Challenges and Needs for Financing Biodiversity Conservation in Namibian National Parks

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Abstract

Purpose: The main objective of the paper is to discuss challenges and needs for financing biodiversity conservation of national parks in Namibia by exploring the challenges that hinder the financing of biodiversity conservation and propose innovative solutions to overcome them and establishing the funding needs for conservation projects and initiatives.

Methodology: The study was based on the philosophy of pragmatism, used a qualitative research approach, and employed a concurrent research design. The study purposively selected 10 directors to participate in the study, although only nine have participated. To collect data, the aspect used structured questionnaires, which were self-administered online using Google Forms, whereby the questionnaire comprised of open-ended questions. Subsequently, the study employed various analytical tools to analyse the data, reflexive thematic analysis with direct quotations in ATLAS.ti.

Findings: The study shows funding needs of biodiversity conservations. The study also concludes that the National Parks in Namibia are faced with numerous challenges, which hinder their ability to ensure financial stability. Additionally, evidence shows that National Parks need funding for ensuring effective and sustainable operations. Furthermore, data found that the National Parks in Namibia encounter challenges relating to financing of biodiversity conservations due to governance issues in terms of poor accountability, corruption, and misuse of resources. The findings signify that National Parks in Namibia depend highly on foreign aid and international donors for conservation funding, which makes funding vulnerable to changes in international priorities and economic conditions in donor countries. The issue of insufficient budget allocation to biodiversity by the government was highlighted. Furthermore, the findings demonstrate that the National Parks in Namibia suffer environmentally related challenges, such as those aligned with climate change, desertification, and water scarcity, which place significant strains on both the existing conservations and the acquisition of additional funding of biodiversity conservations. The outcomes signify that the economic challenges, such as high interest rate, inflation, and economic downturn make it difficult for the National Parks in Namibia to ensure biodiversity conservations' financing. These results imply that the National Parks in Namibia can address the issue of financing of biodiversity by adopting strategies, which are essential for tourism development, and it can be realised through the promotion of eco-tourism, research and innovation, as well as community-based tourism. The results demonstrate a call for government support in financing biodiversity conservations through budget allocation and legal policy framework.

Unique Contribution to Theory, Practice and Policy: This article will contribute to the body of knowledge in sustainable finance as it explored the theories and literature on finance, conservation, biodiversity and National Parks which makes it an important source of information, also for future studies in those fields. The research will support the Ministry of Environment, Forestry and Tourism (MEFT) in coordinating closely with other Ministries on formulating policies, regulations and laws that affect sustaining finance of biodiversity conservation. Lastly, this paper results, findings and discussion gives knowledge towards the improvement of the government and private sector's capacity by strengthening government institutions and financial institutions' ability to more effectively design, execute, and monitor biodiversity conservation sustainable financing model in realising the goals of the National Development Plans (NDPs) and Vision 2030.

Keywords: *Financing, Biodiversity Conservation, Sustainable, Challenges, Needs, National Parks*

JEL codes: *Q57, Q56, Q58, Q18, Q22*

INTRODUCTION

Namibia's national parks play a crucial role in preserving the country's unique biodiversity and providing numerous ecological, economic, and social benefits (Denker, 2021). National Parks safeguard critical habitats and ecosystems, thereby ensuring the survival of numerous plant and animal species, and the parks are home to endemic and endangered species, thus it is critical to provide legal protection against habitat destruction and poaching (Humavindu et al., (2017).

Harper-Simmonds et al. (2016) outline that problems faced by biodiversity include the fact that government budgets for conservation are often insufficient and susceptible to economic fluctuations. Some problems mentioned by Denker (2021) are that while international donors have historically provided significant support, reliance on these funds is not sustainable in the long term due to shifting priorities and economic conditions, and although tourism in national parks is a major revenue source, it tends to be highly variable and can be severely impacted by global crises such as pandemics or economic downturns. Additionally, MET (2017) states that environmental services provided by biodiversity often lack market prices, thereby leading to underfunding and mismanagement.

Ensuring continuous funding to cover direct management expenses and providing compensation for the opportunity costs of creating and maintaining protected areas is essential for developing countries if they are to conserve forest biodiversity in the long run (Metz, 2015). According to WWF (2022), the challenge for developing nations in terms of investment lies in balancing supply and demand. It is crucial to link the need for conservation funding with available investments that have a conservation impact, thereby maintaining equilibrium between investment opportunities in financial markets and schemes that produce measurable and verifiable financial and conservation outcomes (WWF, 2022).

Several approaches could be explored to develop a robust and sustainable model for financing biodiversity conservation, including, engaging the private sector, which can bring in investment, efficiency, and innovative management practices (Lapeyre et al., 2015). Humavindu et al. (2017) earlier stated that beneficiaries of ecosystem services pay for their conservation. For example, water utilities or tourism operators might pay for watershed protection or wildlife habitat preservation. Moreover, promoting high-value, low-impact tourism can generate substantial revenue while ensuring minimal environmental impact. This may include entrance fees, guided tours, and conservation levies. Stormer et al. (2019) add that companies impacting biodiversity could be required to compensate by financing conservation activities elsewhere, thereby supporting a net positive impact on biodiversity. Moreover, establishing trust funds can provide a permanent and stable source of financing for long-term conservation efforts by pooling resources from various contributors (Stormer et al., 2019).

Statement of the Problem

Sravan and Mishra (2024) detail that the sustainable financing of biodiversity conservation in national parks is a critical issue facing conservation efforts globally. Humavindu et al. (2018) also proffer that while national parks play a vital role in protecting biodiversity, they face major financial challenges in securing the necessary resources for effective conservation management. Furthermore, Flammer et al. (2023) add that the decline of biodiversity poses significant threats to various aspects of societal well-being, including the economy, international commerce, public health, and global stability (Flammer et al., 2023).

The lack of a comprehensive and sustainable financing model for biodiversity conservation in national parks hinders the ability to allocate adequate resources for conservation initiatives, implement necessary infrastructure improvements, and engage local communities in conservation efforts (Sravan & Mishra, 2024). Moreover, the traditional funding sources for biodiversity protection, which rely heavily on public and private sector donations, are dwindling (UNDP, 2016). Additionally, Grigg et al. (2023) state that the alarming concerns surrounding biodiversity losses have driven the implementation of various conservation efforts aimed at preventing further decline and preserving the natural world. As such, for the success of this study, the challenges and needs of financing biodiversity conservation need to be analysed to be able to contribute to developing a model that can sustain finance for biodiversity conservation in Namibia national parks.

Objectives of the Study

Underpinning this study were the following goals:

1. to explore the challenges that hinder the financing of biodiversity conservation in Namibia's national parks and propose innovative solutions to overcome them; and
2. to establish the funding needs for conservation projects and initiatives.

LITERATURE REVIEW

Theoretical Review

The growing interest in sustainable finance indicates its significant role in addressing climate change, biodiversity, and the preservation and protection of the natural environment (Silver, 2017). Legitimacy for sustainable finance as a field of academic study hinges on the development of philosophies that can accurately describe and forecast the decisions and actions of fiscal actors in relation to maintainable investment endeavours (Phiri, 2022). This study examined six distinct philosophies of sustainable finance, thereby offering insights into the behaviour and decision-making processes of fiscal representatives within this context. Furthermore, it introduces a notional model for ensuring the maintainable financing of national parks. The theories conducted include peer emulation, system disruption, positive signalling, priority, resource and life span (Ozili, 2022).

The Challenges That Hinder the Financing of Biodiversity Conservation and Innovative Solutions to Overcome Them

Biodiversity conservation is essential for preserving ecological balance, supporting human livelihoods, and ensuring the sustainability of natural resources. However, financing these efforts remains a significant challenge globally, and particularly in biodiversity-rich regions like Namibia. Several challenges impede the effective financing of biodiversity conservation, including limited public funding, reliance on donor funds, economic fluctuations, and inadequate financial management mechanisms. This literature review aims to analyse the primary challenges that hinder the financing of biodiversity conservation and propose innovative solutions to overcome them, based on empirical evidence and case studies. The obstacles hindering the financing of biodiversity conservation and the innovative solutions to address them have garnered considerable research interest. Consequently, several empirical studies in this domain are reviewed below (Shimpulu, 2019; Fois et al., 2018; Lacona et al., 2018; Magnusson et al., 2018; Godfree, 2017; Gustosson, 2020; Dayer et al., 2020).

Shimpulu (2019) conducted a study on government finance, specifically examining the factors affecting financial controls within the Ministry of Land Reform's headquarters in Windhoek. The research investigated reasons for non-compliance with the state finance act, identified strategies to enhance financial control, and explored methods for monitoring financial transactions within the ministry. Key findings highlighted issues such as understaffing in the internal audit function, lack of independence among internal auditors leading to increased audit risks, and a mismatch between the qualifications of financial department staff and their respective positions.

Lacona et al. (2018) focused on the standardised reporting of management intervention costs for biodiversity conservation. While much has been done to assess the potential benefits of conservation efforts, explicit cost quantifications have been sparse. This current study aimed to fill that gap by proposing a standardised method for reporting the costs associated with conservation interventions.

Dayer et al. (2020) addressed the often-overlooked issue of invasive animals in United States' national parks. Their findings offer a strategic plan for national parks to collaborate across boundaries and disciplines and to use decision-making tools that engage the American public in managing invasive animals. This collaborative approach aims to preserve the core values of national parks, aligning with Lacona et al. (2018)'s conclusions. Coordinated actions, including partnerships with neighboring agencies and external invasive species networks, are vital for effectively tackling this issue (Dayer et al., 2020).

Godfree (2017) studied the impact of non-native grasses on rangelands and low-intensity agricultural systems, which pose significant threats to landscape conservation initiatives in multifunctional rural landscapes both in Australia and worldwide. The research quantified the effects of eight non-native grasses in Australia on various landscape elements and classified the resulting socio-ecological transformations. The findings identified two broad categories of non-native grasses: one that reduces both conservation and agro-economic value of invaded landscapes, and another that enhances agro-economic value at the cost of conservation value.

In a similar vein, Fois et al. (2018) devised a repeatable technique to estimate and map the monetary value of fields using common correlative models. Land cover was identified as the primary influencing factor, although region-specific socio-economic variables also significantly impacted field sale bids. The study connected the estimated values to the richness of endemic plant species, their conservation status, and their altitudinal ranges. Findings revealed that areas with the highest endemic species richness generally had lower market values under current conditions. However, within these endemic-rich zones, coastal regions tended to have higher market values compared to other endemic-rich areas.

Similarly, Lacona et al. (2018) and Magnusson et al. (2018) assessed the impact of Brazil's political crisis on the science essential for biodiversity conservation. Their research indicates that the decline in this field is pushing Brazil toward an imminent collapse, which is especially concerning given Brazil's prominence as one of the largest global economies and a pivotal player in sustainability efforts. Balancing economic growth with the advancement of scientific and technological development remains a significant challenge for many developing countries, as noted by Magnusson et al. (2018). Gustosson (2020) examined the use of retention forestry practices in temperate European regions, specifically focusing on preserving habitat trees and dead wood. The research identified significant opportunities to implement these practices more widely in production forests, which make up the majority of Europe's forestland. The results

are comparable with those of Dayer et al. (2020) and Godfree (2017), emphasising how threats to natural resources exacerbate the challenges being faced.

In summary, the existing empirical literature (Shimpulu, 2019; Fois et al., 2018; Lacona et al., 2018; Magnusson et al., 2018; Godfree, 2017; Gustosson, 2020; Dayer et al., 2020) has explored similar phenomena using a variety of methodologies, including qualitative research (Shimpulu, 2019; Dayer et al., 2020) and quantitative approaches (Lacona et al., 2018; Godfree, 2017; Fois et al., 2018). Comparing data across these studies is challenging due to differing data collection methods. According to the taxonomy of Miles (2017) on research gaps, this reflects a methodological gap, which this study aims to address by employing a mixed-methods approach. Literature that specifically tackles the obstacles to financing biodiversity conservation and proposes innovative solutions within the Namibian context using mixed methods is scarce, if not non-existent. Consequently, this study hypothesises that:

H_1: By promoting collaboration and finding mutually beneficial solutions, it may be possible to overcome these challenges and secure funding for conservation efforts.

The Funding Needs for Biodiversity Conservation Projects and Initiatives

Conservation projects and initiatives play a crucial role in preserving biodiversity, protecting ecosystems, and ensuring sustainable development. However, securing adequate funding remains a significant challenge affecting the effectiveness and sustainability of these efforts. This literature review aims to explore empirical evidence on the funding needs for conservation projects and initiatives, considering various aspects including the scale of projects, types of conservation activities, geographic considerations, and sources of funding. Several studies, including those by Sravan et al. (2024), Heeren-Hauser et al. (2020), Thomsen et al. (2021), Jansen (2016), Illes et al. (2017), McNellie et al. (2020), Musakwa (2020), Zawilinska (2021), and Hermann and Bouwer (2023), have highlighted the funding requirements for conservation projects and initiatives.

A study by Sravan et al. (2020) about bridging the gap between finance and conservation biology for how derivatives can help in conservation highlights the project's reliance on international funds and its challenges in maintaining long-term financial stability once these funds were exhausted. This underscores the need for sustainable funding models that can transition from donor dependence to self-sufficiency. The study findings propose that financial derivatives can be directly used to support biodiversity conservation efforts, and potentially even indirectly contribute to conservation through the development of specialised derivatives such as energy and weather derivatives. However, the authors acknowledge that there are significant challenges to overcome, including the difficulty of pricing biodiversity elements and assessing loss.

Heeren-Hauser et al. (2020) investigated "The Namibian bio economy: Transformation to a sustainable society?" Their results indicate that despite efforts to promote a diverse bio-economy, persistent structural separations and trade-offs remain. The study concluded that the 'transformative potential' of the bio-economy is constrained when colonial images of nature that perpetuate the divide between the natural and the social are applied. The study found that in areas like the Bwabwata, where climate change impacts are profound, conservation projects need extensive funding for climate adaptation measures and sustainable land management. Thomsen et al. (2021) examined how communities in Namibia's Bwabwata National Park view trophy hunting and its role in community empowerment and their relationship with wildlife. Utilising semi-structured interviews with community members, the study sheds light on the

economic benefits and disparities associated with trophy hunting, cultural impacts from the lack of traditional hunting, connections to poaching, and governance challenges, including stakeholder distrust.

Additionally, Hermann and Bouwer (2023) explored the motivations of visitors to a botanical garden in South Africa. Their findings provide insights into how to market botanical gardens effectively to enhance their financial sustainability as visitor attractions, thereby ensuring their continued roles as centres for scientific research, conservation, and education. Similarly, Illes et al. (2017) conducted a study to identify innovative mechanisms for financing biodiversity conservation with the goal of enhancing cooperation between the European Union and Mexico by sharing experiences on the use of novel financing instruments for biodiversity conservation. Based on a thorough literature review, an examination of innovative biodiversity financing practices in Mexico by the Mexican team, and the outcomes of two stakeholder workshops, the study selected the most promising examples of innovative financing mechanisms in the EU for further study and analysis. These findings align with those of Hermann and Bouwer (2023) and other works by Illes et al. (2017) that emphasise stakeholder involvement.

Additionally, McNellie et al. (2020) explored the concept of historical reference states in conservation, identifying four recognised categories: pre-human, indigenous cultural, pre-intensification, and hybrid-historical. They built upon this framework by introducing contemporary reference states as a new perspective. Their findings offer a practical tool for policymakers and practitioners to conduct biodiversity assessments, ultimately informing conservation and restoration efforts in modern ecosystems. Furthermore, Musakwa (2020) investigated the relationships between the Gonarezhou Conservation Trust, stakeholders, local communities, and their influence on biodiversity and ecosystems within Gonarezhou National Park. The study also explored the challenges faced and lessons learned in managing the park as a protected area. The findings suggest that the collaborative efforts of the Gonarezhou Conservation Trust are yielding positive outcomes in terms of biodiversity conservation, ecosystem management, and community engagement.

Additionally, Zawilinska (2021) evaluated the socioeconomic development of communes with national parks to those without, and also analysed tourism development in these areas. The research showed that communes with national parks have a slightly higher overall level of development compared to other communes, and a significantly higher level of tourism development, indicating potential economic benefits from conservation efforts.

There appears to be a practical-knowledge gap in previous research, marked by a lack of rigorous studies. Certain unexplored projects and initiatives related to the financial sustainability of biodiversity conservation seem absent from the current literature. The field of biodiversity conservation projects and initiatives is ripe for investigation with a practical focus on funding. While many prior studies have concentrated on theoretical aspects of finance, there are few practical or action research studies addressing the funding needs for conservation projects. This gap is significant and warrants investigation in the context of biodiversity conservation finance. Conducting a comprehensive assessment of the specific requirements for each project could help determine the optimal funding levels needed for successful conservation efforts (hypothesis two, H0). Furthermore, preceding researches has predominantly focused on the socioeconomic aspects of conservation, with very little practical investigation into sustainable finance for biodiversity conservation in national parks (Miles, 2017). Government funding remains a significant source for conservation projects. However,

Meyer et al. (2021) highlighted that public funding is often limited and insufficient to meet all conservation needs, especially during economic downturns.

METHODOLOGY

Qualitative approach was used to explore the challenges that hinder the financing of biodiversity conservations, devise strategies for addressing challenges that hinder the financial stability of biodiversity conservation, and to establish the funding needs for conservation projects and initiatives. Moreover, the study also adopted this approach, as it aligns well with the pragmatism philosophy, which is employed in this research (Saunders et al., 2019). The study used a concurrent research design, which allows the study to integrate different types of data to gain a more comprehensive understanding of the research problem within one study. The study targeted all directors at national parks in Namibia. According to the MEFT (2023), directors that deal with the biodiversity conservation of national parks are the ones under DWNP and they are seven (7) in total. In addition to that, the study included the directors in finance within the MEFT, as they are the top finance administrators for conservation biodiversity, and they are only three (MEFT, 2023). Therefore, the total population for the study was ten (10) directors.

The study used a purposive sample approach to recruit participants. This sampling strategy allows for intentional selection of participants based on their specific traits and relevance to the phenomena being studied in order to get precise data (Palinkas et al., 2015). In light of that, this study selected all 10 directors on the basis that they have excess on the operations of the finance at the parks, and those in the MEFT manage the country's biodiversity conservation. Thus, they are deemed to have adequate information regarding the challenges that hinder the financing of biodiversity conservations. Nonetheless, the study only managed to achieve sample sizes of 9 participants.

The study used a structured online structured questionnaire in Google Forms to gather qualitative data from the directors. For this particular situation, the questionnaire consisted of open-ended questions. Regarding the qualitative part, the study employed the reflexive thematic analysis with direct quotations in ATLAS.ti software. This analytical approach was essential because it enabled the research to accurately interpret the results, without changing the participants initial meaning (Byrne, 2022; Campbell et al., 2021). This allowed the study to address the objectives related to the challenges that hinder the financing of biodiversity conservations, as well as strategies for addressing challenges that hinder financial stability of biodiversity conservation.

RESULTS AND DISCUSSION

As a concurrent research design, this section focuses on data analysis of the qualitative aspect. The section aims to address the research's reach objective that seeks to explore the challenges that hinder financing of biodiversity conservation and establish innovative strategies for addressing such challenges. Having noted that, the following section details demographic data of the participants who took part in the qualitative aspect of this study to address the said objectives.

Profiles of the Participants

The study used the 'Countif' function in Microsoft Excel Sheet to run the frequency on the profiles of the participants. As depicted in Table 1, the results reveal that six of the nine participants represented the male gender, while three represented the female gender. This

indicates that Direct positions at the National Parks in Namibia are mainly held by males than female. Also, the results show that all the participants, accept one, held a master's degree, which enhances their comprehension of the questions to give accurate data. Lastly, evidence also shows that all participants held Director positions, as purposively sampled to ensure the quality and accuracy of the data.

Table 1: Profile of the Participants

Participant	Gender	Qualification	Position
Participant_1	Male	Master's Degree	Deputy Director
Participant_2	Female	National Certificate	Deputy Director
Participant_3	Male	Master's Degree	Deputy Executive Director
Participant_4	Female	Master's Degree	Director
Participant_5	Female	Master's Degree	Director
Participant_6	Male	Master's Degree	Director
Participant_7	Male	Master's Degree	Executive Director
Participant_8	Male	Master's Degree	Deputy Director
Participant_9	Female	Master's Degree	Deputy Director

Source: Author's Compilation (2024)

Funding Needs of Biodiversity Conservation

This section sought to explore funding needs of biodiversity conservation with a special focus on National Parks of Namibia. In so doing, the study relied on the data sourced from nine directors encompassing executive directors, directors, and deputy directors. To analyse the data, the study employed a word cloud using the Pro Word Cloud in Microsoft Word 365. In that view, Figure 2 shows funding needs of biodiversity conservations, where the size of the text signifies frequency mention of the need. That is, needs presented in large fonts are cited more than those presented in small fonts. As such, the biggest text in the word cloud is strategies, which signifies the need for funding to ensure effective implementation of the proposed strategies such as protection strategies for anti-poaching and restoration strategies, including land restoration. These results are consistent with the findings of Hughes et al. (2022), which highlight the significance of funding in implementing strategic plans, specifically the Global Biodiversity Framework.

The second most cited need for biodiversity's conservation funding as displayed in the word cloud is the borehole. This implies that National Parks in Namibia need funding for the constructions of boreholes, due to the scarcity of water supply. Following that is repair and maintenance, which demonstrate the need for funding to enable national parks to repair aging equipment and maintain fences for antipoaching purposes. Finally, participants have also cited funding needs for combating climate change, park administration and functionality, including the buying of software, as well as the fuel for antipoaching patrols and for fencing of national parks. Overall, these results are in line with the findings of Oktaviani et al. (2018), which postulate the need for biodiversity conservations' funding to address similar issues in Indonesia.

Figure 2: Funding Needs of Biodiversity Conservations

Source: Author's Extraction from the Word Cloud (2024)

Challenges That Hinder the Financing of Biodiversity Conservations

As emerged from the previous section, evidence shows that National Parks need funding for ensuring effective and sustainable operations. However, it is challenges to avail the needed funds. Therefore, in addition to the exploration of funding needs for biodiversity conservations, the study sought further to explore the challenges that hinder financing of biodiversity conservations. To attain that, the study relied on the data from nine Directors of the National Parks across Namibia and analysed the data using the reflexive thematic analysis with direct quotations in ATLAS.ti software. As depicted in Figure 3, six themes emerged as detailed.

Theme 1: Governance Issues

The first theme (Governance Issues) emerged with three codes (poor accountability, corruption, resource misuse). Together, they imply that, the National Parks in Namibia encounter challenges relating to financing of biodiversity conservations due to governance issues in terms of poor accountability, corruption, and misuse of resources. These aspects can impede effective acquisition, allocation, and utilisation of funds. Supported by these results is the postulation of Baker (2022), which highlights the issue of governance as deterring aspect of biodiversity conservations' financing. Hence, Müller et al. (2021) suggest the adoption of effective governance in pursuit of finance for biodiversity conservations.

Theme 2: Heavy Funding Dependence

The second theme (Heavy Funding Dependence) also emerged with three codes (Cut in donor funding, US policy changes, Cut in EU aid). This theme and its codes signify that National Parks in Namibia depend highly on foreign aid and international donors for conservation funding, which makes funding vulnerable to changes in international priorities and economic conditions in donor countries. For instance, the donor restrictions put in place by the donor,

including how the funds should be used, which may not be adequately in line with the priorities of the parks' need for funding. That is, any unfavourable changes made by the donor can hinder funding of biodiversity conservation. These findings are in line with the quantitative findings of this study, which reveal that funding does not have significant impact on financial stability of biodiversity conservation. Similarly, the results are in an agreement with the notion of Chausson et al. (2023), which discourages heavy reliance on foreign aid and donations for biodiversity conservations funding because it is unsustainable, given that it is vulnerable to changes.

Theme 3: Insufficient Support

The third theme (Insufficient Support) constitutes two codes (Government and Private). This theme and its codes demonstrate that another challenge that hinder financing of biodiversity conservation is the lack of support from both the government and the private sector. The codes are exemplified with direct quotations.

The first quote highlights the issue of insufficient budget allocation to biodiversity by the government. This is in line with the discovery of Humavindu et al. (2018), which also unpacks the government allocates very low budget to biodiversity conservations. Moreover, the results are also consistent with the postulation of Wassenaar (2018), which details that resistance of the government to increase budget allocation for biodiversity conservations. This gives justification to why greater mainstreaming of biodiversity into government accounting, budgeting, and planning processes is essential for the acquisition of funds (Barnes et al., 2014). That is why in Vietnam, the government provides approximately 77% of biodiversity's expenditures.

The second direct quotation underscores how challenging is it to engage the private sector in conservation, as businesses' priorities are clustered around short-term profits over long-term goals aligned with conservation. It is because of evidence, such as the findings of this study that Humavindu et al. (2018) suggest the private sector to play a role by establishing criteria for green projects and funding sources for conservations.

Theme 4: Environmental Issues

The fourth theme (Environmental Issues) is associated with three codes (Climate change, Desertification, and Water scarcity). In brief, this demonstrates that the National Parks in Namibia suffer environmentally related challenges, such as those aligned with climate change, desertification, and water scarcity, which place significant strains on both the existing conservations and the acquisition of additional fundings of biodiversity conservations. These findings conform the results of Oktaviani et al. (2018), which reveal challenges related to environmental issues like climate change in Indonesia.

Theme 5: Economic Challenges

Theme five (Economic Challenges) emerged with three codes (High interest rate, Inflation, and Economic downturn). Together, they signify that the economic challenges, such as high interest rate, inflation, and economic downturn make it difficult for the National Parks in Namibia to ensure biodiversity conservations' financing. These results collaborate the findings of prior studies (Marti & Puertas, 2017; Martins et al., 2017; Song et al., 2023), which highlight the challenges related to unfavourable economic performance, inflation, and high interest rate on borrowing, as the hindering factors on financing conservations.

Theme 6: Other Challenges

The last theme (Other Challenges) comprises the rest of the challenges, which are denoted by three codes representing lack of awareness, high competition for resources (financing), and capacity building challenges. That is, there is limited understanding regarding the importance of biodiversity conservation, predominantly among the policymakers, leading to insufficient advocacy and support for financing biodiversity. These results are consistent with the findings of Jansen (2016), which reveal low level of tourism and conservation awareness among the community members and policymakers in Namibia. Furthermore, heavy competition for financing coming from other sectors like health, education, and infrastructure, makes is challenging for National Parks in Namibia to secure adequate finance for biodiversity conservation, as it receives lower priority than other sectors catering for immediate socio-economic needs. These findings collaborate the discovery of Li and Sayer (2023), which also highlight the challenges related to high competition of resources with other sectors. Lastly, limited technical and institutional capacity to design, implement, and manage conservation projects can hinder the effective use of available funds and the ability to attract new funding. These results validate postulation of prior research (Andrades & Dimanche, 2017; Hanafiah & Zulkifly, 2019; Streimikiene et al., 2021), which underscore the issues of related to capacity building.

In a nutshell, evidence from this study reveals that the National Parks in Namibia are faced with various challenges in financing biodiversity conservations, which put significant strain on their financial stability. Such challenges are summarised as governance issues, high dependence on international fundings, which is vulnerable to changes, inadequate support from both the government and private sector, economic related issues, and other challenges including lack of awareness, high competition for financial resources, and capacity building issues. In that frame of reference, the following section explores how these challenges can be addressed to ensure financial stability of biodiversity conservations.
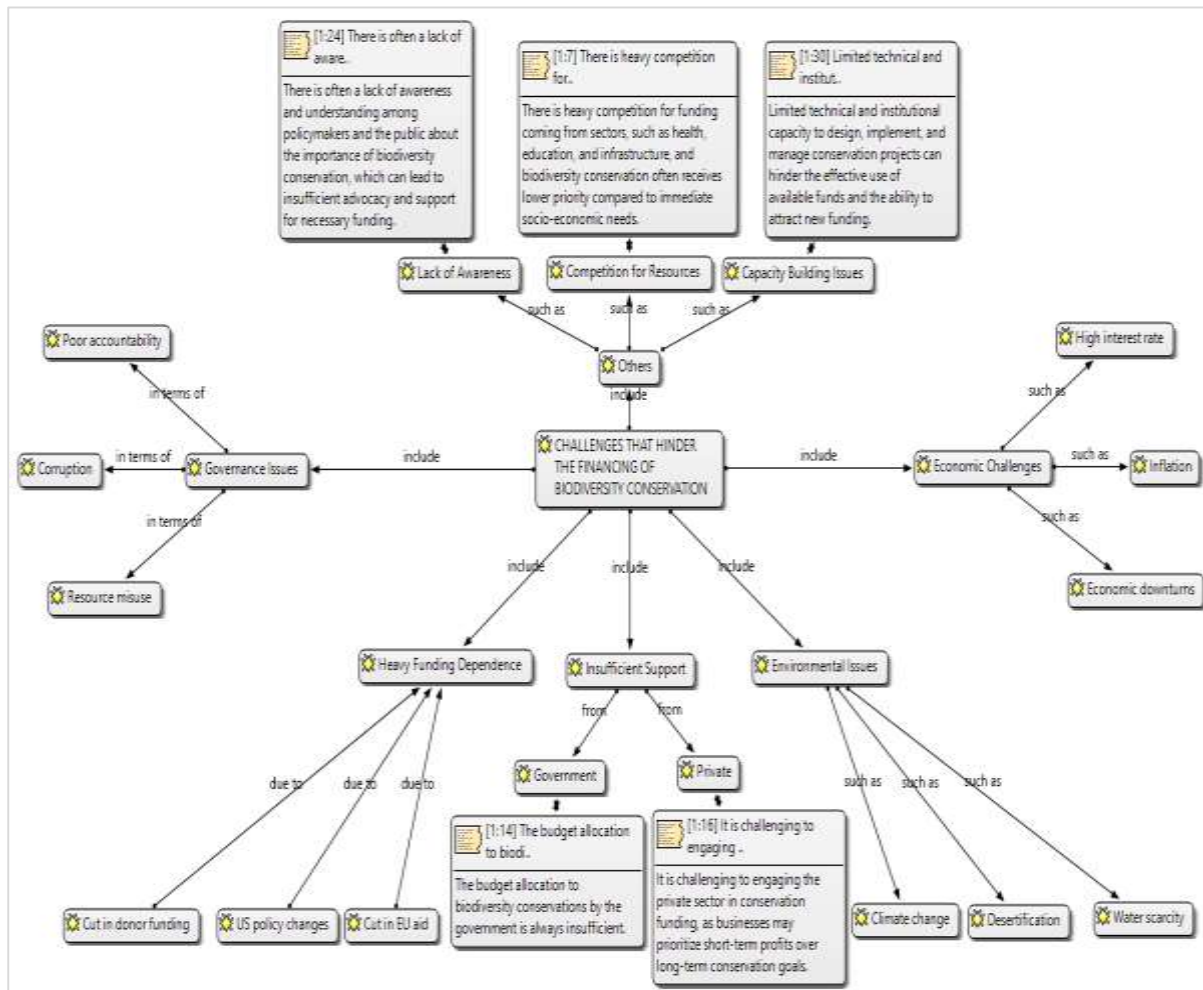
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Figure 3: Challenges That Hinder Financing of Biodiversity Conservations

Source: Author's Extraction from the Word Cloud (2024)

Strategies for Addressing Challenges That Hinder Financial Stability of Biodiversity Conservation

After a comprehensive exploration of the challenges that hinder financial stability of biodiversity conservation, the study sought to devise strategies, for addressing the said challenges. In so doing, the study employed the data from nine Directors of National Parks in Namibia and analysed the data using the reflexive thematic analysis in ATLAS.ti software. As depicted in Figure 4, five themes emerged from the analysis with codes detailed with direct quotations, representing strategies for addressing challenges that hinder financing of biodiversity conservations.

Theme 1: Tourism Development Strategy

The first theme represents Tourism Development Strategy, which is associated with three codes (Promotion of Eco-Tourism, Research and Innovation, and Community-based tourism), which are exemplified with direct quotations. These results imply that the National Parks in Namibia can address the issue of financing of biodiversity by adopting strategies, which are essential for tourism development, and it can be realised through the promotion of eco-tourism, research and innovation, as well as community-based tourism. In that light, eco-tourism is

detailed with a direct quotation, highlighting need to leverage unique biodiversity of the country to attract more eco-tourists and generate more revenues, which can be reinvested into conservation efforts. In that view, Oktaviani et al. (2018) also recommends eco-tourism as a solution for addressing inadequate financing of biodiversity conservation in Indonesia.

Similarly, research and innovation code is also detailed with a direct quotation placing an emphasis on the need for research funding to delve into new conservation techniques, sustainable management of resources, and the economic biodiversity's valuation. This strategic aspect is intertwined with the notion of (Chausson et al. (2023), which underscores the importance of innovations for enhancing biodiversity and ecosystem services to ensure effective financing. Lastly, community-based tourism code suggests the support of initiatives offer direct benefits to the community to boost their interest. This suggestion is in line with the postulations of early studies (Li & Sayer, 2023; Niesenbaum, 2019; Oktaviani et al., 2018), which advocate for a holistic community support in pursuit of effective financing of biodiversity conservations. This is essential as a supported community can drive net gain (Sravan & Mishra, 2024).

Theme 2: Government Support

Theme 2 (Government Support) is associated with two codes (National budget allocation and legal policy framework), which are exemplified with direct quotations. Together, they demonstrate a call for government support in financing biodiversity conservations through budget allocation and legal policy framework. In detail, a direct quotation from the participants highlights the need for prioritising biodiversity conservation through increased budget allocation. In Indonesia, Oktaviani et al. (2018) also calls for the government to increase its budget towards biodiversity and make it a priority to address the issue of inadequate financing of biodiversity conservation.

In addition, the direct quote on the second code places an emphasis on the need for devising and enforcing effective implementation of legal policy framework that attract private investment in conservation projects. This is a non-financial support that is in line with the suggestion of early studies (Bazargani & Kiliç, 2021; Streimikiene et al., 2021), which underscore the need for the government to stretch its support beyond financial to ensure a conducive environment for investment in biodiversity conservations.

Theme 3: Capacity Building and Education

Theme three (Capacity Building and Education) also emerged with two direct quotations (Training programs and Awareness campaigns), illustrated with direct quotations. This strategy implies the need for enhanced capacity building and education through training programs and awareness campaign. As such, a direct quotation on the first code calls the National Parks to provide training programs, which can foster local capacity, management, and sustainable development in biodiversity conservation. Regarding awareness campaign, a direct quotation on it suggests the need for the national parks to educate the local community about the importance of biodiversity conservation. Hughes et al. (2022) also highlights the vitalness of capacity building in address the issue of lack of biodiversity conservation financing. In that frame of reference, solidifying capacity building ensures that the decision of everyone is aligned with the agenda of conserving biodiversity (Li & Sayer., 2023).

Theme 4: Institutional Framework

Theme four (Institutional Framework) is associated with two codes (Improved governance and Monitoring and evaluation), which are solidified with direct quotations. This strategy indicates the need for improving institutional framework through improved governance, as well as monitoring and evaluation. The direct quotation on code one details that governance can be improved through governance structures, which will ensure transparency, accountability, and effective utilisation of funds. This strategic goal is consistent with the recommendations of early studies (Chausson et al., 2023; Sravan & Mishra, 2024), which call for strengthened governance to ensure accountable and transparent conservation. Regarding monitoring and evaluation, a direct quotation on this code underscores that its essentiality in tracking the effectiveness of initiatives for conservation and efficient use of funds. In that context, Kajzer-Bonk and Nowicki (2022) highlight the same need of effective monitoring and evaluation.

Theme 5: Diversified Funding Sources

Theme 5 (Diversified Funding Sources) encompasses three codes (Green bonds, Other foreign grants, and Conservation trust funds), which are exemplified with direct quotations. This theme and its codes demonstrate the need for the National Parks in Namibia to diversify their sources of funding to through green bonds, other foreign grants, and conservation trust funds to ensure financial stability. In that context, the direct quotation on green bonds highlights the vitalness of these bonds in attracting sustainable investments. Nonetheless, this requires a well-established banking system (Sravan & Mishra, 2024; Theis et al., 2022).

In a similar view, the direct quotation other foreign grants code persuades the National Parks to secure grants from other international funders with interest in conservation, such as the Global Environment Facility, the World Bank, and the United Nations Development Programme, inter alia. This strategic goal is in line with the notion of prior studies (Kajzer-Bonk & Nowicki, 2022; Oktaviani et al., 2018; Sravan & Mishra, 2024), which are emphasise the importance of grants on funding climate and biodiversity projects. In terms of conservation trust funds, the direct quotation associated with this code details the ability of this initiative in providing a stable long-term financing of biodiversity. Early studies (Chausson et al., 2023; Oktaviani et al., 2018; Sravan & Mishra, 2024) present a similar solution by detailing the significance of trust funds, which ensures accountability and transperency in addressing the issues of inadequate financing of biodiversity conservations.
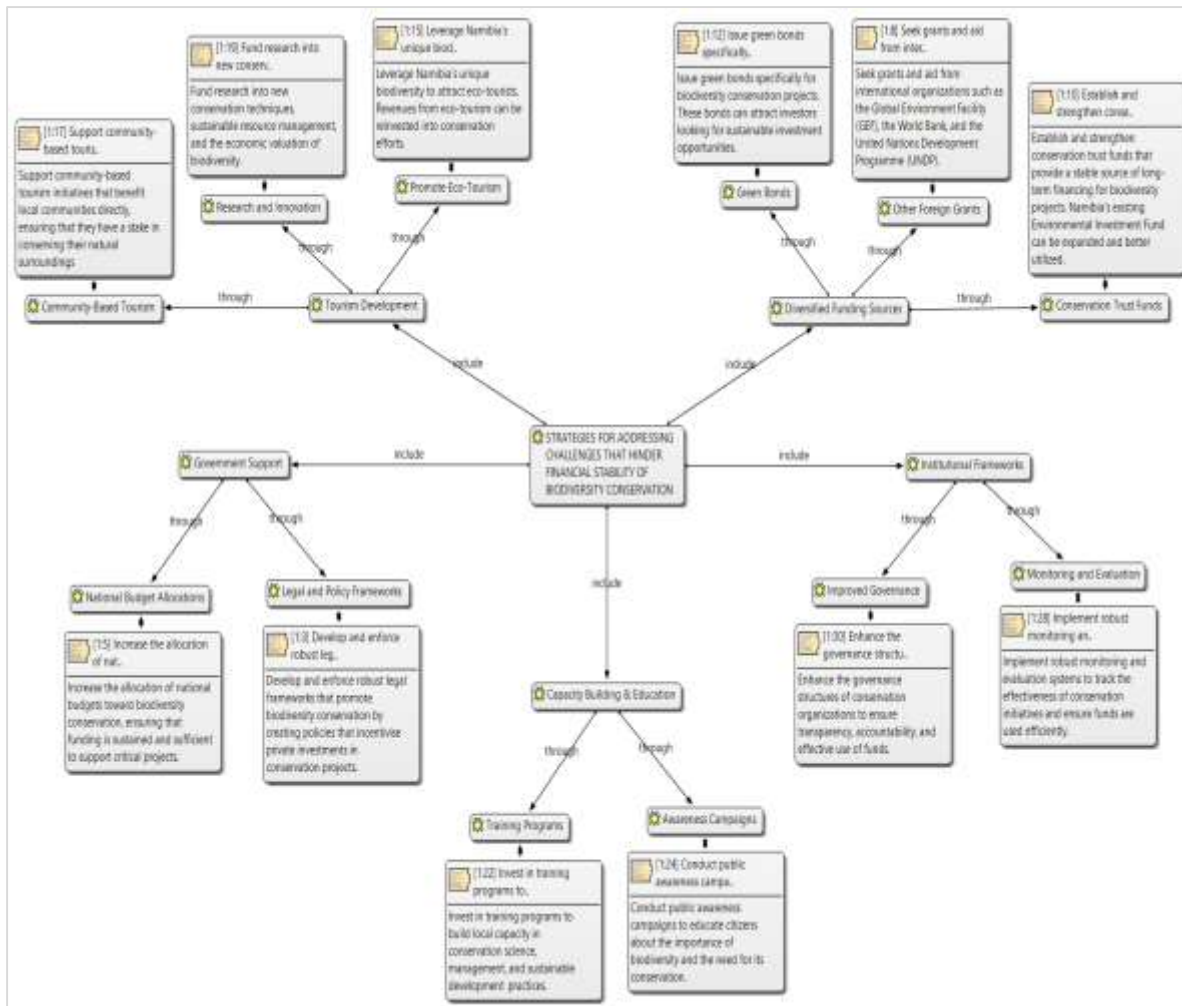
Figure 4: Strategies for Addressing Challenges That Hinder Financing of Biodiversity Conservations

Source: Author's Extraction from the Word Cloud (2024)

CONCLUSION AND RECOMMENDATIONS

Conclusion

Research Objective 1: Challenges That Hinder Financing of Biodiversity Conservation in Namibia

The research addressed this objective qualitatively using the data sourced from nine Directors of National Parks in Namibia. In that frame of reference, the research analysed the data using the reflexive thematic analysis in ATLAS.ti software. The results unpack various challenges, which include i) governance issues, such as poor accountability, corruption, and misuse of resource; ii) heavy funding dependence challenges due to a cut in donor funding, US policy changes, and a cut in EU aid; iii) insufficient support from both the government and the private sector; iv) environmental issues, such as climate change, desertification, and water scarcity; v) economic challenges, which include high interest rate, inflation, and economic downturn; and vi) other challenges, encompassing a lack of awareness, high competition for financing, and capacity building challenges. In that light, the research concludes that the National Parks in

Namibia are faced with numerous challenges, which hinder their ability to ensure financial stability. Therefore, the study explored the strategies for effective financial stability.

Research Objective 5: The Funding Needs for Conservation Projects and Initiatives

Finally, the research also addressed the last objective qualitatively using the data from same nine Directors of National Parks in Namibia and analysed the data using the reflexive thematic analysis in ATLAS.ti software. As emerged from the analysis, the study devised including i) tourism development strategy through the promotion of eco-tourism, research and innovation, and community-based tourism; ii) government support by increasing the national budget allocation and through legal policy framework; iii) capacity building and education through training programs and awareness campaigns; iv) strengthened institutional framework through improved governance and monitoring and evaluation; v) diversified funding sources through green bonds, other foreign grants, and conservation trust funds.

Contributions

This article will contribute to the body of knowledge in sustainable finance as it explored the theories and literature on finance, conservation, biodiversity and National Parks which makes it an important source of information, also for future studies in those fields. The research will support the Ministry of Environment, Forestry and Tourism (MEFT) in coordinating closely with other Ministries on formulating policies, regulations and laws that affect sustaining finance of biodiversity conservation. Lastly, this paper results, findings and discussion gives knowledge towards the improvement of the government and private sector's capacity by strengthening government institutions and financial institutions' ability to more effectively design, execute, and monitor biodiversity conservation sustainable financing in realising the goals of the NDPs and Vision 2030.

Recommendations

The study recommends that the research unpacked that the national parks in Namibia are faced with various challenges, which deter their ability to ensure financial stability. To address these challenges, the study devised strategies with the potential of serving to that effect. Therefore, the study recommends the managements of the National Parks to adopt the devised strategies.

An expansion on the variables is suggested for further research. Since the study found unidirectional sustainable finance on parks operational and development funding is recommended in order to determine the discrete impact that funding has on biodiversity conservation. Similarly, future research could also focus on the funding of public expenditure and tourism funding, as well as general government funding to further improve policy recommendations. Finally, further researches are suggested on improving the data once they become available.

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