

SEEKING A BALANCE BETWEEN BIODIVERSITY CONSERVATION AND SUBSISTENCE NEEDS: THE CASE OF THE BUFFER ZONE OF THE GILE NATIONAL PARK, MOZAMBIQUE

INTRODUCTION

In rural areas and remote regions, where most protected areas are located, local communities sustain their livelihoods through the exploitation of **natural resources**.

Contrary to most protected areas of Mozambique, **Gile National Park (GNAP)** does not have people living inside its boundaries. Nevertheless, it is surrounded by a large (more than 95,000 people) and growing human population that relies on agriculture, fishing, hunting, and extraction of forest resources for subsistence and income. However, according to the conservation legislation, these activities are prohibited in national parks. Due to the depletion of natural resources outside the park and the lack of alternative sources of livelihoods, local people are attracted to illegally collecting these resources inside the conservation areas.

Protected areas' managers enforce regulatory measures to control unsustainable resource use and protect critical ecosystems. Recognizing the socio-economic impacts of these restrictions, they also support the development of alternative, sustainable livelihoods that align with conservation goals. Complementing these efforts are targeted environmental education initiatives designed to foster local ownership and build awareness of the vital link between biodiversity conservation and long-term sustainable development.

Understanding the dynamics of these interactions is essential for improving conservation strategies and promoting inclusive and sustainable development. Therefore, the aim of this case study is to document the approach, progress made and the remaining challenges to balance conservation and livelihood objectives in the buffer zone of **GNAP**.

METHODOLOGY

This case study was conducted through a combination of the following methods: *(i)* review of GNAP and PROMOVE Biodiversidade implementing partners annual reports, *(ii)* key informant interviews with park managers and local government authorities in the districts of Pebane and Mocubela, *(iii)* Focus Group Discussions with community members in the buffer zone, and *(iv)* participatory observations.



Figure 1: Focus group discussions in the buffer zone of the GNAP

RESULTS

Approach adopted to support conservation and livelihood development

To address conservation goals and the livelihood needs of local communities, the PROMOVE Biodiversidade programme has funded the implementation of various interventions by the park's administration and local non-governmental organizations. In GNAP, conservation initiatives were implemented by the François Sommer Foundation/International Foundation for Wildlife Management (FFS-IGF), while the Rede das Organizações para o Ambiente e o Desenvolvimento Comunitário Sustentável da Zambézia (**RADEZA**) was entrusted the implementation of livelihood development initiatives in the communities located in park's buffer zone, using the Natural Resource Management Committees (**NRMC**) as the main target group in each community.

Achievements and challenges in balancing conservation and livelihood development

While there have been several positive outcomes in improving household income and nutrition, significant challenges remain in helping communities fully benefit from alternatives income assets generated through conservation efforts.

1. **Sustainable Livelihood Initiatives supported:** The programme promoted alternative livelihoods like beekeeping, poultry production, cashew nut production, agriculture (*Figure 2*), and fish farming (*Figure 3*), to diversify income, improve diets, and reduce the illegal extraction of natural resources from the park.

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Figure 2: Pineapple production supported by the PROMOVE Biodiversidade programme in the buffer zone of GNAP



Figure 3: Fish farming supported by the PROMOVE Biodiversidade programme in the buffer zone of GNAP

Challenges in Supporting Livelihood Initiatives:

- a) *Small-scale impact:* Only a small portion of the community (mainly NRM members) benefited from the program.
- b) *Budget constraints:* Limited funding hindered scaling up of economic activities.
- c) *Lack of strategic planning:* The implementation was not preceded and supported by assessment of technical and economic viability and there was no support to access to market.
- d) *Limited behavioural change:* Despite environmental education, widespread changes in community behaviour regarding natural resource use have not been achieved, primarily due to lack of viable alternative sources of livelihood.
- e) *Social Tensions:* Conflicts emerged between conservation agents and community members not benefitting from the program, with arrests due to illegal extraction of natural resources in the

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park and retaliations by destructing conservation efforts such as tree nurseries established by NRMCM for forest restoration.

2. **Community Engagement in Forest Restoration:** PROMOVE Biodiversidade supported communities in setting up tree nurseries (*Figure 4*) for the restoration of miombo woodlands degraded by shifting cultivation, with the aim of restoring the environmental functions of trees and increasing the availability of fruit and timber for local use.



Figure 4: Tree nursery for the restoration of degraded areas in the buffer zone of GNAP

Challenges and gaps in forest restoration: There is no monitoring of survival rates of planted native trees, no data on the extent of land successfully restored. These gaps make it difficult to assess the effectiveness of this activity.

3. **Promoting Community Participation in Park Management:** With support from the PROMOVE Biodiversidade programme, NRMCMs were created or revitalized in the buffer zone of GNAP to help raise community awareness on the link between environmental conservation and community wellbeing, including through the development of ecosystem-based livelihoods. The Park Management Council (**CONGEP**) was established, which is a decision-making platform that includes representatives from the buffer zone NRMCMs.

Challenges for effective community participation in decision making:

- a) Limited community capacity due to low literacy and limited awareness of environmental legislation.

- b) Inadequate communication and coordination between NRMCS that represent the community in the CONGEP, other NRMCS and the wider community. As a result, community voices are not effectively represented in decision-making processes.
4. **Support in the mitigation of human-wildlife conflicts:** An indicator of conservation success in the park is the increase in the number of wildlife. However, the communities living in the buffer zone suffer more frequent crop damage. With the aid of a platform for real time tracking of elephant and buffalo movements, the GNAP timely deploys law enforcement officers to scare away wild animals from community lands, when needed.

Challenges to effectively mitigate Human-Wildlife Conflicts:

- a) Park's capacity is limited compared to the scale of the problem.
 - b) Lack of fencing makes it impossible to control wildlife movement.
 - c) Need to enhance law enforcement capacity, train local communities and provide them with tools to scare away wild animals
5. **Disconnection between conservation efforts in the park and livelihood development effort in the buffer zone:** Weak institutional coordination impeded the community's understanding of the park's role in supporting livelihoods initiatives. These were managed by an external partner, who did not coordinate and align interventions with the Park's community development department and conservation plans. This contractual arrangement limited GNAP's visibility in livelihood activities and undermined synergies between conservation and livelihood development interventions.
6. **Impacts of Climate Change on Livelihoods and Conservation:** Frequent and severe drought and erratic rainfall patterns linked to Niño, negatively affected crops, fish and honey production. This weakened the effectiveness of livelihood interventions. Consequently, the pressure on Park's resources remains high. This suggests the need for mainstreaming climate change in conservation and development efforts, through the planning and implementation of site-specific adaptation measures.

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Summary of “DO’s” and “DON’Ts” to reach a balance between conservation and socioeconomic development in the buffer zones of protected areas:

Issue	DO’s	DON’Ts
Livelihood development	<ul style="list-style-type: none"> • Diversify the sources of subsistence and income • Ensure inclusivity, scalability and replicability, to support to a broader section of the community • Assess technical and economic viability before launching livelihood initiatives • Improve market access: Link producers with markets to ensure profitability and long-term sustainability • Align livelihood programs with conservation goals to build mutual benefits 	<ul style="list-style-type: none"> • Don’t limit reach to a small group as this can fuel exclusion, resentment, and conflict • Don’t support only the increase of productivity in livelihood activities • Don’t treat livelihoods as standalone: Failing to integrate them with conservation efforts weakens their impact
Impacts of climate change on livelihoods and conservation	<ul style="list-style-type: none"> • Plan and implement site-specific climate change adaptation measures • Integrate climate resilience in both conservation and livelihood development strategies • Monitor climate impacts continuously to adjust interventions as needed 	<ul style="list-style-type: none"> • Don’t overlook climate change in planning conservation and livelihood development programs
Mitigation of human wildlife conflicts	<ul style="list-style-type: none"> • Strengthen law enforcement capacity to mitigate human-wildlife conflicts • Train and equip community members and provide safe, non-lethal tools to deter animals from farmlands • Build strong communication and coordination between park authorities and communities to respond to incidents jointly • Document and map conflict hotspots 	<ul style="list-style-type: none"> • Don’t leave communities without support • Don’t rely solely on enforcement, without community involvement • Don’t overlook the scale of human-wildlife conflicts
Community participation in decision making	<ul style="list-style-type: none"> • Strengthen communication channels among NRM to improve coordination of community 	<ul style="list-style-type: none"> • Don’t assume participation is effective by default, by simply creating structures like NRMCs or

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	<p>participation in park's management decisions</p> <ul style="list-style-type: none">• Build capacity of NRMCM members by providing training in environmental legislation, leadership and communication skills	CONGEP, without meaningful engagement and support
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CONCLUSION

The case study demonstrates the complexity of **balancing biodiversity conservation** with the **livelihood needs** of local communities. To be effective in achieving a mutual beneficial outcome between conservation and socio-economic development, alternative livelihoods to the use of protected natural resources should be designed with a strategic vision of institutional integration, implemented on a large scale and be informed by technical and economic viability assessment. Challenges such as human-wildlife conflict, limited benefits from conservation to local communities and restrictions in the access to natural resources remain and contribute to limiting community-wide support to conservation. This calls for the need of **continued collaboration** between park authorities, communities, local governments and development partners for community capacity building, environmental sensitization and expansion of economic opportunities, to create sustainable solutions that benefit both biodiversity and local communities.