quality for urban and regional markets. Increases in production should come through better herd health and intensification instead of expanding stocks and land use to ensure that this livelihood does not increase conflict between livestock and the reserves.

Fresh vegetables (selected). Fresh vegetables are already in high demand from the Lubombo area and, therefore, represent a high-value opportunity; greater scale can be achieved on small plots with basic irrigation and good agricultural practices. There is an active vegetable buyer network in the area, and there are also service providers. Both may have an interest in investing in farmers either to secure access to products or to sell goods and services to farmers. Several hub farmers were identified and consulted for this assessment; these entities are often mid-sized producers with a relatively sophisticated grasp of business that aggregate produce from small farmers while supplying them inputs and service; these parties could be partners in a technical support program.

Marula nut & medicinal plants (selected). Abundant in the region, the Marula nut and other various medicinal plants are widely used by traditional healers. The Marula plant is being successfully commercialized in other markets, which could serve as potential models. With regard to medicinal plants, the Magude district administration's most recent strategic plan (Plano Estratégico de Desenvolvimento do Distrito de Magude 2008-2012) as well as various academic studies have highlighted medicinal plants as a growing commercial opportunity.

Maize, other. Most rural Mozambicans engage in agriculture even where natural conditions are not advantageous. These crops have relatively low value in the market and are mostly grown for subsistence in this area. While there are a few input suppliers or buyers in the area that have some interest in these crops, the potential for added value enhancement is low. Furthermore, the region does not have a significant competitive advantage to its neighbors so there is not a great opportunity there.

Honey. Honey producers use traditional hives, and sales are limited to low-value local sales. Currently, no interested parties, including buyers or sellers of apiculture inputs, are working in the area that could potentially upgrade quality to compete with regional or international imports. Further investigation could be useful to explore the interest of domestic honey buyers to move into this area, including The Mozambican Honey Company (MHC), Shoprite, the Maputo central market, Xipamanine market, Game, Xiquelene market, Zimpeto market, the Maputo Beekeepers Cooperative, and wholesalers and municipal markets in Maputo. One opportunity could include increasing value through branding with a motto, such as "Save the Rhino," but this would require an interested investor willing to work with producers to improve quality.

Potatoes. This value chain was not selected because it is unlikely to have a broad impact in the short term. Approximately 10 small commercial farmers grow potatoes in Magude on irrigated land, and potato is again limited to a small, irrigated area in Moamba; these farms also provide some limited employment to the local populations. Potato is a relatively high-value commodity by local standards, but it requires quality seed and

agrochemicals, which are unaffordable to smallholders. There are at least two input suppliers operating in Magude that provide inputs for potato production, so further investigation into this value chain may identify an opportunity that was not discovered through this study.

Poultry. Poultry was not selected due to relatively high start-up costs and the lack of input supply in the area. Transportation costs to the market also currently leave poultry noncompetitive for non-local end markets; however there is some opportunity for home consumption and local markets that is viable and could provide some income. In the future, with the growth of the tourism industry, there could be a viable market for local poultry production.

Sugar. Large-scale producers such as Tongaat Hulett (TH), which operates a large plantation in Magude, dominate sugarcane production. As an example, TH offers communities three methods to derive income: 1) as laborers/wage earners; 2) as landowners who are contracted as small farmers to produce sugar themselves; or 3) as landowners who rent land to TH. The sugar company gives landowners the option to choose between the last two, whether to cultivate themselves or rent the land: farmers are paid MT40,000 per hectare to cultivate themselves and MT23,000 to rent the land. However, one farmer consulted explained that the quality demands were too great to make it worth the extra effort to work the land yourself, and therefore even if you are industrious, it is preferable for a small farmer to rent out the land. This value chain was not selected because, while it is secure income, it has limited opportunity for impact scale due to the limited opportunity for expansion.

Cotton. Historically, the region did produce some textiles and some cotton does grow wild, but the production factors including high energy costs and poor infrastructure make it fundamentally uncompetitive when competing on the market with global suppliers such as China.

Firewood/wood, charcoal. These currently represent core livelihoods for the communities as they are consistently available and provide access to needed cash. This has resulted in depletion of the resources and is not a sustainable activity. Deforestation is a major result of the increase demand for these products. The challenge is that these provide the basic livelihood for a large portion of the population and there are no local incentives for creating a sustainable charcoal industry when trees are harvested freely.

Fishing. Fishing is a core livelihood for a few communities in the region, specifically near the Corumana Dam. It was not selected because it is unsustainable due to overfishing, and there is little opportunity for wide-scale income generation in altering these fishing activities.

OTHER LIVELIHOODS

Aside from agriculture and living off of natural resources, several other income sources were observed.

Tourism (selected). Though tourism is currently nascent in the region, there is growing interest by foreign investors to develop the region's assets. Several of these foreign investors, including Twin Cities, have already formed memoranda of understanding (MOU) with local officials and are beginning to grow their wildlife populations. Thus, there is strong potential for medium- to long-term opportunities that could be core local livelihoods. Importantly as well, tourism-based livelihoods support conservation goals by aligning community incentives with those of tourism investors.

Carpentry/construction. There is a construction boom in the region, as an outgrowth of the growth in Maputo; several companies, for instance, are building offices in Moamba, including a new telecommunications center built by Chinese investors. As a result, there will be an increase in demand for construction; currently,

there is little local skill in this area. This opportunity could provide secure livelihood opportunities, but no immediate opportunities were identified through this study. A detailed study on the construction industry could provide further insight.

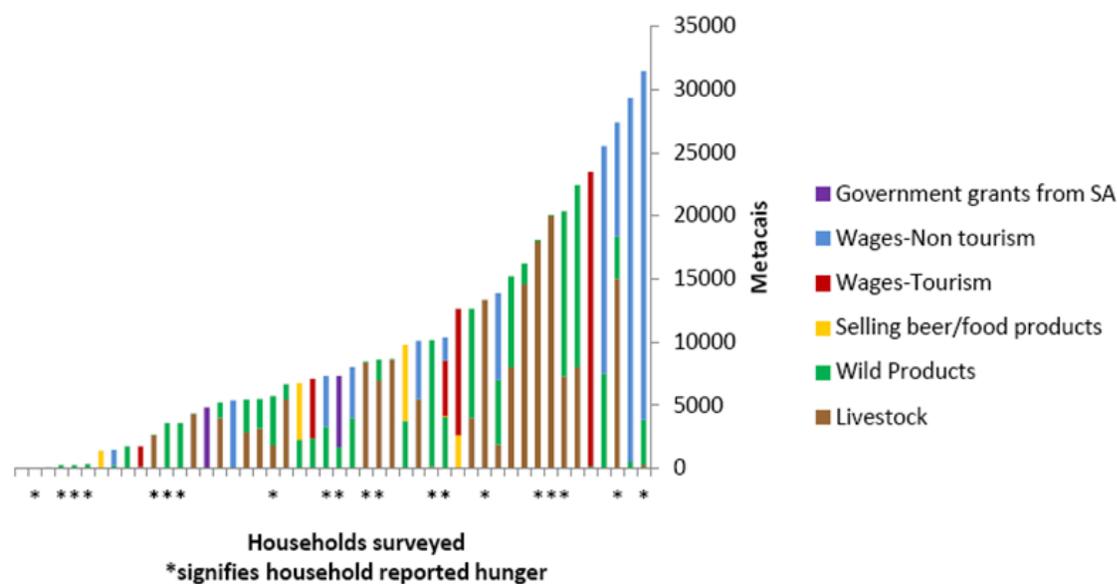
Remittances from family (including from mining in South Africa and other locations). The focus regions suffer from dire poverty, and many of them send their working-age populations elsewhere to work and send back funds. The recent livelihood study in Mangalane village in Sabie found this to be a core source of livelihoods.¹¹ There is no opportunity for greater impact scale through this livelihood; however, more efficient transfer of remittances via digital payment systems could increase incomes by reducing the cost of transfers.

Retail/entrepreneurship. Small shops and retail outlets are spotted throughout the region, largely trailing the paths of new income generation. In fact, many that exist are largely fueled by poaching incomes. The establishments, however, are small scale and therefore do not offer much in terms of impact scale.

Pot making/artisanship. As a very nascent opportunity, this craft could be expanded in the future to support the tourism industry. Currently, pot making is mainly intended for home use.

Government pensions. As many of the populations in the focus areas are close to the South African border, there are reports of livelihoods derived from South African government welfare payouts from family members who are South African citizens. See the graph from the Mangalane village (figure 2) below.

Figure 2: Mangalane Village – 2013 Annual Household Income by Sector



¹¹ Situational Analysis of Mangalane, Mozambique for a Community Based Natural Resource Program, Leandra Merz, sponsored by the Southern African Wildlife Program, 2014.

SELECTED LIVELIHOOD #1: CATTLE

Livelihood Analysis	Score
Income opportunities	3
Impact scale	3
Improved conservation	2
Competitiveness	3
Combined score	2.8

Livestock, and in particular cattle, are historically the economic foundation for livelihoods in the target region, particularly in Magude District, due to the typically dry agro-climatic conditions. Farming in this area requires irrigation to be consistently able to produce crops.

Notably, the region is still recovering from the conflict that decimated bovine populations: in Magude, the number of cows fell from more than 165,000 in 1982 to less than 2,000 in 1995 and is just now rising above 60,000. (See table 5, a photo from the Magude administrator's office.)

It should be noted that the research gathered and analyzed below for this study focuses on the district of Magude, as this was the most immediate opportunity. However, there are also possible opportunities in other regions such as the Sabie subdistrict of Moamba.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

While there are more than 100 commercial breeders, a large number of households have their own stock of cattle, with the majority owning fewer than 10 cattle. Because such a large proportion of the population own cattle, an intervention in this area could create a large-scale impact.

Small cattle owners. Smallholder farmers obtain several sources of value from cattle and cattle-derived food, including meat, milk, and manure. Households in the southwestern part of Maputo province, which includes Magude and Moamba, have an average of 14 cattle and 13 goats each, which contributes toward 80 percent of cash income. The target anti-poaching areas, including the Magude district, contain some of the poorest populations in the country. Livestock is often their only asset, their only consistent source of income, and their main source of food security.

Large cattle owners. The handful of large cattle owners generally includes the wealthiest business

Table 5: Cattle population, 1980-2004

Year	Population	Year	Population	Notes
1980	163.737	1994	2.198	
1981	164.696	1995	1995	
1982	165.126	1996	5.500	
1983	103.534	1997	8.197	
1984	94.441	1998	9.678	
1985	75.270	1999	13.376	
1986	50.796	2000	16.961	
1987	30.757	2001	21.161	
1988	22.373	2002	25.603	MAGUDE FEZ ARRANJAMENTO
1989	5.707	2003	30.263	
1990	5.092	2004	36.695	
1991	3.879	2005		
1992	2.905			
1993	2.246			

Source: Wall of Magude administrator's office.

owners in the district; often, cattle are a side venture to their agricultural businesses or other enterprises. In one location, the only hotel and beverage distributor in town is a large cattle owner.

Increased income opportunities for small and large owners alike are possible from livestock and, in particular, from cattle through 1) increasing efficiencies in the local consumption and sales channels; 2) improving processing capacity; and 3) increasing access to growing end-market demand from Maputo. These opportunities and areas to explore are described below.

2. CONSERVATION

Support to the cattle industry and increased incomes should come through better herd health and intensification instead of expanding stocks and land use. This will ensure that this livelihood does not increase conflict between livestock and game reserves. Any new activities should prioritize preserving water resources, which is one of the primary causes of this conflict.

3. COMPETITIVENESS/END MARKETS

End markets for cattle from small owners can be divided into two main channels.

End market: local. There is only one regional organized marketplace: the weekly market in Motazi sub-district. As a result, trade is often done informally with small owners contacting traders by phone or in person. In general, small herd owners tend to also use livestock more as a cash buffer, and it is sold only in times of cash need rather than to meet commercial demand.

- **Requirements.** Further investigation is needed into the exact nature of pricing and cattle transactions. While some research suggests that prices can vary between MT5,000 and MT16,500 based on age and body condition (IFAD), on-the-ground interviews often contradict this. For instance, sales by small cattle owners are often not discerning and are transacted per head rather than per kilogram, with little differentiation in price for weight, condition, age, and sex. This contradiction is likely due to the different levels of sophistication between small owners selling individual cattle and mid- to large-sized cattle owners with more commercial operations. Additional research is necessary to explore these dynamics.

End market: Maputo. Increases in meat consumption, imports, and projected urban population all point to a strong and growing demand for meat in Maputo.

- **Requirements for less formal Maputo buyers.** Supermarkets currently do not source cattle products domestically; therefore, the existing markets are less formal. For small herd sellers, informal livestock traders are the primary buyers connecting small producers in Magude to urban markets. Larger cattle owners have their own market connections, transport, and trading

POTENTIAL MODEL: MOZ-AGRI, LDA. Moz-Agri, which operates across the country in Manica province, could be a model for intervention: “Founded in 2008...Moz-Agri is (b)ased in Bárue District along the Nhazónia River...in terms of livestock, the company purchases goats and cattle from local smallholder farmers which are kept for either production or slaughter in the company’s established abattoir. The abattoir specializes in slaughtering and processing goat and beef products. The produce from the abattoir is mainly sold into the Maputo and Beira markets as frozen meat to wholesale and retail outlets, and restaurants and catering companies.” See www.mozagri.com.

relationships based upon personal networks. Quality premiums are administered in an ad hoc manner at this level, based upon relationships. Further investigation is necessary to understand the exact nature of these market linkages and price issues such as quality premiums.

- **Requirements for supermarkets.** According to Shoprite’s buying manager in Maputo, the standard for meat is generally equivalent to South African regulations on food quality control, food safety, hygiene/sanitary procedures, meat classification, packaging, and labelling.¹² Two supermarkets were consulted for this assessment, both of whom sourced from South Africa; further research will be necessary to understand the dynamics of this end-market opportunity.

Constraints to small farmers reaching these end markets. To serve these end markets, the following major constraints for small cattle owners in the value chain should be considered. In fact, the recently-launched IFAD-funded PROSUL project will focus on supporting the red meat value chain to address these weaknesses. Further investigation is necessary to inform future research and ultimately program design.

- **Poor business management skills.** Small herd owners generally have a low level of business aptitude and financial management.
- **Lack of equipment.** In several villages cattle owners, including one chief and one mid-sized owner, reported that they had no scale to weigh cattle; in Mapulaguene, this was mentioned as a constraint. As a result, buyers and sellers are concerned about receiving a fair price.
- **Lack of water.** Cattle are often competing with wildlife from the reserves for access to water. The fact that this region is particularly subject to drought worsens the situation. Small herd owners are worse off as larger owners have the capability to acquire water for their herds by building relatively costly irrigation systems.
- **Safety.** In Magude, one farmer reported a large cattle theft in December 2015, which the administrator reports is a common end-of-year occurrence as households try to earn income for holiday festivities. According to the representative from the Magude branch of the Confederation of Economic Associations (CTA) of Mozambique, there has been an increase in livestock crimes in the last few years, likely due to the lawlessness brought on by growth in the poaching industry.
- **Disease.** Because of poor management, there is concern that inspections for disease control at local abattoirs are not effective. This constrains commercial marketing of meat beyond the district as buyers from other regions will not accept meat from disease-risk areas, such as those in Lubombo.
- **Wildlife conflict.** As game reserves are growing their wildlife populations, these populations are increasingly in conflict with the local populations’ cattle herds, competing for natural resources and moving into each other’s land areas. There are often no fixed boundaries, and local communities often do not respect or understand the agreed-upon boundaries. While the MOUs in place between the game reserves and the existing inhabitants attempt to address these conflicts, unforeseen conflicts are arising.
- **Low capacity abattoirs.** Abattoirs at the local level generally exhibit low capacity (e.g., poor waste management and no access to power) and have low hygiene standards. However, any livestock intended for the Maputo market is generally transported to the abattoirs in Maputo for processing.

¹² See the [South African Department of Agriculture, Forestry And Fisheries Agricultural Product Standards Act](#), January 30, 2015. The Regulations define quality classes of carcasses of calf, bovine, sheep, goat, and pigs; prescribe quality standards for each class; and prescribe rules for marking of carcasses with abattoir identification codes and other marks.

- **Low capacity meat associations.** At the local level, producers and traders are not well organized. One cattle owners' association was found in Sabie that consisted loosely of local cattle owners who met informally to discuss management issues related to the local abattoir. More research is necessary to identify needs and possible interventions related to the formation and management of associations.

4. SUGGESTIONS FOR FURTHER ANALYSIS

There are many potential opportunities to improve incomes related to the meat value chain. Further exploration in the following areas would illuminate opportunities.

End market additional research. Further end market analysis is necessary to understand the market demand in all the mentioned areas. Additional constraints in the value chain which demand future exploration include veterinary services and veterinary suppliers.

Partnerships to pursue. The most direct and cost-efficient strategy for USAID activities may be to work with other existing donor programs on gearing the activities of its new program toward anti-poaching areas.

- **IFAD PROSUL – red meat program – launching now.** IFAD is launching a new program to support the red meat value chain in three districts (including Magude) in the first year and expanding to three additional districts. IFAD is already planning to operate in the focus areas and in adjoining areas; ensuring that their activities are inclusive of targeted anti-poaching activities could be a win-win for both sides. The proposed components, which are in the planning stages now, will address many of the constraints above; interventions will include policy advocacy, capacity building of farmer organizations, construction of a regional cattle fair in Mangalane, and construction of a new abattoir near Maputo in Manhica. This intervention will strike at the heart of poaching areas first, focusing on Magude and also nearby, economically connected districts including Manhica and Chicualacuala. It will be important to work with IFAD to complement, and not duplicate, work. Further discussion with IFAD is necessary.

Explore meat-processing opportunities to address conservation and market demand. Currently, there is little to no processing of meat in target regions, either to sell as higher-value product or to transform into a form that can be preserved. Two meat-processing opportunities were identified that could be further explored.

- **Processing plant.** There is a locally based entrepreneur in Magude who is seeking \$165,000-\$170,000 in co-investment to build a meat processing plant. This would improve storage capabilities and enable local animal owners to supply growing end-market demand from Maputo. However, the current business plan, which was consulted for this study, is not robust; a further feasibility study is necessary to determine the viability of this opportunity and any possible scenarios for financing.
- **Drying and preserving techniques.** In addition, the Chissano Foundation is proposing to introduce simple techniques to dry and preserve meat (“Home biltong making”) in order to teach cattle owners how to store meat hygienically and season it appropriately for the market. Chissano recommends meat processing first, starting with drying for home consumption then working via associations to commercialize. Basic drying can be done with a simple, inexpensive box. The proposed trainings in this area are small scale but could have a wide impact on a large number of households. Chissano is currently fundraising in order to implement these activities. Feasibility studies are recommended for both of these activities to determine the most viable benefit to cost ratio.

Explore other successful models in Mozambique. As an example, one social enterprise, Moz-Agri, with offices in Manica is using its state-of-the-art abattoir to market to urban markets. Such an entity would be a good model or partner to possibly extend their sourcing to this new region and the target anti-poaching areas. This company has not been approached as of yet. As a next step, a follow-on activity could explore expanding or replicating this model.

SELECTED LIVELIHOOD #2 : FRESH VEGETABLES

Livelihood analysis	Score
Income opportunities	2
Impact scale	3
Improved conservation	3
Competitiveness	3
Combined score	2.8

While maize, cassava, and grain crops are core food staples in the Magude and Moamba districts, most farming households also produce and consume fresh vegetables including tomatoes, onions, cabbage, kale, and chili peppers. These fresh vegetables are consumed at home, sold locally, or sold to traders who then sell to urban markets. However, the value chain is held back by several key constraints including low productivity; poor seeds, inputs, and mechanization; poorly organized access to markets; and lack of storage and inventory management, all of which hinder small farmer production.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

Fresh vegetables present both nutritional benefits and a high-value cash opportunity to small farming households in Moamba and Magude. Many small farmers and several large farmers are already producing vegetables with varying success. Vegetables have higher income-earning potential than other crops, such as cassava or potatoes, because they can be grown more intensively on smaller plots of land, and there is an expanding market as evidenced by the new entry of at least one foreign investor.

Apart from irrigation, the fresh vegetable value chain has low entry barriers and provides potentially quick returns to a large number of smallholders even with parcels of 0.5 hectare, which is the average plot size in the region. In addition, a large number of women are involved in all aspects of this chain, which generates a significant demand for labor and is the only source of cash income for a large number of rural poor households. There are two types of fresh vegetable producers in the region:

Smallholders. Smallholder farmers do not have sophisticated equipment, including irrigation. They have the capacity to produce vegetables during the rainy season, and they are price takers because their products enter the market when supply is high and prices are low; they depend on small traders who collect products from their remote locations.

Semi-commercial farmers. A handful of semi-commercial farmers (four semi-commercial farmers with plots between 10-100 hectares were interviewed) exist in Magude, and they have irrigation systems which allow them to produce out of season when the prices are higher. They have their own transportation and can take their products directly to urban markets to get higher prices.

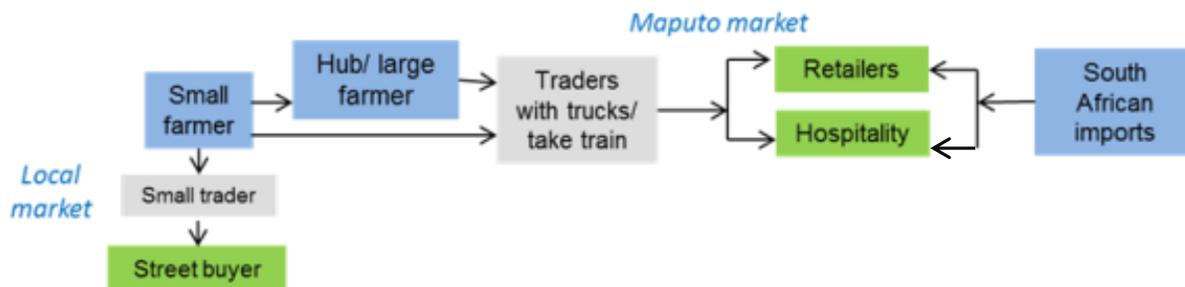
2. CONSERVATION

Support to the fresh vegetable value chain should include assistance in developing environmentally sound production enhancements. Vegetables can provide a beneficial co-cropping complement to other staple products, allowing for the maximum, sustainable use of the land. If expansion of land use is encouraged, then further conservation analyses should be performed.

3. COMPETITIVENESS/END MARKETS

For small farmers in Moamba and Magude, there are essentially two sales outlets: 1) traders, who either sell locally or transport the products to urban markets, including Maputo; and 2) semi-commercial farmers, who aggregate and either sell to urban markets or sell to trader intermediaries. Figure 3 below shows the chain to Maputo, the primary end market.

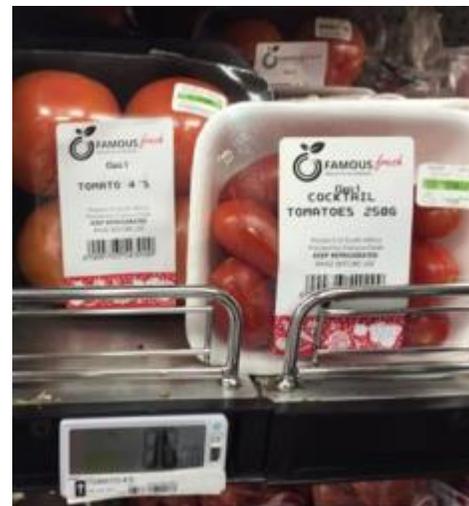
Figure 3: Vegetable Value Chain



The bulk of Mozambican tomato production is sold fresh in 20 kilogram crates to domestic retail markets. The growth opportunity for fresh vegetables from target districts is limited to local and national markets, mainly in the form of potential import substitution for current products from South Africa. In the tomato market for instance, Mozambique is the largest market for South African tomato exports with a 75 percent share in 2012 at 15,964 tons; according to the research, South Africa has the best quality of tomatoes in terms of size, consistency, and skin. Domestically grown production currently only satisfies 20-60 percent of national demand, depending on the year's yields and quality.¹³

Market dynamics. The following key market dynamics exist in all domestic markets:

- **Seasonality.** Available data shows that imports from South Africa and other neighboring countries represent approximately 50 percent of the total production sold in the markets; during the low season, they represent more than 75 percent.¹⁴



South African tomatoes at the supermarket in Maputo

¹³ USAID SPEED, Price Variations in Mozambique Final Report, 2015.

¹⁴ USAID SPEED, Price Variations in Mozambique Final Report, 2015.

- **Price variation.** Farmgate and local/regional prices for fresh vegetable products in Mozambique are extremely volatile, varying up to seven or eight times, largely due to supply shortages and gluts; (this applies less to supermarkets who balance supply with imports). In Sabie, for instance, tomato farmers reported that price varies from MT150 to MT600-700 per 20-kilogram box within just a few months. Anecdotal reports have suggested that groups of speculators (likely colluding traders) may also be at fault for pushing up the price of tomatoes in Maputo markets. While the USAID SPEED report from 2015 investigates these price variations, more research into how findings could be applied to the target district markets would be helpful.

Constraints. Key constraints to consider in the value chain include:

- **Lack of storage and inventory management create lower prices.** Many farmers are growing the same products without coordination, and, given the lack of storage facilities, products often crowd the market over the same, limited period, contributing to low market prices. There is no cold storage, and tomatoes are transported in open trucks and sold in open spaces, so post-harvest losses are high. While Moamba and Magude are close enough to Maputo to transport vegetables, there are losses during the trip as well as during holding periods. The IFAD value chain report found that access to adequate storage facilities or financial resources could add value ranging from 40 to 300 percent, a portion that could be passed along, at least in part, to smallholders. Further analysis could identify areas for intervention to address these bottlenecks.



Unused Mercado in Moamba

Within national markets, the following outlets present opportunities.

- **End market: Maputo market.** The city of Maputo alone consumes 40 tons of tomatoes each day.¹⁵ At the moment, demand is growing in Maputo in line with general economic growth in the city.
- **Zimpeto Maputo wholesale market.** The Maputo suburb of Zimpeto hosts the nation’s most important wholesale produce market. Both domestically sourced and imported vegetables come through Zimpeto. Zimpeto traders interviewed said they are “ready to take production from everywhere.” The demand for horticulture

TOMATO IMPORTERS

The Mukheristas, or informal traders, are the most important tomato traders in Mozambique. They source their purchases mainly from the Mpumalanga and Limpopo provinces of South Africa, supplying imported tomatoes to the fresh/informal food markets of Mozambique and even to some supermarkets, although the supermarket chains also bring in their own supply.

¹⁵ USAID SPEED, Price Variations In Mozambique Final Report, 2015.

products is continuously increasing for all sectors (high-end markets for quality products, such as restaurants and hotels; national markets and regional/local markets for lesser quality products). A follow-up study could focus on the price differentials for tomatoes from different sources; at the time of this study, prices were distorted due to the drought.

- **Retailers/supermarkets.** These buyers generally manage their own supply chains and buyer relationships. The marketing officer at Shoprite shared that they recently started looking into sourcing vegetables from the Moamba areas, due to the relationship facilitated by the SNV (Stichting Nederlandse Vrijwilligers) and IFAD projects.
- **Product requirements.** South Africa has the highest quality of fresh vegetables per the definitions above. Farmers from the target district can also demand quality premiums for products of this quality; however, they cannot guarantee consistent supply and delivery, and therefore it is difficult for them to make it to the shelves of Shoprite and other supermarkets. The following criteria are used to qualify products:
 - **Size:** Evenly sized vegetables are desirable, and highly-structured field growth is necessary for better selection and packaging. It is immediately visible when tomatoes are uneven in a box, and the price becomes lower.
 - **Freshness and free from disease:** Phyto-sanitary standards are necessary or the tomato will putrefy quickly.
 - **Skin:** Smoothness, a vibrant and consistent color, and lack of spots are desired qualities.

End market: other urban markets. One Magude farmer interviewed is selling to a buyer in Zambezi with whom he has a special arrangement and reportedly receives a higher price than he would receive in Maputo. This new trade route opportunity could be explored further.

End market: local markets. Though prices are higher in urban markets, local markets are more accessible and have lower transport costs and risks. (Retail imported tomato prices observed in a Maputo supermarket was MT80 for .25 kilogram versus MT150-650 per 20-kilogram box roadside in Sabie, representing a price difference factor of 10. Further research into actual price levels is necessary to understand the dynamics of this market as the limits of this study allowed for only a small sample of prices.) Small traders travel to small farmers collecting products to sell in towns.

- **Constraint: unused facility in Moamba.** In Moamba, the government invested in a central “mercado” that has gone unused as sellers prefer to sit curbside where they do not pay stall fees and are closer to drive-by clients.

4. SUGGESTIONS FOR FURTHER ANALYSIS

The following specific areas should be explored further.

Explore developing “outgrower schemes” and “service hubs.” Currently, markets lack consistent organization with ad-hoc market linkages, and there has been little success in organizing farmers into groups. Prosul is exploring the promotion of contractual arrangements between smallholder organizations and selected commercial farmers or traders to ensure fair contracting and enforcement for the benefit of smallholders. Further dialogue with Prosul and with market actors should be conducted to evaluate this opportunity.

Explore how to support water resources, irrigation schemes, or gravity-fed irrigation (complement IFAD in Moamba). Even more than other products, vegetable production depends on the availability of water; as a result, farmers must either rely on an irrigation system or on sufficient rain. In fact, in the last two

years of drought, smaller farmers without irrigation have not been able to produce fresh vegetables competitively. While there are several community irrigation systems in place, the two that were consulted for this assessment were both struggling financially: one had accumulated debt with the electric companies due to “mismanagement”; payment collection from individual farmers was also a challenge as many participants in the irrigation scheme did not pay their dues on time (cost is MT600 per hectare per month). Further analysis could determine how to best work with these entities.

Clean energy solutions to enable irrigation, preservation, and processing. Consistent power is another challenge as irrigation pumps run on electricity. Exploring solar or alternative energy solutions could be one resolution. Additional studies in this area are needed to establish the viability of investing in alternative energy for irrigation.

Explore mobile money payments. This could improve safety and lower transaction costs for payments related to 1) irrigation schemes and 2) product sales. Mali’s Office du Niger, USAID/Mali, and Orange Money are partnering to digitize 60,000 annual payments for irrigation scheme members with an estimated 6 percent cost savings on money transfers. The digitization of payments will hopefully increase transparency and reduce corruption. USAID/Ghana’s ADVANCE II project has achieved some success in piloting a payment scheme in which small farmers pay a hub farmer upon delivery of their harvest. These could be models for USAID/Mozambique to explore. In another example, Vodacom partnered with USAID in the Connected Farmer Alliance in Mozambique, Tanzania, and Kenya; this project is closing out as of March 2016 and is preparing to disseminate its final report and best practices.

Partnerships to pursue. IFAD’s Prosul project is launching its value chain intervention in Moamba district. USAID should take care not to duplicate efforts and to work with IFAD to focus its efforts on the target anti-poaching zones. This could involve special programs targeted at the Sabie or Mapalugene communities that were not originally included in the IFAD program.

SELECTED LIVELIHOOD #3: PORTFOLIO OF NEWLY COMMERCIALIZING PRODUCTS: MARULA & MEDICINAL PLANTS

Livelihood analysis	Score
Income opportunities	2
Impact scale	2
Improved conservation	2
Competitiveness	3
Combined score	2.3

There are many natural plants and trees that have been successfully commercialized in other geographic settings. However, because these are nascent opportunities, more research is necessary to determine the best ventures to pursue. This section offers two types of possible product lines to explore: 1) products from the Marula tree and 2) medicinal plants. A portfolio approach would allow USAID to assess multiple types of product development simultaneously to identify opportunities and raise the likelihood of success in promoting a newly commercialized product.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

Two main product areas are to be explored include 1) the Marula tree nut and related products; and 2) medicinal plants. A shared ownership model with the community for new ventures could be adopted to distribute risk and profit alike.

It should be noted that currently in these focus regions, there is no commercialization of these products. Therefore, much education and capacity building will be necessary to actualize these opportunities.



Marula tree

2. CONSERVATION

Additional analysis is necessary to determine the risks of promoting these value chains. As these are naturally growing products, raw materials already exist; however, commercialization will require additional changes to the ecosystems that be assessed for their effect on conservation issues. For instance, local plant populations may be over-exploited due to the slow-growing nature of these species coupled with high demand, including *Warburgia salutaris*, which is a nationally endangered species.¹⁶

3. COMPETITIVENESS/END MARKETS (PER PRODUCT)

The Marula tree and medicinal plants can be marketed both nationally and for export markets. Much research and seed investment will be needed to develop these new business opportunities, especially if capacity is to reach sufficient levels to satisfy the export market.

It is important to note that this assessment contains initial analyses with further areas to explore: more market research is needed with national buyers and exporters in all the product segments to determine specific product specifications, supply/demand volumes, and overall commercialization potential.

Marula. According to the local government officials interviewed, more than 50 percent of the trees in the Lubombo area are said to be Marula trees growing wild. They are an important part of local culture: in addition to consuming the nut itself, the wine made from the trees is central to some of the villages' traditional ceremonies; parts of the tree are also used in traditional medicinal remedies; chewing the leaves are used traditionally to reduce heartburn while the oil from the nuts is used in skin treatments; and the bark also contains an antihistamine. Since women have a central role in peeling and preparing the nut for cooking and consumption, this is a possible income-generating opportunity targeted at women.



¹⁶ Medicinal plant markets and trade in Maputo, Mozambique, Mogens Krog, Mario P. Falcão and Carsten Smith Olsen, 2006.

- **Products & end markets.** Marula has applications even beyond traditional uses and can be processed and marketed in various forms. While the oil would be for export, the other products would be aimed at the local markets:
 - **Marula oil (export).** With its high levels of oleic acid and natural antioxidants, Marula oil forms a high-quality product that hydrates and smooths skin. Another benefit of the oil product is that it is easy to store.
 - **Marula nuts (national market).** With high fat and nutrition content, the Marula can be consumed as a snack.
 - **Marula input to feed products (national market).** Often discarded, the peel can be dried to be incorporated into feed. The seed can also be grinded with the nut or mixed with the dry grinded peel and pelletized. This represents a new income opportunity using existing resources.
 - **Marula wine (national market).** This traditional drink is consumed during cultural ceremonies, and it is linked traditionally with a ceremony in Mozambican local folklore. This product is least likely to be commercialized as it is consumed locally.

Medicinal plants. Many varieties of plants are grown in the Moamba and Magude districts for medicinal purposes. The Magude District Strategic Plan¹⁷ lists several pages of medicinal plants, such as the Bangala whose leaves cure round worm and whose roots cure dysentery. The Magude administrator expressed interest in pursuing these opportunities, though no plans are in place. According to a 2006 study by the Danish Centre for Forest, Landscape and Planning at the University Eduardo Mondlane in Denmark, there was an active Maputo market served by small informal traders.¹⁸ Roots constituted more than 50 percent of the products sold from 99 different species while trees roughly constituted the other half. The market chain was found to be simple, with collectors selling harvested raw and unprocessed materials directly to traders at the markets in Maputo with no middlemen involved. All plant products originated from wild populations mainly located in the provinces around Maputo.

- **End markets: local and potential for export.** This study observed a local market in the target regions, with traditional healers in the villages sourcing plants directly from nature and selling to the local people. The 2006 University Eduardo Mondlane study found that almost all medicinal plant products studied were marketed domestically in Mozambique. However, individual traders did say that they exported a small portion to South Africa as some 70 percent of traders had at least one South African customer, mainly individual traditional healers or patients. Therefore, future export opportunities could be explored.
- **Treatment ethics.** Relations between practitioners of conventional medicine and traditional medicine are not good in Mozambique. Both parties claim their uniqueness, and issues related to dosage and use of medicinal plants should be discussed before these plants are commodified.

It should be noted that this value chain information is from a study performed in 2006. Though it presents a base from which to evaluate the potential of this product, more recent information would be essential in understanding the current state of the market.

¹⁷ Plano Estratégico de Desenvolvimento do Distrito de Magude 2008-2012.

¹⁸ [Medicinal plant markets and trade in Maputo, Mozambique](#), Mogens Krog, Mario P. Falcão and Carsten Smith Olse, 2006.

4. SUGGESTIONS FOR FURTHER ANALYSIS

The issues and opportunities listed here represent initial deal-breaking constraints that should be investigated prior to full-scale investment in any commercial development.

Additional research on cultural implications to commercialization. During interviews, there was some opposition voiced to commercializing the Marula tree, which is part of a strong cultural tradition. Of the three chiefs consulted in the Moamba district, one objected entirely while the other two suggested that as long as the ceremonial traditions were respected, they would be willing to explore earning additional income from the Marula tree. Similar opposition to commercializing medicinal plants was observed; traditional healers in the villages do not generally have the modern business aptitude to understand the commercial applications. To address this constraint, a participatory approach could include the community in the creation of development plans so that cultural sensitivities are addressed. UNESCO has recently identified factors related to intellectual property rights and traditional culture that could be relevant to developing opportunities in this area.^{19 20}

End market research and competition. There is heavy competition from Marula products from South Africa and many other countries in the region that are commercializing Marula oil and various medicinal plants. It may be difficult for the Mozambican product to compete on price and quality; therefore, a differentiated product must be achieved, most likely by developing a unique brand and story.

Partnerships to explore: the Chissano Foundation. The Chissano Foundation has relationships in place with key partners that could help to develop market linkages for the Marula nut (and possibly for medicinal plants). One relationship is with Phytotrade, which has built a small demonstration factory in Chigubo that gathers women to illustrate a cold pressing of Marula seeds to produce oil; the company then assists suppliers in establishing market linkages. As an illustrative model, marketing arrangements for Chigubo Marula oil are already in place through a company called Bio Oleos de Miombo for the export market.

Focus on women's empowerment. The local people say that "It takes the skills of women to break the Marula nut." As depicted above, women are traditionally the collectors and processors of the Marula nut. For instance, they traditionally process the nut and make a curry. Therefore, women would be the natural entrepreneurs in developing small enterprises to commercialize new Marula products. However, additional analysis should be performed to determine how supporting these value chains will impact gender issues.



Woman preparing marula in Magude

¹⁹ The Role of UNESCO in the Defense of Traditional Knowledge, Manuela Carneiro da Cunha Professor of Anthropology, University of Chicago.

²⁰ [Global Bioethics: The Impact of the UNESCO International Bioethics Committee](#), edited by Alireza Bagheri, Jonathan D. Moreno, and Stefano Semplici, 2016.

Biodiversity and conservation impact. Ethnobotanical surveys could be performed to focus on how to preserve the local heritage and cultural value associated with these products, considering that they have never before been commercialized.

SELECTED LIVELIHOOD #4 : TOURISM

Livelihood analysis	Score
Income opportunities	3
Impact scale	2
Improved conservation	1
Competitiveness	3
Combined score	2.3

The tourism industry is nascent in Lubombo with operators just now entering the market. Only one of the game reserves that have been licensed hosts visitors (Sabie in Moamba district); however, the many licensed operators are all planning their launch strategies, including wildlife development and local community relations. MOUs are already in place, and communities have been resettled.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

In Magude and Moamba, there are at least six game reserves that have received licenses, including Ferreira, Twin Cities, Chingila Safari Monso, Masintonto (owned by TH), and Sabie. Sabie is the only reserve currently hosting tourists, though their visitors are limited to one patron who has purchased the full hunting quota for each season, reserved for himself and his guests. Other reserves are launching their operations, including game farms, and are negotiating partnerships with the communities that inhabit the land, either within proposed park areas or nearby.

2. CONSERVATION

Tourism development will likely include an emphasis on conservation as the selling point of tourism in the region is based upon the preservation of the natural environment. Generating income from tourism will also align the local populations' incentives to preserve the environment along with the tourism industry.

3. END MARKETS/COMPETITIVENESS

This section is not a value chain assessment of the tourism industry itself but rather focuses on opportunities for the local population to generate income from tourism. The table below illustrates potential income categories.

Table 6: Potential Tourism Income Opportunities

Livelihood	Description	Challenge
1. Employees	Wage-earning employees of game parks and tourism operators	Low skill levels currently; operations not yet launched, so unclear what the opportunities will be
2. Business services/supplies	To support operations, including plumbing, welding, and food supplies	Low skill levels in these areas; again, unclear needs considering industry has yet to launch
3. Revenue share	MOUs and other agreements are being negotiated at the moment; several are in place.	Poorly conceived, with lack of long-term vision; mostly consists of wish list of items

4. SUGGESTIONS FOR FURTHER ANALYSIS

Understanding the uncertain future of the tourism industry, this assessment determined several main areas for future exploration that could help the communities to derive income and/or improve their livelihoods.

Better negotiation and management of MOUs. The three existing MOUs in place at the time of this study do not present sustainable plans for co-existence and co-prosperity for the local populations and tourism operators. Both sides require training and a deeper understanding of how to develop a long-term partnership.

As an example, the MOU shown below from Mapulaguene contains a simple list of demands from the community; it appears to be compiled based on consultations with leaders and individuals about their wishes. The items include a cattle feeding station, a meeting room, and “plants”. The problem lies in the short-sighted understanding of the impacts of the terms. Often a community will accept a resettlement for instance, with the understanding that there is a reliable water source, but then discover that the source was not as it had seemed and cannot support their needs. This occurred with the Twin Cites MOU that was signed with the Mapulaguene village community.

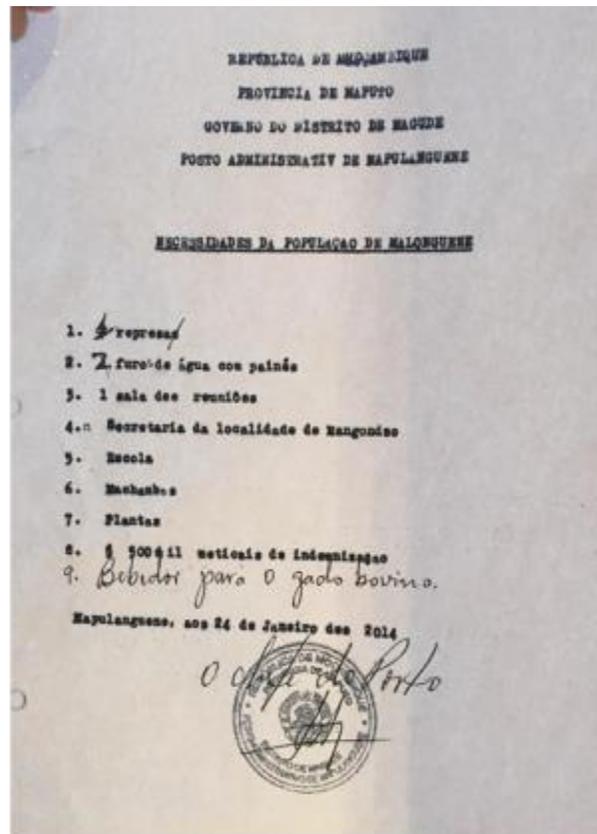
Global best practices in the creation of MOUs suggest other components such as community employment, shared access to resources, conflict resolution terms, and agreement to periodic dialogue, among other terms. For instance, an outside mediator could be accessed to improve both existing MOUs as well as the review and dialogue protocols in place.

Resolve conflict between tourism operators and communities. There are several natural resource conflicts that are both harming communities’ livelihoods and disrupting tourism operations. These include grazing conflicts between wildlife and domesticated animals and access to water. These could be resolved by an MOU or through outside assistance. The SAWC is one possible partner, as it is headquartered in KNP and is implementing a wildlife training program in partnership with Sabie Game Reserve working directly with the community. Their mission is to “provide people from Africa with the required motivation and relevant skills

to manage and conserve their protected areas and associated flora and fauna on a sustainable basis in cooperation with local communities.”²¹ However, despite positive community relations and some of the resource issues, it has NOT succeeded in halting poaching.

Prime local populations to work in the tourism sector. The total labor needs for the tourism industry are relatively small. As an example, Sabie currently employs 60 people and seasonally may employ another 50-100 every year. However, in this case, providing jobs to key target communities from which poachers are recruited could have an exponential benefit that is much more valuable than the monetary income paid to the workers, as they have an incentive to see tourism operations, and related wildlife, succeed. The local populations, however, lack the skills, including basic skills such as welding or construction that could raise employment and/or lead to valuable income-generating businesses serving the tourism industry.

Better manage 20 percent trophy share. The community has rights to 20 percent of the proceeds from hunting, a sizable sum for a community on the edge of poverty. Sabie Reserve has paid this out in the past two years, but there has been some controversy because apparently village leaders have not shared the funds appropriately. This occurred despite measures to avoid this, including the selection of a 10-person committee and opening of a bank account with three signatories. More transparency in disbursement is necessary. A mobile money-based disbursement to individuals or heads of household may be one option to explore.



Requests from the people of Mapulanguene to game parks

²¹ Situational Analysis of Mangalane, Mozambique for a Community Based Natural Resource Program, Leandra Merz, sponsored by the Southern African Wildlife Program, 2014.

PART II: GORONGOSA PARK

GNP is experiencing a resurrection as a wildlife reserve renowned for its biodiversity and as a global destination. A major tourism spot in the 1960s, the decades-long civil war decimated more than 90 percent of the animal population and halted tourism in the region altogether. In the last 10 years, the government of Mozambique, through a public-private partnership (PPP) with the Carr Foundation, has succeeded in reviving much of the region’s biodiversity and has enabled the reintroduction of tourism.

POPULATIONS

Also living in the region, however, are 373,000 local inhabitants who reside in the designated “buffer zones,” with an estimated 7,500 living within the borders of the park itself. Note that the buffer zones do not include all of the land covered by these four districts (an estimated 150,000-200,000 people live in the buffer zones²³); however, for the purpose of growing livelihoods, we will consider entire districts as economic units and consider income-generating sources for the populations of the entire district.

These inhabitants are coming increasingly into conflict with the development of GNP and with conservation efforts in general in the region as they live agriculturally-based subsistence lives and depend on natural resources shared with the park. These inhabitants live in four districts (see table 7 below): each has a small village center but most people live in rural areas, with very rough roads connecting them to trade networks. The largest of these districts is Gorongosa, near the entrance to GNP. Large parts of Cheringoma to the north and Muanza to the east are accessible only by rough roads. Nhamatanda is located on the road to Beira from Chimoio along the trade route, but its inhabitants still live at subsistence levels. See the stakeholder map below that indicates the key groups that work with communities and create market linkages.

Figure 4: Map of GNP

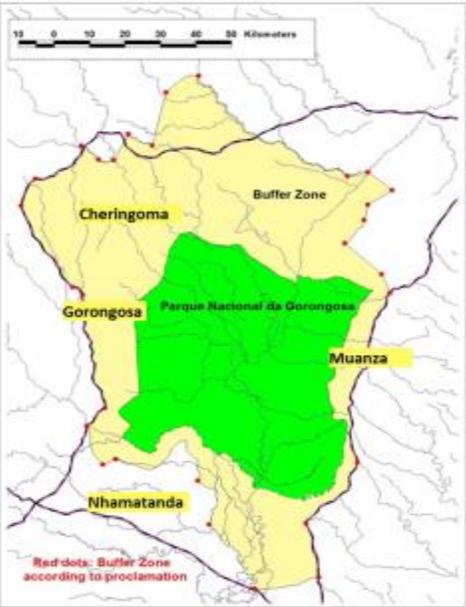


Table 7: Populations Living in GNP Buffer Zones

District	Population – 2013 (thousands)
GNP buffer zone districts²²	
Gorongosa	148
Nhamatanda	139
Muanza	33
Cheringoma	53
Total	373

²² Source: National Statistics Office of Mozambique, www.ine.gov.mz.

²³ GNP Management Plan, 2014. Unpublished.

POACHING AND OTHER ACTIVITIES

The populations in the buffer zones engage in a number of income-generating and subsistence activities that are at odds with the regeneration of the GNP and the replenishment of biodiversity. These activities range from small-scale bush meat hunting to larger-scale fishing operations linked to outside markets.

ILLEGAL FISHING IN LAKE UREMA

Fishing within the park is confined primarily to its central wetlands system.²⁴ The magnitude of this activity is yet to be established officially; however, GNP staff estimates that 25 out of the 72 households in Muanza sustain their livelihoods by fishing in Lake Urema, which is within the GNP. Furthermore, observations from the air by GNP staff have revealed nets strung across lagoons and streams, huts, fish drying racks, and human trails that are extensive enough to indicate commercial activity of significant dimensions. Men are the primary laborers in these fishing operations.

By law, each household has a limited quota that they are allowed to fish, but many are far exceeding this. In fact, police have intercepted large catch volumes, revealing a commercial fishing operation with facilities to dry, store, and ship to Nampula, Zambezi, or Beira for processing. Once the fish leave the region, they are mixed in with legal fishing cargos and go undetected. Approximately 80 kilograms of fish can reap MT120,000 (approximately \$2,500), a load that comprises catches from several fisherman. While it is difficult to estimate the statistics, a typical fisherman catches about five to eight kilograms per day, then accumulates stock and delivers to intermediaries weekly, which then reaps about \$1,400 per week. This scale is beyond the size for household consumption, indicating a commercial-level operation.

Individual Fishermen → **Intermediaries/Buyer** → **Market Resellers** → **Market Sellers**

Fisherman: The average fisherman catches about five to eight kilograms per day. They then dry and store the fish usually for just a few days; every 7-10 days, fishermen sell their load to intermediaries once they have accumulated a critical mass of about 80 kilograms. All weights indicated are for dry fish. In some cases, smaller-scale fishermen work together and combine their production to sell to intermediaries.

Intermediaries/primary buyers: They buy dried fish from fishermen in 80 kilogram containers for a price of MT12,000. The intermediary then transports the fish to market (Nampula, Zambezi, or Beira); the average intermediary takes two to four loads every 7-10 days.

Market resellers: They buy fish from intermediaries' stocks and sell to market sellers who then sell to consumers.

²⁴ GNP 2014 Management Plan.

BUSH MEAT

During the civil conflict, GNP animals were consumed for food (see table 8). However, even in years of relative peace, local populations continue to hunt the remaining animals, many of which have become endangered.²⁵ While this is still an ongoing problem, some species, such as the elephant and the waterbuck, are experiencing a resurgence due to the efforts of the Gorongosa Restoration Project.²⁶ Demand for bush meat is strong both at the household level for sustenance and even for higher-income households that purchase it alongside the road.

TIMBER

Unsustainable harvesting of timber comes in several forms: 1) slash and burn agriculture to clear fields to plant crops; 2) firewood and charcoal sales, a key income generator for the poorest of families; and 3) larger-scale illegal timber exports. In an example of the latter, an ongoing scandal is playing out in which a Chinese timber company is allegedly paying off local populations to acquire the (small) quotas of timber that they are allowed in order to bundle the licenses and execute a large commercial timber export operation. Much of this kind of timber sourcing goes unreported except for the occasional exposé, which was reported on the news in Cheringoma in January 2016.

ELEPHANT IVORY

Elephant poaching has been less of a significant issue in recent years, partly due to the very low population of elephants but also due to a genetic adaptation resulting in 60 percent of female elephants being tusk-less. This occurred because poachers in the past targeted tusked elephants, and therefore, the tusk-less variety remained and procreated; formerly, less than 5 percent were tusk-less. These unfortunate factors deter potential poachers from focusing on this region today.

STAKEHOLDER MAP

The following key stakeholders were consulted or referenced during the assessment.

- **Provincial ministries.** The provincial, Beira-based government is vocal (if not active) in promoting conservation efforts and in building locally owned tourism assets. Their main role to date has been to initiate

Table 8: Change in wildlife populations in GNP during and following the Civil War

GNP's megafauna numbers plunged during Mozambique's civil war. Efforts by the GOM and the GRP is succeeding in reversing negative trends.

Species	1972 estimate	2000 estimate	2014 estimate
Buffalo	14 000	<100	>500
Elephant	2 500	<200	<400
Hippo	3 500	<100	>200
Waterbuck	3 500	<300	>6000
Zebra	3 500	<20	<40
Blue wildebeest	6 500	<20	>400
Sable antelope	700	<100	>500
Lichtenstein hartebeest	800	<100	>300

Source: Draft Technical Proposal, Integrated Gorongosa and Buffer Zone Program

²⁵ [Illegal Hunting And The Bushmeat Trade in Central Mozambique](#), TRAFFIC East/Southern Africa, WWF, IUCN, 2012.

²⁶ [Aerial Wildlife Count reveals impressive recovery of Gorongosa National Park](#), December 14, 2014.

a PPP between the Carr Foundation and the government of Mozambique, which is a 20-year commitment to restore the biodiversity of the park.

- **District administrators.** Each district has an office that is charged with government affairs, including several officers dedicated to agriculture and wildlife.
- **Carr Foundation.** Founded in 1999 by American Gregory Carr, the Carr Foundation is a non-profit organization that is currently committed to the 30-year restoration of the GNP in partnership with the government of Mozambique. The Gorongosa team includes scientists and conservationists that have reintroduced species to the ecosystem, planted millions of trees in the Mount Gorongosa rainforest, created an international restoration ecology science research center, established eco-tourism in the Park, and provides health and education programs to the local communities. The recent PBS/National Geographic special “The Rebirth of Paradise” chronicles some of the work and the challenges that the Foundation and its restoration efforts are facing.
- **Donors.** A Feed the Future project funded by USAID and a parallel project funded by the Carr Foundation are integrated into the communities and could be valuable partners.
- **Gorongosa Restoration Project (GRP).** This U.S.-based non-profit organization is undertaking a 20-year public private partnership with the government of Mozambique and the Carr Foundation to revive the park. The GRP works in four core areas: tourism, conservation, science, and community. GRP operates an extensive community relations program with education and health programs.
- **Productos Naturales.** This is a private social enterprise, launched by the GRP, to improve production as well as strengthen market linkages for agricultural producers (including maize, sesame, and coffee) in the Gorongosa region with buyers.
- **Tourism operators.** Tourism companies, including Girassol, operate safaris and lodge accommodations. They are employers and buyers of local products.
- **Small farmers.** Subsistence farmers make up the majority of the population, with limited organization into groups or associations.
- **Traders, agents.** Small buyers representing local markets or serving as collection points for large buyers/exporters interact with the local people.
- **Fishermen.** Small, local fishermen consume some fish and also connect with commercial operations regionally to supply fish into regional markets.
- **Natural Resource Management Committees (NMRC).** These groups represent the community and decide how to appropriate the 20 percent revenue share from tourism.

SITUATIONAL ANALYSIS OF LIVELIHOOD ACTIVITIES (SCREENING)

The buffer zone and other populations around GNP largely depend upon agriculture and fishing for their income and sustenance, with just a small number currently supporting the tourism industry as guides or small tour operation support. Several key income generators that these populations currently enjoy, as mentioned above, are not sustainable, as the resources may soon run out and with considerable negative effects on conservation. This screening process analyzed all existing livelihoods to select the most appropriate for USAID support; all livelihoods are summarized in table 9. The evaluation rationale for each product area is also summarized below.

Table 9: Initial Screening of Existing and Potential Livelihoods

GORONGOSA: EXISTING AND POTENTIAL LIVELIHOODS					
	Combined Score	Income opportunity	Impact scale	Improved conservation results	Competitive analysis/end market
<i>Agriculture</i>					
Honey	2.3	3	2	2	2
Maize	2.3	2	2	2	3
Fruit/dried fruit	2.3	3	2	2	2
Coffee	2.0	2	1	2	3
Sesame	2.0	2	2	2	2
<i>Forestry/wildlife</i>					
Medicinal herbs	2.0	2	1	2	3
Firewood/charcoal	1.8	3	3	-2	3
Bush meat	1.8	3	2	-1	3
Fishing	1.3	3	1	-1	2
Illegal logging	1.0	2	2	-2	2
<i>Tourism (other)</i>					
Wages from tourism	2.3	3	2	2	2
Tourism (other)	2.0	2	2	2	2
<i>Other livelihoods</i>					
Remittances	2.0	3	2	1	2
Artisanship (wood, other)	1.8	2	1	2	2

Ratings = +3 (best) to -3 (worst), Green Cells = contains key leverage points

AGRICULTURE

USAID’s current Feed-the-Future (FTF) project, the Integrated Gorongosa and Buffer Zone Program, is actively working in two of the target districts to help farmer groups organize themselves, improve agricultural practices, and build linkages to end markets. The government of Mozambique and the Carr Foundation are also implementing a parallel project, GRP, in Cheringoma and Gorongosa. Additional activities to deter poaching and other non-sustainable livelihoods will help achieve conservation objectives.

Honey (selected). Improved production methods and connecting potential buyers with suppliers in the Gorongosa region present an opportunity for increased income. Several existing actors in the market, including social enterprises active on both the production and supply sides, present leverage opportunities that require further exploration.

Maize (selected). Already a staple food and income source for a wide portion of the target population, existing market linkages are still inefficient. With some assistance, small farmers could increase their incomes and take advantage of demand from multiple end markets.

Fruit/dried fruit (selected). An abundance of raw material inputs have the potential to be utilized to reach end markets; this opportunity is tied to relationships and infrastructure already in place in Gorongosa.

Coffee. This may also represent a longer-term cash crop opportunity. GRP and the Carr Foundation are currently implementing the *Coffee Restoration Project*, which is in its first planting season. The goal of this project is to create sustainable incomes for the community through the export of high-quality Arabica coffee. The Carr Foundation is working with global market experts in the coffee trade to explore the opportunity for a single-origin coffee product with the potential to earn a high premium on the global market. However, political unrest is challenging this goal at the moment. As the project is only in its first year, other challenges and opportunities may arise as well.

Sesame. Like maize, sesame is a staple cash crop; however, fewer people are engaged in the cultivation of this commodity. With exports via local collection points by companies such as Olam, there is a market, but still the opportunity is limited in the region. However, a deeper pricing study of sesame versus other crops such as maize could reveal opportunities and would be a good follow-on to the findings of this assessment.

FORESTRY/WILDLIFE

Medicinal herbs (forestry). A 2012 vegetation survey of Mount Gorongosa found that there was an opportunity to develop the area as a sustainable source for medicinal plants.²⁷ Some research has been done on medicinal plants in central Mozambique, but the opportunity is undeveloped and end markets are uncertain at present.²⁸

Firewood/charcoal. Currently representing core livelihoods for the communities, these products are consistently available and provide income liquidity when needed. However, harvesting methods have resulted in significant deforestation. The challenge is that this provides the basic livelihood for a large portion of the population and there are no local incentives for creating a sustainable charcoal industry when trees are harvested freely.

Bush meat. As described above, the local populations hunt, consume, and sell bush animals as a core part of their food and income staple. However, the animals they consume are often endangered, disrupting the regional ecosystem.

Fishing. While some legal, small scale fishing is potentially sustainable, commercial fishing rings are illegally sourcing from over-fished waters in the region. While fishing provides livelihoods for a small portion of the Gorongosa region's population, it has had a more limited scale of impact than others livelihoods analyzed.

²⁷ [Vegetation Survey of Mount Gorongosa](#), Biodiversity Foundation, 2012.

²⁸ [Traditional healers and laypeople: a qualitative and quantitative approach to local knowledge on medicinal plants in Muda \(Mozambique\)](#), J Ethnopharmacol. 2011 Nov 18.

TOURISM

Some key, longer-term opportunities for livelihoods may likely be linked to the struggling tourism industry. GNP saw 1,000 visitors in 2007 and 7,000 in 2011, but the renewed conflict in 2013-2014 halted tourism again: in 2015, there were 2,300 visitors.^{29 30} If the sector manages to grow, investment in the region could benefit the buffer zone populations as well, either in the form of improvements in infrastructure (roads, access to water) or directly through new jobs and the presence of buyers for local products.

Wages from tourism (selected). As the tourism industry grows in the region, there will be increasing income opportunities, though these may be limited in terms of actual employment. The section below details these prospects.

Tourism (other) (selected). Locally owned tourism is a longer-term, higher-risk prospect, though development in this area could have holistic, positive development effects in communities. In addition, 20 percent of GNP entrance fees go directly to communities around the park; funds are managed by NMRCs, which are community-based groups. However, sustainable management of these fees has been problematic.

OTHER LIVELIHOODS

Remittances from family. As in most rural areas in developing countries, remittances from family members working in cities or abroad are a key source of income. This will likely continue. One way to reduce the cost and risk of transferring funds would be to introduce and train people in mobile money. This would save on possible losses to theft, as well as on transport costs, while increasing transparency and accountability.

Artisanry (wood, other). With the growing tourism industry, artisanry will come into greater demand. One timber concession, TCT Dalmann in Cheringoma, has developed a set of artisanal wood designs and has produced local timber artwork. However, the lack of tradition or local skill may keep this enterprise small.

Based upon the criteria summarized in Table 9, five top-scoring value chains were selected: honey, fruit/dried fruit, maize, and tourism-related livelihoods (of which the two selected were combined into one livelihood). The two opportunities for tourism were combined into one sector for analysis.

SELECTED LIVELIHOOD #1: HONEY

Livelihood analysis	Score
Income opportunities	3
Impact scale	2
Improved conservation	2
Competitiveness	2
Combined score	2.3

²⁹ [Challenges and opportunities in developing tourism to support the restoration of the Gorongosa National Park – Mozambique](#), By Mateus Mutemba, 2012.

³⁰ Mozambique park sees wildlife numbers grow in wake of war, By Christopher Torchia, Associated Press, January 9, 2016.

Beekeeping and the production of honey products offer a strong, immediate income-generating opportunity for the districts surrounding GNP. Three entities, including two NGOs (TCT Dalmann and the GRP) and one company (Productos Naturales), are currently working in the region and could be approached as potential partners for interventions to develop honey-related, income-generating opportunities in the target communities. According to the GRP, there are approximately 125,000 traditional beekeepers in the Sofala and Manica provinces, many of whom are located in the buffer zones.

Market opportunities exist primarily for the liquid extracted honey. However, byproducts such as beeswax may offer longer-term opportunities, for instance in the cosmetic industry.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

A household can maintain a base standard of livelihood (using the minimum wage of MT3,500 per month as a benchmark) from managing 15-20 hives, using the Kenyan-style basic hives that are being used by TCT Dalmann, a Cheringoma-based social enterprise that processes honey and trains local beekeepers. As a traditional practice, beekeeping is already part of the culture, and many households produce honey as one of several income-producing activities. Both men and women participate, though traditionally this is a man's occupation. However, the quality of honey produced is low, and the end markets reached have been limited to low-end domestic sales. With some assistance in start-up, the upkeep of hives requires relatively little effort: as little as a few hours a month per hive.

Enabling new income from beekeeping will significantly impact communities in each of the four districts. Thousands of households already have early-stage honey production capacity and with some assistance can generate significant income. In particular, the communities near Cheringoma have been working with TCT Dalmann to build their honey capacity, and have successfully delivered commercial-grade product, though at small scale.

2. CONSERVATION

Traditional beekeeping methods often involve stripping the bark to make hives. In addition, some local people often knock down trees to obtain wild honey, leaving the tree to die. Methods such as the Kenyan hive enable a sustainable and easily manageable alternative. TCT Dalmann works with local beekeepers to build and use these hives. TCT Dalmann then also provides a training course in the full range of sustainable beekeeping practices.

3. END MARKETS/COMPETITIVENESS

This section summarizes the opportunities for populations living in Sofala Province to produce honey for various target markets.

End market: home and local (roadside).

Honey produced in the Gorongosa buffer zones is consumed mostly at home or is sold whenever a family has access to traders who sell along the main roads. A small honey stand is set up at least every few kilometers on the main roads.



Honey sold in water bottles on the roadside near GNP

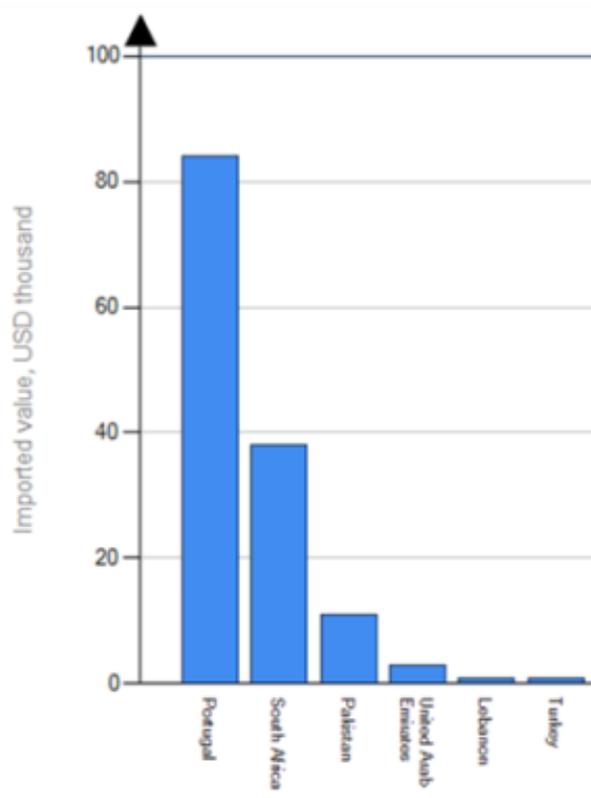
- **Product requirements.** Roadside customers purchase honey based upon convenience (there are few supermarkets close by) and price. The roadside product is of unverified quality and sanitation, often a smoky color. The smokiness comes from a burning technique used to keep the honey from fermenting, but it also distorts the taste. It is sold in varying sized repurposed plastic bottles.
- **Operational requirements.** Small honey producers either sell to local traders or bring supplies to sell to the roadside themselves. Hive owners are rarely from the same household as the traders (i.e., roadside sellers), though some do bring to the roadside themselves. The timing is usually when the household requires additional income and not necessarily in line with demand. Roadside traffic, along the Beira Corridor especially, provides adequate connection with customers to make the enterprise worthwhile. Prices vary according to the availability of supply ranging from MT200 to MT350 for a 1.5-liter bottle.

The drawbacks of this roadside market are the poor quality, which is potentially damaging to health and nutrition; the lack of consistent schedule and timing of the traders' activity; and the low price reaped as compared to prices for higher-quality product, which would be closer to commercial grade. However, this does provide immediate income without substantial reliance on middlemen.

End market: national/urban. As Mozambique is a net importer of honey, there is unmet national demand specifically in urban areas. According to Tropigalia (a national honey distributor) and the MHC, there is unmet, growing demand in national markets. In urban markets, namely Maputo, Beira, and Chimoio, shelves of retail stores such as Unico and Shoprite feature both local and imported honey from Portugal and South Africa. Smaller retail outlets, such as butchers or small shops, also carry honey.

- **Product requirements.** Quality standards demanded consist of a low level of humidity (19 percent from Tropigalia); a clear yellow color (not smoky); and packaged in a sealed glass or plastic bottle. Shoprite's buying officer explained that the chain buys from national and international sources, as long as it conforms to the following standards: a) plastic or glass containers between 100-500 grams; and b) quality certification through a recognized laboratory. Tropigalia's standards for its wholesale honey purchases (30-liter containers bought at wholesale for private label) include a maximum of 19 percent moisture, no smell of smoke, and hygienic production conditions (verified by certification).

Figure 5: 2014 Mozambique Honey Imports



Source: FAOSTAT

See the images below for sample honey products from Shoprite in Maputo where the Portuguese product sells at a premium over the South African product, and Mozambican honey has the lowest retail price; note the poor packaging condition of the Mozambican product. Note that the Portuguese product sells itself as a “natural” product, as honey is often seen as a healing elixir.

Shoprite Shelf Samples



Table 10: Honey Price Comparison at Shoprite-Maputo

Name	Origin	Container Size	Container Price – MT		Price – MT/kg
Nutry	Portugal	350g - plastic	447		1,127
Mel Laranjeiro	Portugal	290g - glass	310		1,068
Peel's	South Africa	375g - plastic	320		853
Little Bee Honey	South Africa	1kg - plastic	806		806
Mozambican Honey	Mozambique	120g - glass	85		708
Roadside honey - Cheringoma	Mozambique	Typically 1.5L water bottles	Varies		200-250 (up to 350 in times of short supply)

- Operational requirements.** The MHC product is the only locally produced product on the shelf at Shoprite and was supported through a donor-funded program. As far as pricing, the markup Shoprite charges is approximately 60 percent higher, according to the supermarket’s buyer; prices in Maputo are approximately 25 percent higher than in Chimoió, which most likely reflects higher quality standards or a longer transport route.³¹

End market: export. Demonstrated by Mozambique’s status as a net importer of honey, there are several substantial barriers to export, including price, quality, and standards (health, sanitation).

- Requirements.** “Commodity” honey, which is traded around the world from mass-producing origins like China and the United States, presents an insurmountable benchmark to compete with, requiring aeration and other high-cost supply chain infrastructure. The only future opportunity to export honey would have to be “niche.” To differentiate from this “commodity” honey in the marketplace, Mozambican producers would need to emphasize the unique characteristics of Mozambican honey. The following characteristics could differentiate the Mozambican product for the export market:
 - Unique flavor.** Some of the honeys in Mozambique, such as those produced by TCT Dalmann, have distinct flavors due to the flower species that bees frequent, which are not found elsewhere.

³¹ External Market Task Force: Report On Honey, Annex to The Study On The Export Marketing Prospects Of Six Selected Mozambican Commodities For The South African Market, FAO 2004

- **Story and brand.** The GNP brand and the story of the role of bees in the rebirth of the park present a unique selling point on the international market. Active honey supporters in the region, including AgDevCo, TCT Dalmann, and the MHC, could also leverage the story behind their work in empowering women and increasing the incomes of impoverished households.

4. SUGGESTIONS FOR FURTHER ANALYSIS

The following areas should be explored further related to value chain enhancements, partnership development and end market research:

Perform full value chain assessment to crystallize constraints and potential solutions. Improvement in value chain conditions to relieve constraints would enhance income opportunities; however, further analysis is needed beyond the scope of this assessment. The following value chain enhancements could be explored:

- Upgrade existing training for new beekeepers in modern beehive management skills
- Supporting investment in new hives, expanding current beekeepers and/or training new ones
- Education on conservation issues to reduce deforestation
- Organize local beekeepers into an association to aggregate sales, organize trainings, and facilitate certifications
- Empower women by targeting inclusion in beekeeping training programs
- Improve supply chain as the volume and delivery requirements in the export market will require long-term capacity building in the honey value chain.

Explore partnerships working with MHC, TCT Dalmann and others to build supplier capacity. The anchor firm MHC, based in Chimoio, has a national buyer network already in place with significant unmet demand. They are seeking to expand their supply chains and are specifically interested in working with additional beekeepers in Sofala Province, including the Gorongosa buffer zone. Further analysis of this opportunity should focus on whether local honey producers can specifically meet these end-market demands. There are several potential partners that are building capacity and strengthening supply chains in the honey and beekeeping industry. These include TCT Dalmann and the GNP. Further due diligence is necessary to determine the most effective partners and intervention strategies.

Leverage Gorongosa brand. Work with GRP to partner and brand a new or existing honey company. Both the niche international and national markets value a “story” when purchasing honey. In addition, Mozambicans seek to purchase locally produced honey as a matter of national pride; however, they do require a baseline of quality.

Perform gender assessment. Women are not traditionally beekeepers in the target region; one reason is that it is locally believed to be unfeminine to climb trees. However, with modern beekeeping methods and training, there are opportunities for women’s involvement. Also, the moderate but ongoing hive tending needs are suited to women as they are typically close to the home.

SELECTED LIVELIHOOD #2: MAIZE

Livelihood analysis	Score
Income opportunities	2
Impact scale	2
Improved conservation	2
Competitiveness	3
Combined score	2.3

Maize is a key income-generating source for small farmers in the buffer zones around GNP as well as a core source of food security. While some maize is consumed at home, a good portion is sold locally and to traders who then sell on to wholesalers and processors, who in turn distribute to national and export markets. The recent severe drought has led to very low crop yields leaving farmers with little product to sell. This is challenging food security in the region now. If it continues, the conditions may alter the observed market dynamics.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

Maize provides both staple food and income for households in the four target districts. Improving prices and production efficiencies could have an immediate income impact with wide, indirect effects. The current USAID/FIF Integrated Gorongosa and Buffer Zone (IGBZ) Program and a parallel GRP project are working in all four districts to improve agricultural practices, with food security as a priority.

Several distinct factors limit farmers' income, including poor storage (and thus inventory management) and lack of price information. Relieving these constraints could create quick wins in terms of new income, without having to create entirely new supply channels.

2. CONSERVATION

Current small farming methods in the buffer zones have been destructive to the environment. Local farmers often still use “slash and burn” and other destructive agricultural practices to clear land for maize and other agricultural production. In one case within GNP, a small-scale farmer reportedly cleared a hectare, containing trees that were thousands of years old that scientists from the park were studying, in order to plant maize. In addition, some farmers are cultivating on reserve land that is not meant to be used for farming. Technical support in form of awareness or education could reduce these types of activities would have positive conservation impacts.

Figure 6: Map Showing Beira Corridor in Relation to GNP



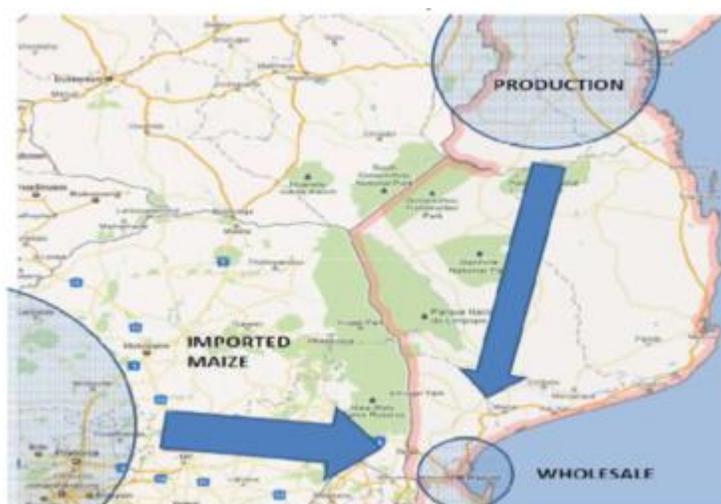
3. END MARKETS/COMPETITIVENESS

Maize is sold to two major end markets: 1) home and local: maize is consumed in the home or sold to processors who mill the maize into flour and sell to consumers in local markets; or 2) for export: sold to small-scale traders or warehouse owners³² who then sell to national buyers or for export.

The following constraints were identified which apply generally to the maize value chain in the region:

- **Poor storage.** This necessitates the sale of product even when available prices are low and leads to high levels of post-harvest loss within the household.
- **Low yields.** Although maize production in Mozambique has increased, productivity levels remain very low with maize yielding an average of one ton per hectare, compared to an average of 3.6 tons per hectare for other southern African countries.³³ However, the yield is lower in the target areas of this study. In Muanza (where the GRP project is active), the yield is reportedly very low at less than half a ton per hectare.³⁴
- **No consistent market linkages.** More remote villages sell to itinerant traders, who do not visit on a schedule or form part of a structured market. This leads to a lack of bargaining power for producers and low prices.
- **No consistent sourcing contracts.** There is no real commitment by farmers to sell product to agents, and farmers will always choose to sell to the highest bidder as they do not see the relationship as long term: relationships are not structured with incentives for loyalty. Most farmers produce small quantities, and they are not doing agriculture as a business. Thus, they do not have the capacity to fulfill contracts.
- **Cash-based trade.** Purely cash-based trade presents safety risks as well as a lack of recordkeeping that would help with transaction management.
- **Policy and trade bans.** Trade barriers between Malawi and Mozambique have restricted the legal flow of product across borders. In the past, Malawian traders used to cross into central Mozambique, but a trade ban imposed by the government of Malawi in the interest of food security limited this. As a result, this is no longer a major (formal) trade outlet for small farmers in the region, though informal trade very likely continues.

Figure 7: Maize Flows from South Africa, Manica, and Sofala to Wholesale Markets in Maputo



³² Pita Damuchocho Chimpena in Gorongosa and Imane Aligy of Nhamatanda interviewed for this study.

³³ FAOSTAT 2013.

³⁴ Gorongosa Restoration Project Agriculture Department, 2014.

End market #1: home and local. Maize is a key food staple, with low yields during the recent drought endangering the food security of target populations. It is estimated that in Mozambique only 20 percent of maize crops are marketed outside the home.³⁵ Field observations in the districts around GNP confirmed this estimate. While some of the target districts, including Cheringoma and Nhamatanda, do market surplus maize, most maize remains within the household. In Muanza, maize yields are very low, and the crop is consumed at home. According to an unpublished GRP study, a farmer needs to produce 870 kilograms of maize each year in order to feed his or her family; farmers currently harvest yields between 300-400kg/ha in the project area, which is lower than the national average. This implies that over two hectares will need to be grown to achieve food security for a household without any surplus to trade (though some areas in Muanza have a much lower yield).³⁶

End market #2: National/Urban (Maputo/Beira) and Export. Small farmers in target areas sell their unconsumed maize to traders who are contracted typically by larger traders (including DECA and Cargill). Larger traders then distribute through hubs in Chimoio and Beira onward. From Chimoio, exports typically go to Malawi.

- **Maputo end market.** Southern Mozambique (Maputo Province) is a net importer, mostly importing from South Africa due largely to high transportation costs from central to southern Mozambique. Reflecting this, supermarkets in Mozambique import a substantial amount of maize flour. For instance, Shoprite procures about 60 percent of its maize flour locally through contracts with companies such as Topsco (which sources maize locally) and imports the rest from South Africa. One Maputo-based poultry company, Higest³⁷, does source from the Gorongosa region using maize as an input in animal feed.
- **Export end markets.** Export to neighbors such as Malawi and Zimbabwe occurs via Chimoio; this includes both formal and informal trade. This occurs mostly during peak season; in the off season, these regions of Mozambique may even import from Malawi and other countries in the region. Due to a lack of transport infrastructure leading to high internal transportation costs, it is easier to export maize to neighboring countries than to transport to the southern zone, despite high demand. Due to close trading ties with Malawi for maize, maize prices in the north and central regions tend to be closely tied to Malawian prices.³⁸

Major buyers include: 1) Cargill, which co-owns a mill in the region and which processes maize which they intend to export; at the moment, they are selling maize to coastal millers; 2) Chimoio-based Abilio Antunes chicken farm; and 3) Desenvolvimento e Comercialização Agrícola (DECA, which sells to wholesalers and retailers across Mozambique and for the export market. DECA also sells 50-kg bags of maize flour to local aid organizations, the World Food Program, and NGOs. As a by-product of its maize processing, DECA produces cattle feed called Harmony Chop, which is sold to local farmers.

³⁵ Analysis of incentives and disincentives for maize in Mozambique, Monitoring African Food and Agricultural Policies (MAFAP), March 2013.

³⁶ Gorongosa Restoration Project Agriculture Department, Notes to the Technical Application to USAID, 23 April 2014.

³⁷ HIGEST is located in Machava, Matola city, 20 kilometers from Maputo, and has been in the Mozambican market for over 20 years and is one of the first companies with permission to use the “Made in Mozambique” logo. HIGEST produces quality feed and chicks and frozen chicken through its well-known brand Nacional. See <http://www.petersime.com/news-and-events/higest-mozambique-expands-hatchery-with-petersime-equipment/>.

³⁸ MAFAP SPAAA, March 2013.

- **Product requirements.** Maize is either milled as flour or used as input for feed. DECA, one of the key buyers in the GNP buffer zones, buys maize for feed production that is milled, refined, and sold on the national market. Necessary product requirements for maize include:
 - **Low humidity.** Higher moisture content in domestically produced maize requires that the grain be milled immediately to avoid rotting.³⁹
 - **Adequate storage.** A lack of secure storage for maize negatively impacts quality.
 - **Consistent quality of maize.** There is no consistent grading system, hence the price difference in regional prices.
 - **Purity.** The general existence of foreign matter in the maize product.
- **Operational requirements.** Maize buyers generally set up buying points in the districts where maize is grown and contract local agents who purchase maize as it is brought to buying points. The agents weigh and pay cash for the maize. Buyers, including DECA and Cargill, then store the maize in their own facilities until it is collected by their fleet of trucks. Buyers therefore use the local agent as a buffer and relationship manager with the local community; the agent manages quality and negotiates price.

4. SUGGESTIONS FOR FURTHER ANALYSIS

The USAID and GRP programs currently operating in the GNP buffer zones are benefitting the populations by helping to improve their agricultural practices and build market linkages. This study provides additional areas to explore for supporting income generation.

Explore mobile money pilot. GRP's private partner Productos Naturales has expressed interest in piloting a mobile money solution for local traders to pay small farmers. In such a pilot, a trader will be contracted to make payments via mobile for one season, with incentives given in the form of a transaction cost subsidy. USAID/Ghana is piloting a similar effort through the ADVANCE II project currently underway. Partners to engage include USAID/Mozambique's Feed the Future project, which works directly with small farmers; GRP's parallel agriculture project, the Beira Agricultural Growth Corridor (BAGC); Vodafone's mPesa; and mCel's Mkesh mobile money division. Vodafone also implemented the Connected Farmer Alliance, a PPP that USAID implemented from 2012-2015 in Kenya, Tanzania, and Mozambique with support from Technoserve.⁴⁰ Further research should assess the potential mobile solutions and implementation partners.

Explore improving pricing information. One of the major disadvantages that small farmers suffer from is a lack of pricing information: they are subject to traders' set prices. Providing additional information on pricing will help farmers to negotiate prices or plan better in terms of timing their sales. This can be enabled through mobile services or through farmer group capacity building, as is being pursued by the USAID/Mozambique Feed the Future project. Further analysis into potential activities is necessary.

Explore end markets and improve market linkages. A disadvantage for small farmers is the lack of strong market linkages: as buyers and agribusiness companies do not have direct communications with farmers at the beginning of production, there is no opportunity to assist with providing inputs or finance. Current market linkages are ad hoc and are made only during the harvest season. Training farmers in understanding agri-

³⁹ [Technical Note: Analysis Of Price Incentives And Disincentives For Maize In The Republic of Mozambique for the Time Period 2005-2013](#), October 2014.

⁴⁰ <https://agrilinks.org/sites/default/files/resource/files/CFA-USAID%20Webinar.pdf>.

culture as a business and helping them move away from their subsistence mindsets would improve the functioning of markets and increase their incomes. Further analysis is necessary to determine how to integrate activities into program design.

Improve storage. Farmer incomes are significantly affected when they sell maize and similar crops cheaply during the peak season, which starts in April, or at a time of need when prices are low. In the low season, which runs from September through February, farmers must purchase product back from middlemen at a much higher price. Farmers are essentially outsourcing storage and storage risk. Improved local, community-owned storage would increase income from these crops.

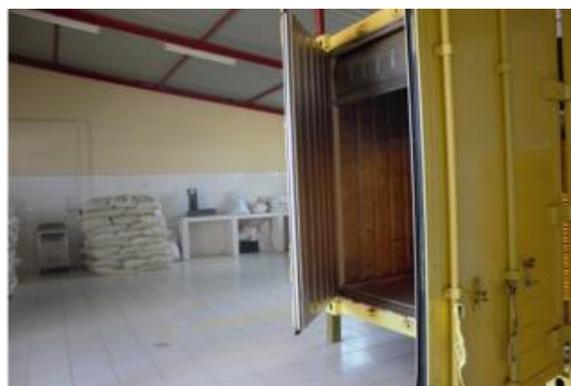
Explore partnerships. Partners to engage include GRP’s parallel agriculture project, BAGC, and Vodafone’s Connected Farmer Alliance (operating in Mozambique). Additional discussions with each party are necessary in order to explore further opportunities.

SELECTED LIVELIHOOD #3: FRUIT/DRIED FRUIT

Livelihood analysis	Score
Income opportunities	3
Impact scale	2
Improved conservation	2
Competitiveness	2
Combined score	2.3

The USAID/Mozambique Feed the Future IGBZ project is working with small farmers who produce a range of products including fresh fruit. Despite the abundance of raw materials, including mango and pineapple, it is not economically viable to supply fresh fruit to end markets or to sell fruit nationally or for export due to high storage, cold chain, and transport costs. However, there may be an opportunity to develop a dried fruit business, selling to the export market.

The Carr Foundation looked into developing the dried fruit opportunity, going so far as to build a model dried fruit facility and have conversations with the Gorongosa Business Council, which consists of local business leaders. End markets have been identified including LAM, the national airline, which expressed interest in serving dried fruit packets on its flights. The facility sits unused in Vila Gorongosa and the venture unlaunched as GRP has not had the technical expertise or the bandwidth to entertain this new business venture.



Factory ready to launch in Vila Gorongosa

1. INCOME OPPORTUNITIES AND IMPACT SCALE

The local population could earn new income from existing fruit assets that grow abundantly in the GNP area, particularly in Gorongosa district, where it sometimes lies on the ground uneaten. There is an opportunity for the local population to monetize the surplus with little needed investment in production or labor. The major investment would be the factory, which has already been constructed.

The current factory, originally built and owned by the Carr Foundation, has the capacity to process 100 kilograms of fruit per day. Local producers would receive MT4 – MT10 per pineapple, each approximately 2 kilograms in weight.



GNP Logo

2. CONSERVATION

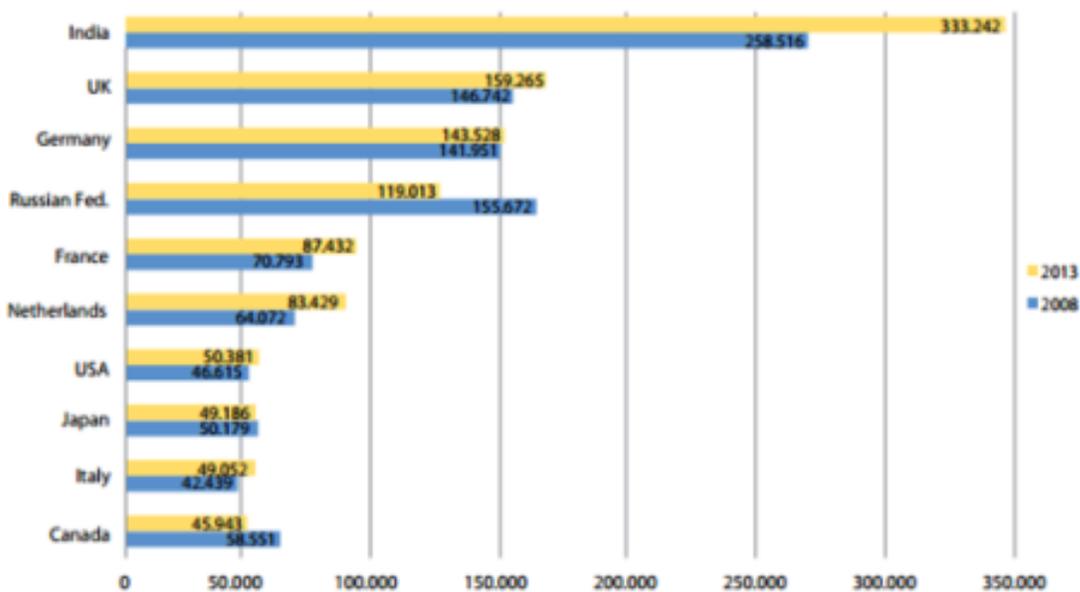
Fruit grows abundantly in parts of GNP. If these products were to become commercialized, further studies would have to be conducted to assess environmental impact.

3. END MARKETS/COMPETITIVENESS

As mentioned above, the opportunity for product development and marketing is more likely to lie in dried fruit, as opposed to fresh, due to transport cost issues. More research is necessary, including a feasibility study, to identify the best market opportunities; some initial factors to consider are included in the section below. The ideas below are meant to spark discussion around this entrepreneurial venture; a feasibility study would fully assess the cost-benefit ratio, risks, and long-term business opportunity.



Figure 8: Top 10 Dried Fruit Importers, Metric Tons, 2008 vs. 2013



Source: 2014/2015 2014-2015 the International Nut and Dried Fruit Council (INC) - Global Statistical Review, - World Nuts & Dried Fruits Trade Map

End market: National Market. Domestic wholesale could present some opportunities: for instance, LAM, the national airline, has expressed interest in purchasing 700,000 packets, an estimated 10 – 15g each, of dried fruit per year. GRP staff estimate that the national retail market would not offer a high enough price point or demand volume to account for the cost of transport for dried fruit, a relatively high-value product. However, this would have to be confirmed in a more in-depth feasibility study.

Challenges to overcome include the cost and ability to deliver consistent volumes. As sales accounts, such as LAM, are highly dependent on relationships, the inclusion of national partners such as the Gorontalo Business Council are essential.

End market: export. The global market for dried fruit is growing: it has grown by more than 50 percent from 2007 to 2013, with India, Western Europe, and the United States acting as the largest importers (this includes the whole range of dried fruits).⁴¹ The EU market (a possible target) has seen recent growth in the imports of dried fruit: in 2014, dried mango imports rose an estimated 10 percent to 2,200 tons from the previous year, while dried papaya imports rose by 32 percent to 1,317 tons.⁴²

- **Product requirements.** The segmentation diagram (figure 10) demonstrates the characteristics that determine industry classifications. While the potential Gorontalo product enjoys an existing organic status, any new venture in dried fruit exports would have to perform additional research to determine whether to add sugar and preservatives, or to deliver a lower standard grade for the ingredients markets (this would be a separate end market).

The following production issues were identified:

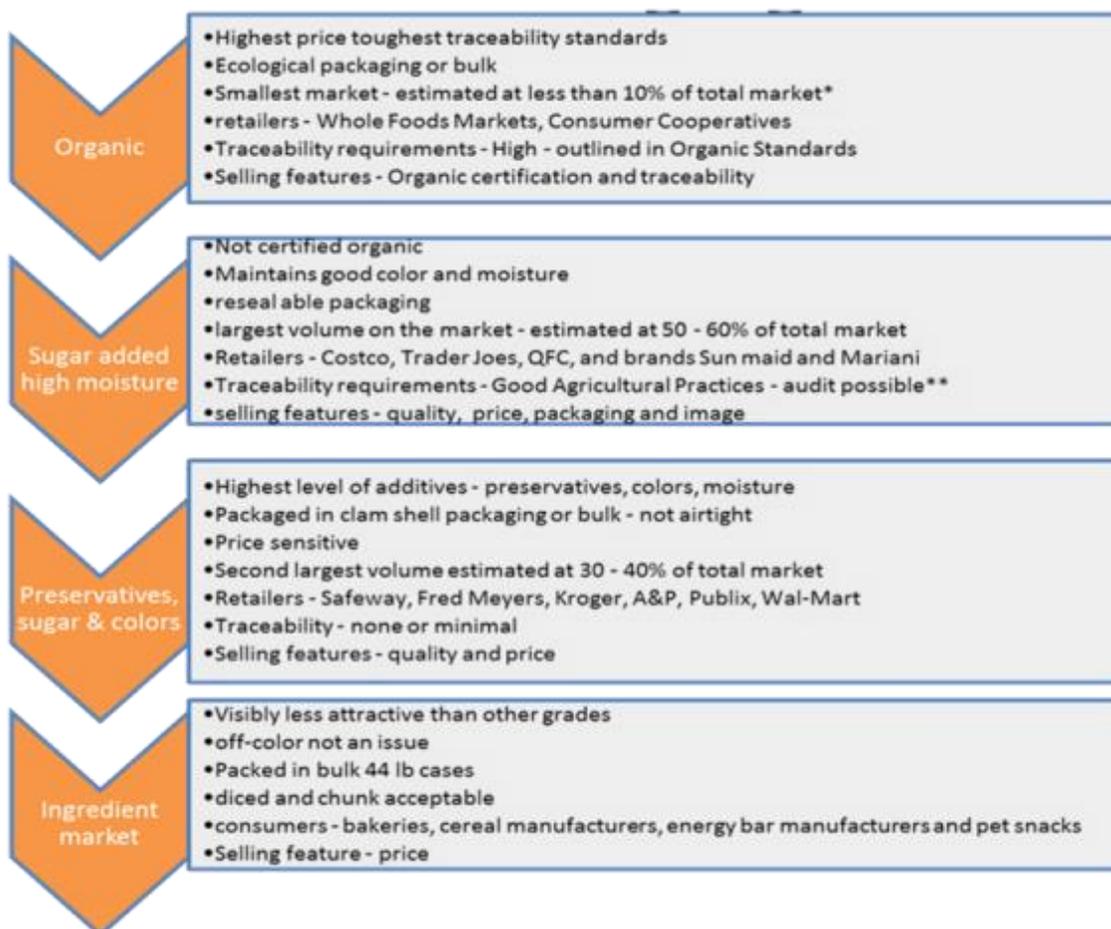
- **Food safety.** Food safety is a very high priority for dried fruit because it is a ready-to-eat product. Focus should be on acquiring HACCP or, at an absolute minimum, British Retail Consortium (BRC) food safety certification for all facilities. Advice from buyers is to ensure that the whole chain is certified and to deliver samples to potential customers as soon as possible.
- **Brand.** Global dried fruit buyers are heavily brand dependent in recognizing quality. The story of the park has strong appeal as a brand internationally.
- **Operation requirements.** The following priorities were identified in pursuing a dried fruit business opportunity:
 - **Opportunity to supply due to short window of availability.** Competitors supplying to global markets often have a short window of availability. This creates an opportunity for newcomers looking to serve as additional sources.
 - **Shelf life.** Generally, dried fruit has a short shelf life of three months, according to one global buyer consulted.

⁴¹ 2014/2015, the International Nut and Dried Fruit Council (INC) - Global Statistical Review - World Nuts & Dried Fruits Trade Map

⁴² Promising EU export markets for dried mangoes, CBI (Centre for the Promotion of Imports from developing countries) Market Information Database, www.cbi.eu, 2014

- **Get organized.** Suppliers must have their “ducks in a row” in terms of certifications and reliable supply chains to meet the needs of buyers.

Figure 10: Global Dried Mango Market Segmentation



Source: USAID/Pakistan Mango Industry Development research

4. SUGGESTIONS FOR FURTHER ANALYSIS

To actualize this opportunity, USAID could explore working with the private social enterprise Productos Naturales, which has been established by the Carr Foundation as the conduit for investment in this new venture. The Gorongosa Business Council has also expressed interest in partnering on the marketing and community relations angle. Unlike the other livelihoods, this dried fruit opportunity is specific to one business venture.

A feasibility study could focus on the following components:

- **Strategy planning.** Assistance is needed in developing the business execution plan for this idea, including the exact export markets to target and by contracting an industry expert to perform a feasibility study of the opportunity as described about.
- **HACCP/BRC.** Support in obtaining the necessary certifications for export to target markets.

- **Market linkages and brand development.** Direct support in terms of interacting with buyers, including developing pricing models and buyer accounts.
- **Assess impact on conservation.** An environmental impact study and a clear sourcing plan will be necessary to ensure that the supply chain continues in a sustainable manner.

SELECTED LIVELIHOOD #4: TOURISM

Livelihood analysis	Score
Income opportunities	3
Impact scale	2
Improved conservation	2
Competitiveness	2
Combined score	2.3

GNP is attracting increasing acclaim for its revival of the natural wonders of the region. The PBS- and National Geographic-sponsored *Rebirth of Paradise* series has recently won global attention for the park. However, large swaths of the park are still inaccessible as a result of the long civil war; due to recent violence, tourism arrivals have plummeted, and many of the lodges (Girassol excepted) remain closed.

1. INCOME OPPORTUNITIES AND IMPACT SCALE

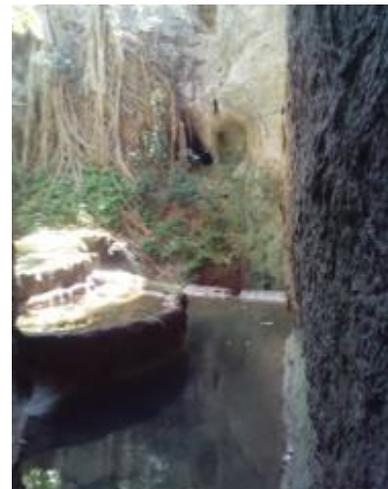
Some populations in the buffers zones could benefit in the long term from the development of tourism offerings, though efforts will have to be made to include the community in a sustainable way. While the actual number of people employed or generating income from the Park or related tourism offerings may be small, these are people from communities that are located in high-risk poaching areas. The indirect benefits of inspiring shared interest in supporting conservation efforts would be valuable.

Several income opportunities related to tourism are summarized in table 11 below.

Employees. One tourism operator that was interviewed (Girassol) has had difficulty sourcing skilled labor, products, and services locally. In one example, Girassol actively recruits locally for guides. However, due to low education and vocational training levels, Girassol’s tourism manager reports that even if he finds potential local guides who are literate and have a driver’s license, most lack communication skills and are poor drivers.

Business services/supplies. Tourism operations require services such as maintenance and food supply. Currently, however, it is difficult to find skilled services locally, and the food supply chain is not dependable, even to provide a consistent source of vegetables.

20 percent share of entrance fee. Twenty percent of entrance fees to the GNP go directly to the communities around the park. These funds are managed by NMRCs, which are community-based groups. NMRCs are made up of 25 members from local communities and are selected by their fellow community members. To date, one community has built a health



Kodzo Caves

post with its earnings; another built a meeting place; others have bought uniforms for rangers; and others have funded the rehabilitation of schools.⁴³

Table 11: Potential Tourism Income Opportunities

Livelihood	Description	Scale	Feasibility & time-line
Employees	Wage-earning employees of the park and tourism operators; GNP currently employs members of the local populations both full time (rangers, guides, security service) and short term (construction, etc.)	Currently 200-300 employees; more possible if the industry grows	The low skill level of local populations poses a major constraint.
Business services/supplies	To support operations including plumbing, welding, and food supplies	Hundreds of businesses in the long term	Longer term as capacity is currently low for local business
20 percent revenue share	Agreement for development of GNP to share with local communities; however, the community could use assistance in sustainably investing in future growth opportunities.	Meant to benefit whole communities	Exists presently. Priority – GRP already working with community to maximize
Local tourism attractions	New sites such as the Kodzo Caves or other locally developed cultural tourism	New ventures for various communities, hard to estimate scale	None at present. Medium to longer term, though highly competitive for global tourists, focus on national market

Improve locally owned/sourced tourism attractions. Several assets could interest tourists, including the Kodzo Caves located in Cheringoma. Other opportunities include white water rafting located on community-owned land. Allowing local communities to share in the benefits of the GNP brand would be beneficial as well; however, these have yet to be developed. Current community-driven tourism offerings such as Girassol “community walks” that visit local villages have had mixed results, with some tourists finding the experience rewarding while others are put off by the impression that they are “gawking at poverty.”

2. CONSERVATION

The best way to promote livelihoods that are also pro-conservation is to align incentives and rewards with the growth of Gorongosa tourism as a whole. The 20 percent revenue share is one way to promote this solidarity.

⁴³ [Gorongosa National Park: Economic Development](#) portal.

At the moment, buffer zone communities view park animals largely as threats. A group of elephants recently trampled several homes in one of the nearby villages one night.

Promoting community ownership in tourism assets incentivizes local populations to protect them. For instance, the Kodzo Caves are close to an illegal bush meat-poaching community. This community could be deterred from poaching by gaining a shared interest in preservation of biodiversity. However, this is a somewhat difficult challenge, and even if there were successful tourism developments, the status quo of bush meat hunting may continue. Internationally, similar programs have had mixed success in shared community tourism interests, such as the Communal Areas Management Program for Indigenous Resources (CAMPFIRE) model in Zimbabwe, which worked in several villages for years but ultimately failed in other communities.⁴⁴

3. END MARKETS/COMPETITIVENESS

Some key, longer-term opportunities for livelihoods may likely be linked to the struggling tourism industry. While GNP saw 1,000 visitors in 2007 and 7,000 in 2011, the renewed conflict in 2013-4 halted tourism again: in 2015, there were 2,300 visitors.^{45 46} If the sector manages to grow, investment in the region could benefit the buffer zone populations as well, either in the form of improvements in infrastructure (roads, access to water) or directly through new jobs and the presence of buyers for local products. Improved management of shared revenue also represents an income-generating opportunity.

Unfortunately, there are major constraints to growth in this industry:

Security. Unfortunately, the security situation is a major barrier to the growth of tourism in Gorongosa and presents a potentially insurmountable barrier to industry growth. There is continuous low-level fighting, with more serious incidents occurring on a regular basis. In early February (during research for this study), a gunman shot the community leader of the Nhamatanda village, one of the four districts that form the GNP buffer zone.⁴⁷ Two weeks later, gunmen attacked both a police station and a truck carrying an agricultural machine.⁴⁸

Poor transport infrastructure. The road network in the region limits the development of regional tourism. It also limits the ability of laborers to travel as wage earners. However, high-end tourists are able to fly in by plane or helicopter. Unfortunately, this may be a longer-term issue that requires large-scale investment.

⁴⁴ Situational Analysis of Mangalane, Mozambique for a Community Based Natural Resource Program, Leandra Merz, sponsored by the Southern African Wildlife Program, 2014.

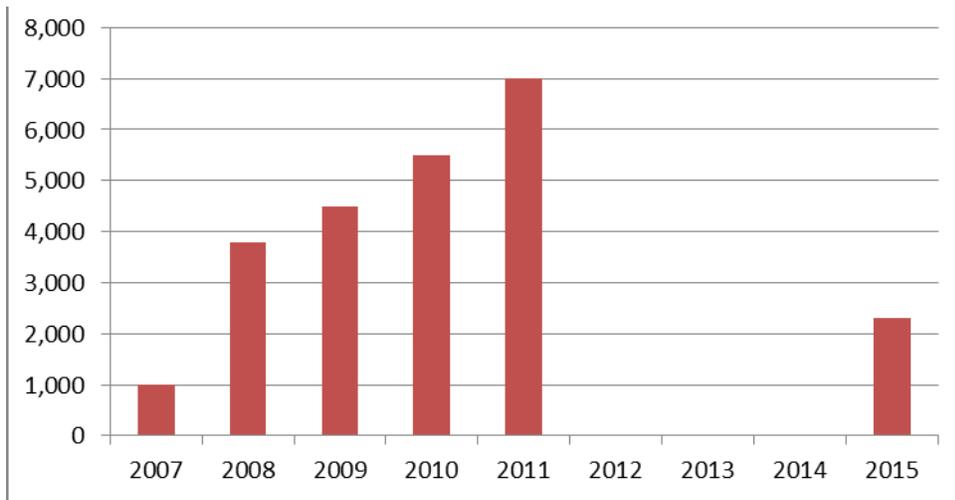
⁴⁵ [Challenges and opportunities in developing tourism to support the restoration of the Gorongosa National Park – Mozambique](#), by Mateus Mutemba, 2012.

⁴⁶ Mozambique park sees wildlife numbers grow in wake of war, by Christopher Torcha, Associated Press, January 9, 2016.

⁴⁷ 9 February 2016, [RENAMO gunmen shoot community leader and son in Nhamatanda](#), The Zimbabwean.

⁴⁸ [Mozambique: Renamo Gunmen Attack in Gorongosa and Maringue](#), AllAfrica, 18 February 2016.

Figure 11: Gorongosa Park Visitors



4. SUGGESTIONS FOR FURTHER ANALYSIS

GRP is ready and eager to partner with USAID on new assistance projects. Tourism operators such as Girassol may also be interested; a further consultation of tourism stakeholders in the region would be necessary to flesh out the analysis. The following specific areas of intervention should be explored:

Vocational training. As mentioned above, the low levels of education and skills within the local community make it difficult to provide employment. Girassol and other tourism operators would benefit from providing skills development for local communities. Basic guide and driving skills as well as language training would be most useful.

Create regional tourism development plan. This would involve working with local officials to determine how regional tourism can grow and identify opportunities for development of assets such as the Kodzo Caves. Further analysis is necessary to determine the feasibility and effectiveness of creating such a plan.

Create local SME fund. This could stimulate entrepreneurship and innovation to incentivize local companies to bolster the local supply chain for both agricultural products and business services. Further analysis of the potential pipeline of investees would be necessary.

Incentivize co-investments to develop tourism assets. Tourism investors will be key partners in achieving development goals. USAID could explore various methods of investment promotion to incentivize new investment in the region's tourism assets.

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STAKEHOLDERS INTERVIEWED

LUBOMBO MEETINGS

Location	Name	Institution	Position
Maputo	Samiro Magane	ANAC	Director of Licensing and Promotion Services
	Joel Cossa	Chissano Foundation	Executive Director (Programs)
	Antony Alexander	Peace Parks	Head Coordinator for the Limpopo National Park
	Arlete Macuaca	ANAC	Program Officer
	Ferdie Tereblanche	Sabie Game Park	Field Officer
	Fernando Chicolowe	Sabie Game Park	Program Officer
	Ms. Brenda	Shoprite	Food Buyer
	NA	Unico	Food Buyer
	Luis Cuambe	Provincial Extension Services	Chief
	Elias Mula	Provincial Forestry and Wildlife Services	Chief
	Maputo Beekeepers Cooperative	Executive Director	
Moamba	Dalilo Latifo	SDAE	Vet Medical Doctor District Forestry and Wildlife Services
	Dalilo Latifo	SDAE	District Veterinary Services
	Neil Lindsay	Sabie Game Park	Manager
	Oreste Bustani	District Administration	District Administrator
	NA	Mavunguane Locality	Secretary
	Mauricio Chavane	Mavunguane Locality	Community Authority
	Marta Baloi	Mavunguane Leadership	Member
	Francis Masse	Academic, Sabie Game Park	Ethnographer, Sabie
	Yvonne	SAWC	
	Armando Baloi	Mavunguane Leadership	Member
	Aizeque Umkotho	Mavunguane Leadership	Member
	Isabel Cossa	Mavunguane Leadership	Member
	Ernesto Macamo	Association of Cattle Breeders of Sabie	Member
	Wilias Mbambo	Locality	Community Leader
	Mr. Machel	District Irrigation System , Lote I	Chairman
Luis Castigo Cuambe	Mapulanguene Subdistrict	Mapulanguene Subdistrict Administrator	

	NA	Mapulanguene Subdistrict	Mapulanguene Subdistrict Administrative Officer
Magude	Oreste Bustani	District Government	Permanent Secretary
	Cristina de Jesus Xavier Mafumo	District Administration	District Administrator until December 2015
	Elias Cuna	SDAE	Director
	David Hayward	Coruman Resettlement, Donor Program	Socio-economic and Re-settlement Aspect of the Coruman Dam
	Armando Francisco Cossa	Cattle Owner, Beverage Warehouse Owner, Hotel Owner	Businessman
	Eng Sabao	SDAE	Chief of District Agricultural Services
	Uqueio	SDAE	Chief of District Veterinary Services
	Neil Midlane	Singita/Twin Cities	Project Manager, Mozambique
	Pam Richardson	Singita/Twin Cities	Community Development Director
	Paulo Macamo	SDAE	Chief of District Trade and Industry Services
	Armando Francisco Cossa	Hotel Magude and Warehouse	Owner
	Simeão Cossa	Hotel	Guard and Cattle Breeder
	Chauque	CTA	District Delegate
	8 members	Magude Sede Horticulture Producers Association	Members
	Enoque Mandlate	Meat Processing Entrepreneur	Investor
	Extensionist	SDAE	Extensionist (working with associations)
	South African Farmer	Commercial Farmer	Owner
	Mozambican farmer	Commercial Farmer	Owner
Interim District Administrator	District Administration	Interim officer	
Other	Isabel Ferronha	TH	Owner
	Rosario Cumbi	TH	Mozambique Representative
	Piet Theron	Peace Parks	Conservation/Livelihoods Consultant

GORONGOSA MEETINGS

Location	Name	Institution	Position
Beira	Alberto Armando Nhamutatira	Provincial Directorate of Tourism	Technical Inspector
	Miguel Luis Coimbra	Provincial Directorate of Agriculture	Provincial Director
	Edson Herculano Almeida	Provincial Directorate of Agriculture	Chief of Provincial Department of Agriculture
	Barnete Caetano Gimo	Provincial Directorate of Agriculture	Chief of Rural Extension Department
Gorongosa	Andres de Klerk	Gorongosa Restoration Project, USAID Feed the Future	(Agriculture in the southern/eastern buffer zone)
	Quentin Haarhoff	Coffee Restoration Project	Program Head
	Fraser Geary	Girassol Tours	Head of Tourism Activities and Guides
	Piano Jantar	Gorongosa Park	Assistant of Community Planning
	Manuel Mutimucuo	Gorongosa Park	Community Relations Division (includes agriculture)
	Pita Damuchocho Chimpene	Agribusiness Trader	Owner and Manager
Nhambita/ Gorongosa	Leaders and Control Committee Members	Nhambita Community	Traditional Leaders and Control Committee Members
Catemo/ Chiringoma	Jose Domingos Tomás	District Government	Administrator
	Pedro Cofe	Department of Agriculture	Director of Agriculture and Economic Activities
	Adamo Manuel Lourenço	EFOCOS Lda	Owner and manager
	James White	TCT Dalmann (honey and timber)	Owner
	Catemo Community	Members of Control Committee	Traditional Leader and Committee Members
Chimoio	Edgar Jone	BAGC	Agribusiness Coordinator
	Anifa Osman	MHC	Manager, works with AgDevCo and brokers with Tropigalia
	George Naude	DECA	Maize trader
Nhamatanda	Imane Aligy	Commodities Exchange	Manager of Silos Complex of Nhamatanda and Gorongosa

LUBOMBO : END MARKETS

LUMBOMBO: END MARKETS					
	Home	Local/ Village	Urban/ Maputo	Tourism	Export
<i>Agriculture</i>					
Cattle	3	3			
Fresh vegetables	3	3	2	2	
Marula nut	3	2	2		2
Medicinal plants	1	3	2		1
Maize, other	3	2	2		
Honey	2	2	2	2	2
Potatoes	3	3			
Poultry	3	2			
Fruit trees	2	2	2	2	1
Sugar					2
Cotton	2	1			
<i>Agriculture</i>					
Firewood/wood	3	3			
Fishing	3	3	2		
Charcoal	3	3			
Rhino poaching					1
<i>Other livelihoods</i>					
Tourism	3			3	
Carpentry/construction		2		2	
Remittances			3		
Mining (SA)					2
Retail/entrepreneurship	3	3			
Pot making/artisanship		2		2	
Government pensions					

Ratings: 1 = low potential, 2 = medium potential, 3 = high potential

GORONGOSA: END MARKETS

GORONGOSA: END MARKETS					
	Home	Local/ village	Tourism	Urban/ Maputo	Export
<i>Agriculture</i>					
Honey	3	2	2	2	1
Maize	3	2		3	3
Fruit/dried fruit			2	2	2
Coffee					3
Sesame	1			2	2
<i>Forestry/wildlife</i>					
Medicinal herbs		2		2	
Firewood/charcoal	3	3			
Bush meat		3		2	
Fishing				2	2
Tourism	2	2			2
<i>Tourism (other)</i>					
Wages from tourism			2		2
Tourism (other)					2
<i>Other livelihoods</i>					
Remittances				3	
Artisanship (wood, other)			2		2

Ratings : 1 = low potential, 2 = medium potential, 3 = high potential

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