

Research Article

Challenges Faced by Conservationists in Implementing Conservation Strategies in Bakossi National Park, Southwest Region, Cameroon

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Abstract

Deforestation poses a critical threat to global ecosystems, biodiversity, and climate stability. This research examines the challenges faced in implementing conservation strategies within Bakossi National Park. The park, renowned for its rich biodiversity and endemic species, suffers from anthropogenic pressures that threaten its ecological integrity. Additionally, socio-economic factors, such as local community reliance on natural resources and insufficient outreach programmes, further complicate conservation efforts. The study employs a mixed-methods approach, incorporating qualitative interviews with stakeholders and quantitative surveys to assess perceptions and behaviors related to conservation. This research underscores the importance of adaptive strategies that consider the socio-cultural dynamics of the region, aiming to foster collaborative initiatives between park management and local populations to enhance conservation outcomes in Bakossi National Park. Results have shown that the main challenges faced in implementing conservation strategy in bakossi national park recorded a significant link on the harvesting of None Timber Forest Product (NTFP) $X^2=32.636$ $df=16$ $P=0.008$, awareness level of local community on climate change $X^2=11.641$ $df=16$ $P<0.05$, trend of NTFP resource availability over the past decade $X^2=15.990$ $df=16$ $P<0.05$, most significant external threat to forest management $X^2=30.284$ $df=16$ $P=0.017$, main method of ecological restoration $X^2=15.511$ $df=16$ $P<0.05$, and measurement of forest management success $X^2=17.688$ $df=16$ $P<0.05$ respectively. The main challenge in implementing conservation strategies for NTFP resource availability over the past decade is overharvesting driven by increased demand and insufficient regulation. Addressing this challenge requires a multifaceted approach, including promoting sustainable harvesting practices, enhancing community engagement and education, and integrating climate change considerations into conservation strategies. By fostering collaboration and understanding among stakeholders, it is possible to ensure the long-term sustainability of NTFP resources. Findings revealed significant gaps in awareness and enforcement of conservation laws, highlighting the need for an integrated management framework that engages local communities in sustainable practices.

Keywords

Conservation Strategies, National Park, Anthropogenic Pressure, Local Community

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1. Introduction

Conservation strategies are critical for protecting biodiversity, particularly in regions like Bakossi National Park in Cameroon, which is characterized by rich ecosystems and a variety of endemic species. However, the implementation of effective conservation measures often encounters numerous challenges [38]. This literature review addresses these obstacles, synthesizing existing research and identifying gaps in knowledge. Bakossi National Park, established to preserve its unique flora and fauna, is situated in a region of high biological diversity [44]. The park houses over 1,000 plant species, many of which are endemic, as well as numerous wildlife species, including primates and reptiles. [39]. The park's ecological significance extends beyond its boundaries, contributing to regional climate stability and water purification [36]. Research identifies significant anthropogenic pressures that jeopardize conservation efforts in Bakossi. Agricultural expansion is paramount, as local communities rely heavily on agriculture for their livelihoods. Slash-and-burn farming practices lead to habitat fragmentation and degradation, diminishing the park's biodiversity [18]. Additionally, illegal logging poses a severe threat, driven by both local economic pressures and the high demand for timber [34]. Hunting is another critical issue, often exacerbated by poverty and food insecurity. Local communities frequently engage in bushmeat hunting to supplement their diets, leading to declining wildlife populations [38]. These practices not only threaten species survival but also undermine conservation initiatives aimed at promoting biodiversity.

The socio-economic context of local communities plays a significant role in the effectiveness of conservation strategies. Many residents depend on the park for subsistence, and their participation in conservation efforts is essential for successful implementation [7]. However, a lack of awareness regarding the importance of biodiversity and conservation laws often leads to resistance against these initiatives [2]. Outreach programs aimed at educating communities about sustainable practices are presently inadequate. Effective conservation requires engaging communities in decision-making processes, thereby ensuring that their needs and perspectives are considered [11]. Without community buy-in, conservation strategies are likely to be met with skepticism and non-compliance. The governance structure overseeing Bakossi National Park presents additional challenges. Weak enforcement of conservation laws and a lack of coordination among stakeholders hinder effective management [37]. Corruption and inadequate funding further undermine the park's conservation efforts, limiting resources available for monitoring and enforcement [47]. Moreover, top-down approaches to governance often neglect local knowledge and practices, leading to implementation failures [33]. Collaborative management frameworks that integrate local perspectives are increasingly advocated but remain underexplored in the context of Bakossi National Park. Cli-

mate change poses a further challenge to conservation strategies in Bakossi [7]. The region is experiencing shifting rainfall patterns that affect ecosystem dynamics and species distribution. According to this unpredictability complicates conservation planning and can exacerbate existing threats, such as habitat loss. Effective adaptations, including climate-smart conservation practices, need to be developed to address these evolving challenges.

Forest management is increasingly challenged by external threats, including climate change, deforestation, and habitat fragmentation. Among these, climate change is often considered the most significant external threat, complicating conservation strategies aimed at preserving forest ecosystems. Climate change introduces significant unpredictability in weather patterns, affecting forest health and resilience. This variability complicates the development of effective conservation strategies, as forest managers must account for a range of potential climate scenarios [25]. More frequent storms, droughts, and wildfires, driven by climate change, pose immediate threats to forest ecosystems. These events can lead to significant forest degradation and loss, making it difficult to implement long-term conservation plans [51]. Restoration efforts may be undermined by these sudden and severe impacts. As climate zones shift, many tree species may migrate to higher altitudes or latitudes, disrupting existing ecosystems and altering species composition. Conservation strategies must adapt to these changes, which can be challenging when dealing with established management practices [24]. Climate change can facilitate the spread of invasive species that threaten native flora and fauna. These invasives can outcompete native species, complicating conservation efforts aimed at restoring and maintaining forest health [13]. Implementing effective conservation strategies requires adequate financial and human resources. Climate change may strain these resources further, as increased management efforts are needed to address the impacts of climate variability [30]. The main challenge in implementing conservation strategies in the face of climate change as the most significant external threat to forest management is the need for adaptability and resilience. Forest managers must develop flexible, evidence-based approaches that can respond to the dynamic nature of climate impacts. Collaboration among stakeholders, investment in research, and incorporation of traditional ecological knowledge are essential for enhancing the effectiveness of conservation strategies.

Healthy forests play a vital role in preventing soil erosion, which can lead to loss of arable land and decreased agricultural productivity. This is particularly important for communities relying on agriculture for their livelihoods [16]. Implementing practices such as reforestation, afforestation, and conservation tillage can protect soil integrity and enhance agricultural resilience, benefiting local farmers [29]. Effective forest management in protected areas aims to balance these goals,

creating a synergy that supports both environmental sustainability and community well-being [21]. By involving local communities in decision-making processes and management practices, conservation efforts can be more successful, ensuring that the benefits of proper forest management are shared equitably [4]. Ultimately, the integration of these goals fosters a sustainable approach that not only protects natural resources but also enhances the quality of life for local communities, contributing to both environmental health and economic prosperity [3].

Implement targeted education programs to increase community knowledge about climate change, its impacts on local ecosystems, and the role of protected areas in mitigation and adaptation. Involve local communities in the planning and decision-making processes for conservation projects, ensuring that their voices are heard and their concerns are addressed. Provide training and resources to help community members adopt sustainable practices and participate in conservation activities. Ensure that local communities receive tangible benefits from conservation efforts, such as jobs, income, or access to resources, to incentivize their participation and support. Improve communication channels to disseminate climate change information effectively, using culturally appropriate methods and technologies. By addressing these challenges and enhancing community awareness, conservation strategies can more effectively protect biodiversity, support local livelihoods, and build resilience to climate change in protected areas. Implementing conservation strategies in Bakossi National Park faces significant challenges from both human and environmental factors. Key obstacles include habitat degradation from agricultural expansion, illegal logging, hunting pressures, socio-economic constraints, governance issues, and the impacts of climate change. While existing literature underscores the importance of community engagement and integrated management approaches, further research is needed to explore effective strategies that can overcome these challenges. Strengthening institutional frameworks, fostering community participation, and developing adaptive management practices are critical to ensuring the park's long-term ecological integrity.

2. Materials and Method

2.1. Description of the Study Area

Bakossi National Park is situated in the Southwest Region of Cameroon, spanning an area of approximately 300 square

kilometers. It lies between the geographical coordinates of 5.760° N latitude and 9.634° E longitude [41] (Figure 1). The park is perched on the western flank of the Bakossi Mountains, which rise prominently from the surrounding lowland areas. The climate in Bakossi National Park is characterized as tropical, specifically a modified tropical rainforest climate, which experiences two distinct seasons: a wet season and a dry season. The wet season typically lasts from March to November, with peak rainfall occurring between June and September. Average annual rainfall can reach up to 3,000 mm, contributing to the park's lush vegetation and diverse ecosystems [50]. The dry season is from December to February, with significantly reduced rainfall. Despite the drier months, temperatures generally remain moderate. Average daily temperatures range between 18°C to 25°C, with cooler nights in higher elevations. The park is home to a rich diversity of vegetation types, predominantly comprising dense tropical rainforests, montane forests, and secondary growth areas. Found in the lower altitudes, this area supports a variety of tree species, including *Podocarpus*, *Celtis*, and numerous palms. The undergrowth is rich with ferns and shrubs, fostering high biodiversity. At higher elevations (above 1,200 meters), the montane forests display distinct flora, with species adapted to cooler temperatures and higher moisture levels. This zone is often characterized by giant tree ferns, bamboo, and various mosses, creating unique microhabitats [41]. Interspersed within the forested areas are patches of grassland and savanna, particularly in the southeastern sections of the park. These areas are important for specific wildlife species and serve as transition zones. Bakossi National Park boasts remarkable wildlife diversity, including several endemic and threatened species [50]. The park is a habitat for various primate species, including the endangered Cross River gorilla and the chimpanzee. Other mammals include duikers (small antelopes), bush pigs, and a variety of rodents and carnivores, such as the African golden cat. The avifauna is particularly rich, with over 300 species recorded, many of which are endemic to the region. Key species include the African green pigeon and the Yellow-throated greenbul, along with migratory birds during the dry season. Various species of snakes, lizards, and frogs inhabit the park, benefiting from the rich water sources and damp environments provided by its diverse habitats. The park's drainage system is primarily defined by numerous rivers and streams that originate in the Bakossi Mountains. Major rivers such as the Mundum and Ngokem Rivers provide essential water sources for wildlife and local communities. These rivers also support diverse aquatic ecosystems [41].

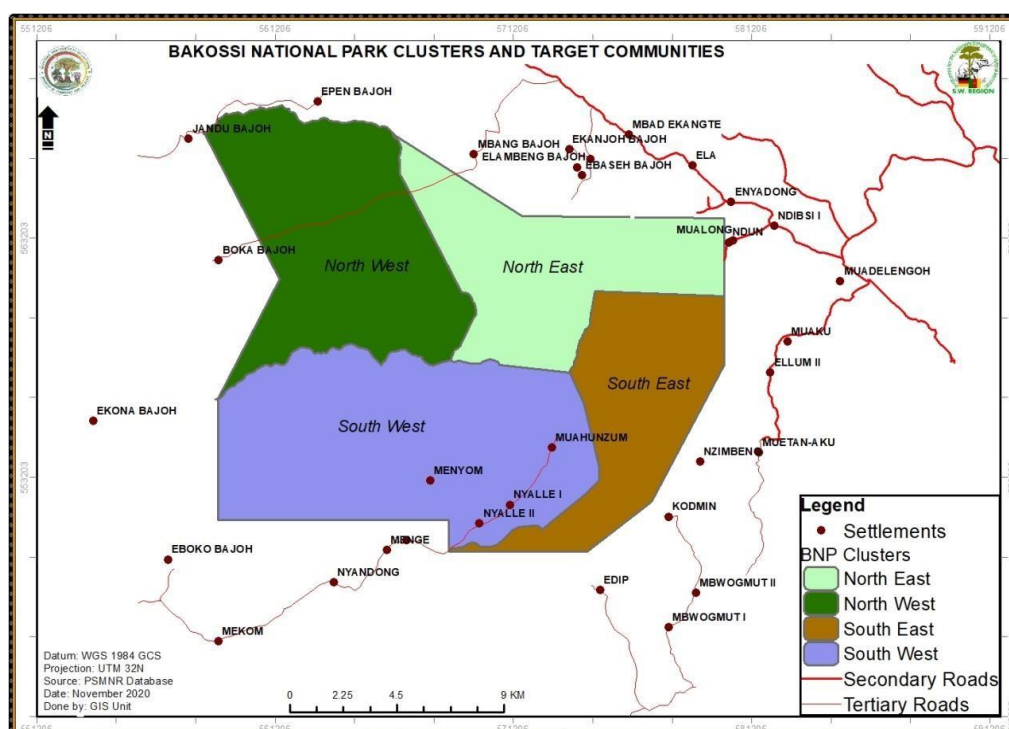


Figure 1. Map of Bakossi National Park Source: PSMNR [41].

2.2. Research Data Collection Method

To effectively investigate the challenges in implementing conservation strategies in Bakossi National Park, a comprehensive data collection method was employed, utilizing both qualitative and quantitative approaches. Key stakeholders, including park managers, local community leaders, conservation practitioners, and representatives from NGOs were the main targets. Questionnaire administration, and semi-structured interviews were conducted to explore personal experiences, perceptions, and insights regarding conservation challenges. Interviews were facilitated in the local language when necessary and recorded for accuracy [50]. The questions focused on understanding local attitudes towards conservation, awareness of regulations, and personal experiences with conservation initiatives. Groups of local community members, including farmers, hunters, and women's associations. Focus groups were organized to encourage discussion on community perceptions of conservation strategies, their involvement, and socio-economic challenges. This method provided a platform for participants to express collective opinions and share experiences. More so, direct observations were conducted within the park to assess environmental conditions, illegal activities (e.g., logging and poaching), and community interactions with the park. Notes were taken on observed behaviors and practices that affect conservation. Structured questionnaires were developed to quantitatively assess awareness, attitudes, and behaviors regarding conservation. The survey included closed-ended questions interspersed with Likert scale items

measuring perceptions of conservation strategies, effectiveness, and socio-economic challenges. A pilot test was conducted to ensure clarity and validity of the questionnaire before full deployment. Existing data from governmental and non-governmental organizations regarding biodiversity assessments, socio-economic reports, and conservation program evaluations. Observational data were systematically categorized, focusing on specific behaviors and practices that influence conservation outcomes. This included documenting instances of illegal activities, types of degradation observed, and identified community interactions with the park [50].

2.3. Data Analysis

Survey data were analyzed using descriptive statistics to summarize demographics, awareness levels, and attitudes towards conservation strategies. Key metrics included means, medians, frequencies, and percentage distributions. Chi-square tests and t-tests were employed to examine relationships between demographic variables and conservation attitudes or behaviors. These analyses helped ascertain statistically significant differences between groups, such as levels of awareness based on educational background or socio-economic status. Multiple regression analysis was conducted to identify predictors of engagement in conservation practices based on variables such as income level, educational attainment, and awareness of conservation policies. This analysis aimed to understand the factors most influential in promoting or hindering conservation efforts.

3. Results

Furthermore, the main challenge faced in implementing conservation strategy in bakossi national park recorded a significant link on the most harvested NTFP $X^2=32.636$ $df=16$ $P=0.008$ (Figure 2), awareness level of local community on climate change $X^2=11.641$ $df=16$ $P<0.05$ (Figure 3), trend of NTFP resource availability over the past decade $X^2=15.990$ $df=16$ $P<0.05$ (Figure 4), most significant external threat to forest management $X^2=30.284$ $df=16$ $P=0.017$ (Figure 5), main method of ecological restoration $X^2=15.511$ $df=16$ $P<0.05$ (Figure 6), and measurement of forest management success $X^2=17.688$ $df=16$ $P<0.05$ (Figure 7) respectively. The main challenges faced in implementing conservation strategies for Non-Timber Forest Products (NTFPs) in protected ar-

eas include inadequate funding, community resistance, inadequate training, poor infrastructure, and climate variability. These challenges can significantly hinder the effectiveness of conservation efforts, particularly for the most harvested NTFPs, impacting both biodiversity and local livelihoods. It's important to note that the most harvested NTFP varies depending on the protected area. However, commonly harvested NTFPs include medicinal plants, resins, fruits, and materials for weaving. Insufficient financial resources can lead to delayed or abandoned conservation projects, reduced research and monitoring, and limited protected area management [31]. This can result in ineffective enforcement against illegal activities like logging and poaching, ultimately undermining conservation goals. Conservation activities that are underfunded run a high risk of failure [20].

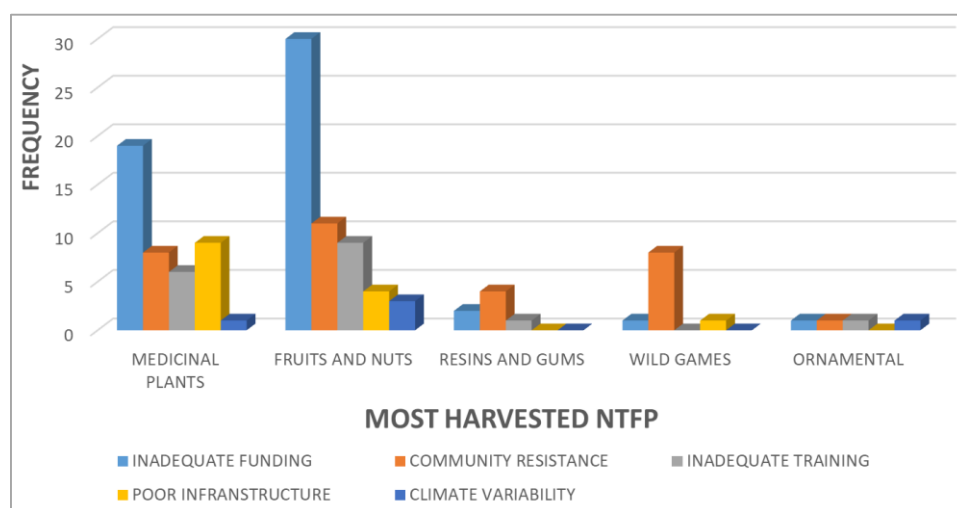


Figure 2. The main challenge faced in implementing conservation strategy and the most harvested NTFP.

Addressing the challenges of implementing conservation strategies in protected areas requires understanding the influence of community awareness regarding climate change. Inadequate funding, community resistance, inadequate training, poor infrastructure, and climate variability are major obstacles, but the degree to which local communities understand climate change significantly shapes their engagement with conservation efforts. Limited financial resources often result in underfunded educational programs, which are crucial for raising climate change awareness within local communities [20]. Without sufficient funding, conservation projects struggle to educate community members about the importance of protected areas in mitigating climate change impacts, leading to reduced support for conservation initiatives. Resistance from local communities often stems from a lack of understanding about the long-term benefits of conservation and the threats posed by climate change [19]. When community members are not aware of how climate change will affect their livelihoods and local ecosystems, they are less likely to support conservation

measures that may restrict their access to resources. Conservation strategies often require local communities to adopt new practices, such as sustainable harvesting or climate-smart agriculture. Without adequate training and awareness programs, community members may lack the knowledge and skills needed to implement these practices effectively, reducing the success of conservation efforts [8]. Poor infrastructure, such as limited access to information and communication technologies, can hinder the dissemination of climate change information to local communities [53]. This lack of access can result in lower levels of awareness and understanding, making it more difficult to engage communities in conservation activities. Even when communities experience the impacts of climate variability firsthand, such as increased droughts or floods, they may not fully understand the underlying causes or the long-term implications [15]. Raising awareness about the science of climate change and its local impacts can help communities make informed decisions about how to adapt and support conservation efforts.

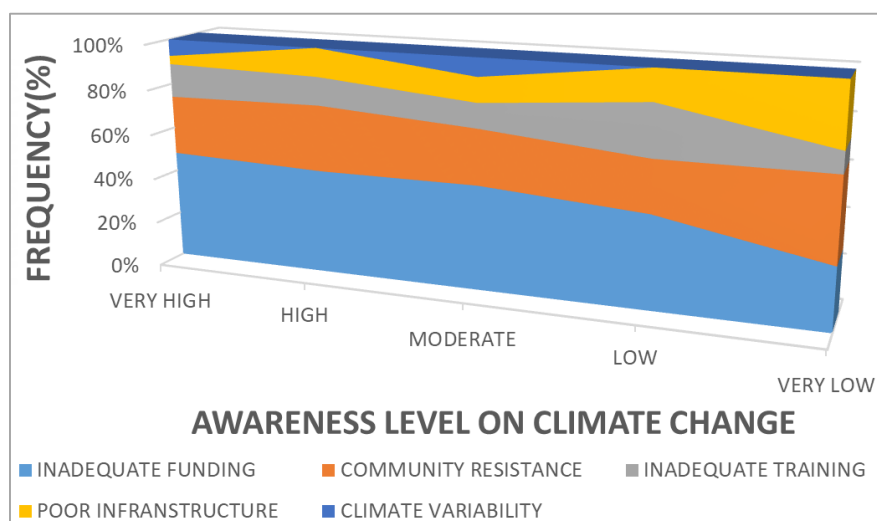


Figure 3. The main challenge faced in implementing conservation strategy and the awareness level of local community on climate change.

The trend of Non-Timber Forest Product (NTFP) resource availability over the past decade in protected area management is influenced by several interconnected challenges: inadequate funding, community resistance, inadequate training, poor infrastructure, and climate variability. These factors often lead to a decline in NTFP resources, impacting local livelihoods and biodiversity. Insufficient financial resources limit the ability to implement sustainable harvesting practices, monitor NTFP populations, and enforce regulations against overexploitation. This can lead to a decline in the availability of key NTFP species over time. The impact of inadequate funding on forestry businesses [40]. When local communities resist conservation strategies, often due to a lack of involvement or perceived loss of access to resources, unsustainable

harvesting practices may continue, further depleting NTFP resources. Lack of consultation with local communities leads to a lackadaisical attitude towards forest conservation [14]. Without proper training in sustainable harvesting techniques and NTFP management, local communities may unintentionally overexploit resources, leading to a decline in their availability. This is further exacerbated by a lack of awareness regarding the importance of NTFPs in maintaining ecosystem health. Poor road networks and transportation systems hinder access to markets, leading to a focus on readily available NTFPs, potentially causing overexploitation of those resources. Additionally, poor communication infrastructure limits the dissemination of information on sustainable harvesting practices and the importance of NTFP conservation.

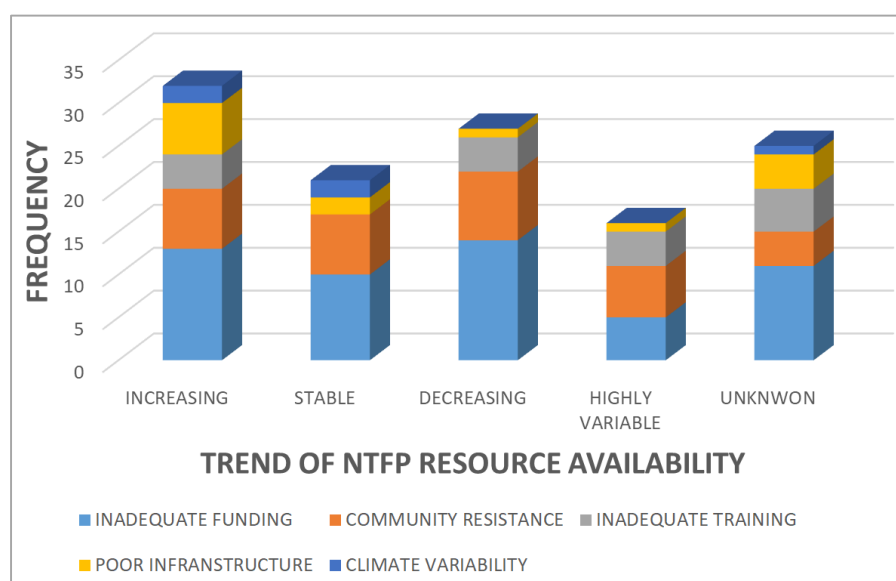


Figure 4. The main challenge faced in implementing conservation strategy and the trend of NTFP resource availability over the past decade.

The most significant external threat to forest management in protected areas arises from a complex interplay of factors, with human activities leading to habitat loss and degradation emerging as a primary concern. This overarching threat is exacerbated by specific challenges including inadequate funding, community resistance, inadequate training, poor infrastructure, and climate variability, each contributing uniquely to the deg-

radation of protected forest ecosystems. Expansion of agriculture and overgrazing are major drivers of forest loss, particularly in areas adjacent to protected areas. Livestock density inside national parks can be higher than outside, intensifying pressure on forest resources [23]. Deforestation for farming and infrastructure reduces the Earth's capacity to store carbon dioxide, aggravating ecological damage and endangering biodiversity [17].

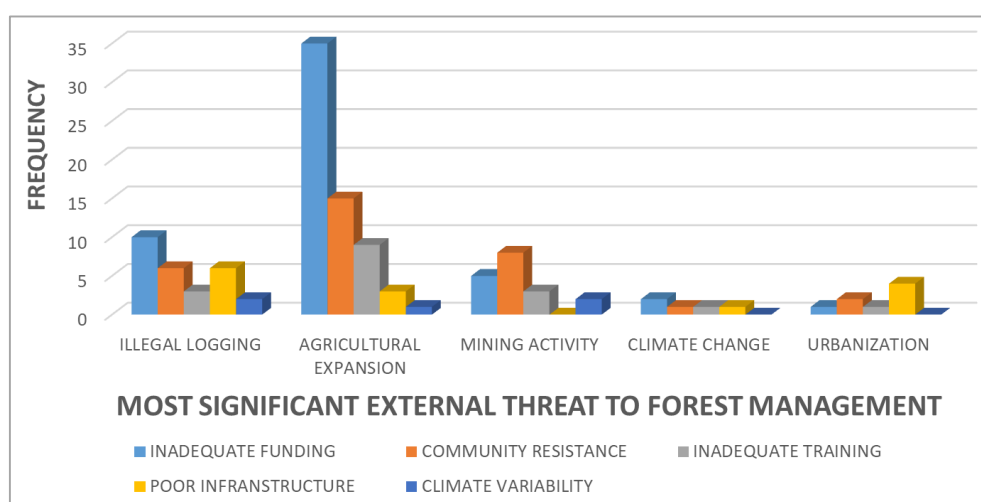


Figure 5. The main challenge faced in implementing conservation strategy and the most significant external threat to forest management.

The primary method of ecological restoration in protected areas involves a multifaceted approach aimed at assisting the recovery of degraded ecosystems, while also conserving intact ones. However, the implementation of these strategies faces significant challenges, including inadequate funding, community resistance, inadequate training, poor infrastructure, and climate variability. Ecological restoration aims to reinstate the ecological values of impaired ecosystems, often threatened by incompatible land uses, habitat fragmentation, invasive species,

pollution, and climate change [22]. Restoration can involve both active interventions, such as planting native species, and passive approaches, like removing pressures to allow natural recovery [45]. Ecological restoration is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its function, integrity, and sustainability [32]. Ecological restoration practice is based on an appropriate local native reference ecosystem, taking.

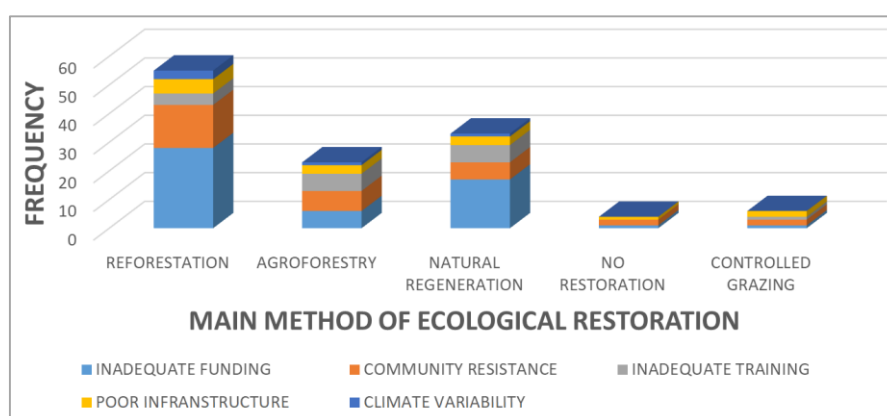


Figure 6. The main challenge faced in implementing conservation strategy and the main method of ecological restoration.

The success of forest management in protected areas, crucial for biodiversity conservation and climate change mitigation, faces multifaceted challenges. Measuring this success requires considering ecological integrity, community involvement, and long-term sustainability, but various factors can impede progress. Limited financial resources hinder effective monitoring, staffing, and maintenance, making it difficult to assess the true impact of management practices [35, 26]. Without adequate funding, protected areas struggle to implement and monitor conservation efforts, undermining their success. Lack of community involvement or perceived loss of access to resources can lead to resistance, complicating conservation efforts and making accurate assessment challenging [17]. Engaging communities

in planning and management is crucial for fostering support and achieving conservation goals. A lack of trained personnel can impede effective forest management and law enforcement, affecting the quality of conservation efforts and the ability to accurately measure outcomes [12]. Limited infrastructure, including roads, restricts access for management and monitoring, hindering the collection of reliable data for assessing forest health and management effectiveness [27]. Climate change exacerbates forest degradation through increased wildfires, pest outbreaks, and altered species distributions, making it difficult to achieve conservation goals and accurately measure management success [1].

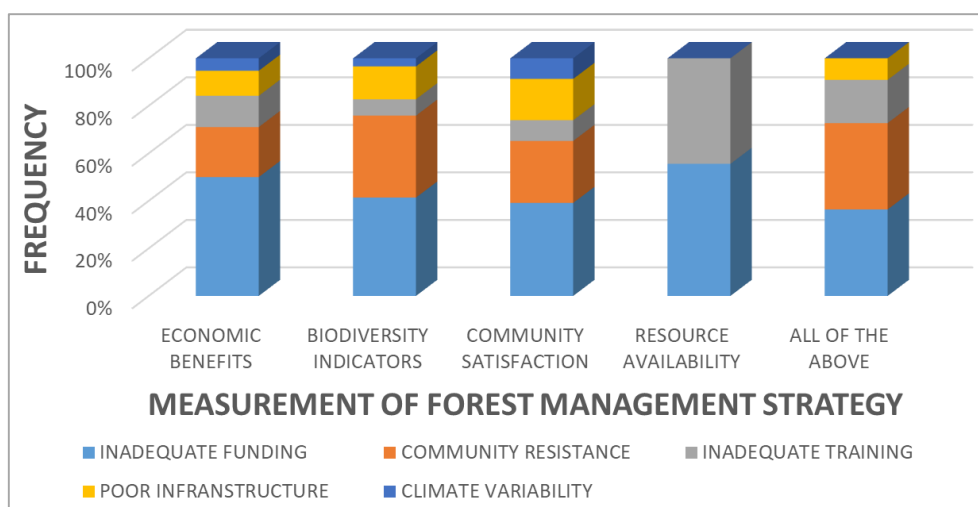


Figure 7. The main challenge faced in implementing conservation strategy and the measurement of forest management success.

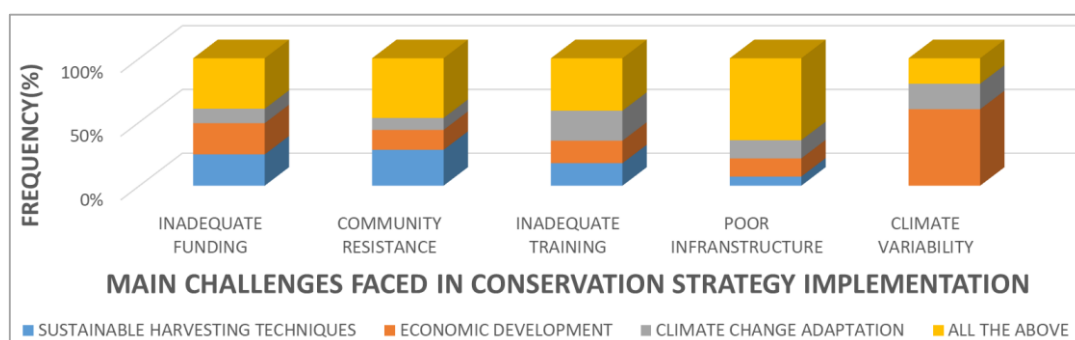


Figure 8. The main challenges faced in implementing conservation strategy and Forest management training.

Additionally, challenges faced in implementing conservation strategies in Bakossi national park recorded a significant relationship on forest management training programme $X^2=12.411$ $df=12$ $P<0.05$ (Figure 8). Sustainable timber production ensures a continuous supply of wood for construction, fuel, and other uses. This creates job opportunities in logging, processing, and distribution, contributing to the local economy [9]. Implementing selective logging and agroforestry can

enhance timber yields while maintaining forest health, ensuring that communities benefit economically without depleting resources [10]. Biodiversity is crucial for ecosystem services that support agriculture, fisheries, and clean water. Healthy ecosystems provide resilience against climate change and other environmental stresses [48]. Conservation strategies that protect various species and habitats promote ecological balance, which can enhance food security and improve local livelihoods through sustainable harvesting of non-timber forest

products [42]. Eco-tourism can provide substantial income for local communities through job creation in hospitality, guiding, and other related services. It also raises awareness about the value of conservation [28]. Developing eco-tourism initiatives that highlight the natural beauty and biodiversity of protected areas encourages responsible use of resources and fosters community involvement in conservation efforts (World Tourism [52]). Proper forest management can diversify income sources for local populations, reducing dependence on traditional practices that may be unsustainable. This can lead to improved living standards and economic stability [43]. Training programs and community engagement in sustainable practices, such as agroforestry and NTFP harvesting, can empower communities to enhance their livelihoods while conserving forest resources [46].

4. Discussion

Non-timber forest products (NTFPs) are crucial for local economies and ecosystems. However, implementing effective conservation strategies for the most harvested NTFPs presents significant challenges, particularly in balancing resource extraction with ecological sustainability [22]. The most significant challenge is overharvesting, where the rate of extraction exceeds the natural regeneration capacity of the species. This is especially prevalent in high-demand products like medicinal plants, wild fruits, and nuts [49]. Increased market demand can incentivize unsustainable harvesting practices. As communities seek to maximize profits, they may prioritize short-term gains over long-term sustainability, leading to depletion of key NTFP species [32]. Many regions lack effective regulations to manage NTFP harvesting sustainably. Without strong policies and enforcement mechanisms, illegal and unsustainable practices can proliferate, further threatening resource availability [5]. Engaging local communities in conservation efforts is crucial, yet often lacking. Effective conservation strategies require collaboration and commitment from locals, who may not see the immediate benefits of sustainable practices [6]. There is often insufficient ecological knowledge about the species being harvested, including their growth rates, reproductive cycles, and responses to harvesting [25]. This knowledge gap complicates the development of effective conservation strategies [49]. Climate change can alter the growth and reproductive patterns of NTFP species, making it more difficult to predict sustainable harvest levels. This adds complexity to conservation strategies, as ecological baselines may shift over time [44]. The main challenge in implementing conservation strategies for the most harvested NTFPs is overharvesting, driven by market pressures and insufficient regulatory frameworks. Addressing this challenge requires a multifaceted approach that includes sustainable harvesting practices, community engagement, and enhanced ecological knowledge. By fostering collaboration and understanding among stakeholders, it is possible to develop effective conservation strategies that ensure the long-term availability of vital NTFPs.

Implementing effective conservation strategies is crucial for addressing environmental degradation and biodiversity loss, particularly in the context of climate change. However, the success of these strategies often hinges on the awareness and engagement of local communities. Many local communities may have limited understanding of climate change, its causes, and its impacts on their environment and livelihoods. This lack of awareness can lead to apathy toward conservation efforts [30]. In some regions, traditional beliefs and practices may overshadow scientific understanding, making it challenging to communicate the importance of climate change and conservation [24]. Communities may prioritize immediate economic needs over long-term environmental concerns. If conservation strategies are perceived as obstacles to economic development (e.g., restrictions on land use), resistance can arise [32]. Misinformation and skepticism about climate science can further hinder engagement. Without a clear understanding of the benefits of conservation, communities may be reluctant to support or participate in initiatives [5]. Many local communities may lack the financial and educational resources to engage effectively in conservation efforts. This can limit their ability to implement sustainable practices or adapt to climate change [6]. Access to relevant information about climate change and conservation strategies can be restricted, particularly in remote areas. This can impede local involvement in decision-making processes [44]. The main challenge in implementing conservation strategies effectively is the lack of community engagement and awareness regarding climate change. Addressing this challenge requires targeted education and outreach efforts, fostering collaboration between scientists, policymakers, and local communities. By enhancing understanding and facilitating active participation, conservation initiatives can be more successful and sustainable [36].

Non-timber forest products (NTFPs) are essential for local economies and ecosystems, providing food, medicine, and income. However, the trend of NTFP resource availability has been affected by various challenges, particularly regarding conservation strategies. Over the past decade, the rising demand for NTFPs, driven by both local and global markets, has led to unsustainable harvesting practices. Many species are being harvested at rates that exceed their natural regeneration capacity, threatening their availability [49]. In many regions, insufficient regulation and enforcement mechanisms contribute to overharvesting. Without clear guidelines and monitoring, illegal and unsustainable practices can proliferate, further depleting NTFP resources [32]. Climate change affects the growth and reproductive cycles of NTFP species, complicating conservation efforts. Changes in temperature and precipitation can lead to reduced yields and altered availability of key products [44]. Climate-related stressors such as pests and diseases can impact NTFP species, making them more susceptible to overharvesting and further reducing their availability [25]. Many local communities may lack awareness of sustainable harvesting practices and the importance of conserving

NTFP resources. This gap can hinder the effective implementation of conservation strategies [5]. Communities often prioritize immediate economic needs over long-term sustainability, leading to practices that contribute to resource depletion. If conservation strategies are seen as constraints on income, resistance can arise [32]. The main challenge in implementing conservation strategies for NTFP resource availability over the past decade is overharvesting driven by increased demand and insufficient regulation. Addressing this challenge requires a multifaceted approach, including promoting sustainable harvesting practices, enhancing community engagement and education, and integrating climate change considerations into conservation strategies. By fostering collaboration and understanding among stakeholders, it is possible to ensure the long-term sustainability of NTFP resources.

5. Conclusion

The research into the challenges of implementing conservation strategies in Bakossi National Park underscores the complexity of balancing ecological preservation with the socio-economic realities faced by local communities. The park, rich in biodiversity and ecological significance, is threatened by habitat degradation, illegal activities, and climate change, all exacerbated by socio-economic pressures and inadequate governance structures. Effective conservation strategies require a multifaceted approach that includes strengthening local community engagement, enhancing awareness of conservation importance, and fostering collaborative management practices. By recognizing the crucial role that local communities play, conservation efforts can be more inclusive and sustainable, ultimately leading to better conservation outcomes. Furthermore, addressing governance issues, such as corruption and coordination among stakeholders, is imperative for the successful implementation of conservation strategies. Adaptation to climate change effects and innovative approaches to resource management should be prioritized to ensure the resilience of both ecosystems and local livelihoods. In conclusion, the path forward for Bakossi National Park requires integrated efforts that consider ecological, social, and economic dimensions. By addressing these challenges head-on, it is possible to develop effective conservation strategies that not only protect the park's biodiversity but also enhance the well-being of surrounding communities, ensuring a sustainable future for this vital area.

Conflicts of Interest

The authors declare that there are no conflicts of interest related to this manuscript. None of the authors received funding or support from any organization that could influence the research. Additionally, authors have no personal relationships that could potentially bias the research or its outcomes. Also,

authors have no competing interests or affiliations with organizations that might be perceived as influencing the manuscript. This statement is intended to ensure transparency and uphold the integrity of the research.

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