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Developing A Model for Sustainable Financing for Biodiversity Conservation in Namibian National Parks

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ABSTRACT

Purpose: This study aimed to develop a model for sustainable financing of biodiversity conservation in Namibians National Parks.

Methodology: The study was based on the philosophy of pragmatism, used a mixed-methods research approach, and employed a concurrent research design. For the quantitative aspect, the study used the census sampling approach on 60 respondents. For the qualitative aspect, the study used purposive sampling on nine participants. To collect data, both aspects used structured questionnaires which were self-administered online using Google Forms, whereby the questionnaire for the quantitative aspects comprised closed-ended questions, while the one for the qualitative constituted open-ended questions. The study employed PLS-SEM in SmartPLS 4 software for the quantitative aspect and the reflexive thematic analysis with direct quotations in ATLAS.ti for the qualitative aspect. The quantitative aspect of the study ensured reliability in terms of internal consistency using Cronbach's alpha and composite reliability using omega-a (rho_a). The quantitative aspect of the study used convergent validity based on the factor loading of the indicators and the average variance extracted (AVE), as well as discriminant validity using the Fornell-Lacker and Heterotrait-monotrait (HTMT) ratios.

Findings: The findings indicate that effective financial management moderately and positively impacts the financial stability of biodiversity conservation in Namibia. Moreover, the study shows a strong positive and statistically significant correlation between sales revenue and financial stability in biodiversity conservation. However, numerous challenges hinder the financial stability of Namibia's national parks.

Unique contribution to theory, practice and policy: The study concludes that sales revenue should be a managerial focus in achieving financial stability. Drawing on these findings, a comprehensive model for sustainable financing was developed, which identifies key revenue streams and management practices crucial for long-term financial viability. The results of this study provide a noteworthy contribution to the current state of research, shedding new light on key issues and themes, and elucidating financial obstacles and opportunities pertinent to biodiversity conservation.

Keywords: developing a model, biodiversity conservation, sustainable financing, national parks, financial stability, financial management, funding challenges, sales revenue, funding needs, financing strategies

1. INTRODUCTION

Namibia is renowned for its rich biodiversity, which is characterised by a unique mix of ecosystems, species, and genetic resources (Denker (2021). The country's location and varied geography contribute to its impressive variety of flora and fauna (MET, 2017). 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). Forests and grasslands within national parks contribute to carbon sequestration, thereby helping to mitigate climate change (Denker, 2021).

Namibia's national parks are indispensable for the conservation of its unique biodiversity, thereby supporting ecological integrity, economic development, and cultural heritage (Denker, 2021. Sustainable financing models are essential to maintain and enhance the effectiveness of these protected areas, thus ensuring that they continue to provide critical benefits for present and future generations (Berghöfer et al., 2017). Sustainable biodiversity conservation in Namibia's national parks necessitates innovative and multi-faceted financial strategies to ensure the enduring protection of its unique natural heritage (MEFT, 2019). By developing and implementing a comprehensive model for sustainable financing, Namibia can better safeguard its biodiversity against ecological and economic challenges, thereby contributing to global conservation efforts and enhancing the socio-economic well-being of its people (Bor et al., 2018).

2. LITERATURE REVIEW

Sustainable financing, biodiversity, conservation and national parks have been attractive areas of research. As such, some of the empirical studies in this area are reviewed below in alignment with the research objectives of the study.

2.1. The impact of funding on the financial stability of the biodiversity conservation

Biodiversity conservation is crucial for the maintenance of ecological balance, socio-economic welfare, and sustainable development. Namibia, celebrated for its diverse wildlife and conservation initiatives, heavily relies on both domestic and international funding to sustain its conservation efforts. This literature review examines the empirical evidence on how funding impacts the financial stability of biodiversity conservation initiatives in Namibia. A growing body of research has been examining the impact of funding on the financial stability of biodiversity conservation efforts. A number of studies have examined the topic, including research conducted by Gajardo and Redón (2019), Fraser et al. (2016), Mustika et al. (2020), Hausmann (2016), Humavindu et al. (2018) and Ha (2018).

Specifically, a Namibian study by Humavindu et al. (2018) on sustainability financing identified the financial instruments that could bridge the biodiversity funding gap. The study found that while Namibia economically benefits from its biodiversity, current reinvestment into biodiversity does not match these benefits. As a result, ecosystems are continuously being degraded, thus impairing their ability to support the economic and social services and products they currently sustain.

Likewise, Hausmann (2016) examined the cultural benefits provided by non-market ecosystem services, thereby offering previously unknown insights useful for conservation decision-making. The study revealed that fostering a sense of place can yield positive outcomes for both human well-being and biodiversity conservation. This aligns with the conclusions of Humavindu et al. (2018), in which ecosystems are in a state of continuous degradation, compromising the services and products essential for

economic and social development. Hausmann (2016) employed a conceptual framework to investigate how existing knowledge on the sense of place from other fields can inform conservation decisions, although further research is necessary to bridge existing knowledge gaps.

Ha (2018) studied the Vietnam BIOFIN assembling incomes for biodiversity and sustainable growth, which offered an integrated analytical framework to help Vietnam evaluate its current financial flows for biodiversity conservation. This framework aids in creating effective action plans and mechanisms to gather additional and sufficient funds to meet national biodiversity targets both in the short and long term. Findings from the Biodiversity Expenditure Review indicate that the majority of biodiversity funding in Vietnam comes primarily from government budgets, followed by contributions from social resources and the private sector. Mustika et al. (2020) evaluated the economic significance of shark and ray tourism in Indonesia, as well as tourists' preferences and local community opinions. The researchers found that local shark fishermen are not well-equipped to directly benefit from this type of tourism, which could potentially have both positive and negative impacts on shark and ray conservation efforts.

Furthermore, Gajardo and Redón (2019) attempted to determine the importance of funding. The study aimed to highlight the significance of funding for conservation efforts. Conducted in Nigeria, the research focused on the Andean hypersaline lakes in northern Chile's Atacama Desert, titled "Between lithium exploitation and unique biodiversity conservation." The findings revealed that these hypersaline lakes, or brine waterbodies, are one-of-a-kind ecosystems that provide both economic and non-economic benefits, thereby making them valuable and deserving of conservation efforts. Similarly, these results were supported by the findings of Mustika et al. (2020), which outline that the main danger to shark populations is overfishing, and neglecting to effectively collaborate with and motivate key stakeholders in the industry will undermine the success of Indonesia's efforts to conserve sharks. Fraser et al. (2016) emphasise the need to integrate insights from three distinct approaches in natural science, quantitative social science, and qualitative social science/humanities to understand the link between cultural values and biodiversity conservation. They argue that to fully grasp this relationship, it is essential to employ interpretivist approaches such as phenomenology alongside other methodologies.

In summary, the existing empirical literature (Humavindu et al., 2018; Ha, 2018; Gajardo & Redón, 2019; Fraser et al., 2016; Mustika et al., 2020; Hausmann, 2016) on this topic has primarily focused on countries like Nigeria, Indonesia, Guinea, and Vietnam. There is a notable lack of rigorous research specifically addressing the influence of funding on the financial stability of biodiversity conservation within the context of Namibia. Consequently, generalising findings from other countries based on the erroneous notion of a 'one size fits all' approach can lead to false conclusions, given the differing geographic features, the sizes of national parks, development standards (developed vs. developing), and other country-specific factors. According to Miles's (2017) taxonomy of research gaps, this represents an empirical gap. The present study's intent was to address this gap by concentrating on the perspective of the Namibian phenomenon. In that view, this study hypothesises that:

H1: Funding has a positive impact on the financial stability for the biodiversity conservation of national parks in Namibia.

2.2. The effect of sales revenue on financial stability of the biodiversity conservation

Biodiversity conservation is a multifaceted endeavour involving ecological, economic, and social dimensions. A critical component of successful conservation is its financial sustainability. In Namibia, sales revenue generated from activities such as ecotourism, sustainable wildlife trade, and park entry fees plays a significant role in funding conservation efforts. This literature review synthesises empirical

evidence on how sales revenue impacts the financial stability of biodiversity conservation initiatives in Namibia. The impact of sales revenue on the financial stability of biodiversity conservation has been a significant focus of research. Several empirical studies in this field, including those by Emvula (2019), Gariseb and Mosimane (2016), Nguyen (2020), Al-Msallam (2020), Liestiandre (2019), An (2019), Hermann et al. (2016), and Ngondo et al. (2020), Meyer et al. (2017), Barnes et al. (2018) are summarised below:

Research by Meyer et al. (2017) highlights that Namibia's community-based conservancies have benefited significantly from the regulated trade of game species, which has translated into increased funding for local conservation activities. A study by Barnes et al. (2018) showed that ecotourism-related activities such as guided wildlife tours, lodge stays, and conservation safaris, provide critical financial resources. These revenues contribute to the funding of anti-poaching efforts, habitat restoration, and community development projects. Ngondo et al. (2020) pinpointed the essential elements for delivering unforgettable tourism experiences at the Namib Sand Sea World Heritage Site in Namibia. Their study reveals a direct relationship between memorable experiences and seven key heritage factors, which collectively contribute to increased revenue as they enhance the quality of the experience.

Additionally, Hermann et al. (2016) developed a general visitor profile and described the motivational factors for visiting Mapungubwe National Park (MNP) to support tourism development. The study primarily included first-time visitors and identified heritage and education as unique motivational factors. These results align with those of Ngondo et al. (2020), suggesting that increased visitor motivation leads to higher revenue. Satisfied visitors are more likely to revisit or promote the destination, thereby increasing revenue.

Nguyen (2020) examined the factors influencing the revisit intentions of Vietnamese tourists to Korea using a mixed-method approach that incorporated both qualitative and quantitative methodologies. The study's findings confirmed the factors identified by earlier research and provided valuable information for marketing executives to develop strategies not only to attract more visitors for repeat visits but also to encourage them to promote the destination to new visitors. Moreover, Al-Msallam (2020) explored the influence of tourists' emotional responses toward a destination on their satisfaction and loyalty to that destination, with perceived quality acting as a moderating variable. Using quantitative data collection methods, the study found that negative emotions have a detrimental impact. The findings highlight the crucial role emotions play in tourists' decision-making, as they affect satisfaction and subsequently influence future decisions, such as loyalty or disloyalty to a destination. These results align with the findings of Hermann et al. (2016) and Nguyen (2020).

Emvula (2019) highlighted the effectiveness of the newly implemented automated revenue collection system in the Etosha National Park in Namibia, demonstrating its success. This expressive study revealed a need for additional training on the system to improve user acceptance. Similarly, Gariseb and Mosimane (2016) analysed the socio-economic impact of tourism businesses on the community of Nau-Aib in Okahandja, Namibia. Their socio-economic impact assessment provided insights into the broad effects of tourism on the community's social and economic well-being. These findings are consistent with those of Emvula (2019), who also emphasised the importance of stakeholder engagement in the system.

In a related vein, Liestiandre (2019) investigated tourists' willingness to pay (WTP) for quality improvements in Komodo National Park, Indonesia, alongside their willingness to contribute (WTC) to conservation efforts. Using cross-tab data analysis techniques and Chi-Square tests, the study identified factors affecting both WTP and WTC. This research is comparable to the work of Gariseb and Mosimane

(2016), which also focused on the socio-economic impacts of tourism. The results indicated that marital status and occupation are key factors influencing tourists' willingness to pay (WTP), while age is significantly associated with their willingness to contribute (WTC). An 2019 study assessed the tourism appeal and performance of national parks in Vietnam, resulting in developing a new index to measure their attractiveness. The research revealed that Phong Nha-Ke Bang, Cuc Phuong, and Ba Be national parks stood out as the most appealing to tourists. Additionally, the analysis showed that many parks were considered non-dominated, with the trail criterion playing a key role in making most of these parks attractive to visitors.

The researcher identified a clear knowledge gap in previous studies related to sales revenue from sources other than tourists, such as ecosystem services, environmental levies, ecolabelling, and environmental lottery. Moreover, prior research has largely overlooked the impact of revenue on financial stability, focusing instead on factors affecting sales revenue. This presents several unexamined areas that have recently garnered research interest in other fields (Emvula, 2019; Gariseb & Mosimane, 2016). To understand the impact of revenue on financial stability better, further exploration is required, as this aspect has not been adequately addressed by studies such as those by Liestiandre (2019), An (2019), Hermann et al. (2016), and Ngondo et al. (2020) (Miles, 2017). Financial stability in biodiversity conservation refers to the consistent availability of funds required to support ongoing conservation activities. Sales revenue directly influences this stability through its consistency, scale, and linkage to specific conservation outcomes. Considering these points, this study hypothesises:

H2: Sales revenue positively influences financial stability for biodiversity conservation in national parks.

2.3. The influence of financial management on financial stability for biodiversity conservation

Financial management in the context of biodiversity conservation encompasses budgeting, financial planning, financial monitoring, reporting, and risk management. Proper financial management ensures the efficient and effective use of available funds, thereby enhancing the sustainability of conservation projects. This literature review aims to examine the empirical evidence on how financial management practices influence the financial stability of biodiversity conservation efforts in Namibia. There is an expanding body of literature examining the impact of financial management on financial stability, including works by Ephraim (2019), Kinyondo (2018), Harper-Simmonds et al. (2014), Murangi (2021), Clémençon (2021), McNellie et al. (2020), Miller-Rushing et al. (2021), Rushworth (2018), and Olesniewicz (2020).

Ephraim (2019) examined the factors influencing the financial sustainability of civil society organisations in Namibia. By utilising primary data gathered through structured questionnaires, the research aimed to identify the key determinants of financial viability for these organisations. The research discovered that the financial stability of Namibian non-profit organisations is heavily influenced by five key factors: having multiple income streams, generating sufficient income, effective financial management, maintaining strong relationships with donors, and possessing competent management skills. Moreover, Kinyondo (2018) explored the relationship between financial development and economic growth in Namibia. The study revealed that real interest rates and savings have a negative and statistically insignificant relationship with economic activity. These findings are similar to those of Ephraim (2019), as both discuss constraints related to financial management.

Additionally, Harper-Simmonds et al. (2014) took a different approach by developing a baseline for biodiversity expenditure in Namibia. This study estimated expenditure on biodiversity conservation, disaggregated by its source, and projected a baseline for 'business as usual' biodiversity expenditure over the period covered by NBSAP2. The results highlighted a significant need to more effectively integrate

biodiversity considerations into the Namibian government's accounting, budgeting, and planning processes, as well as within the private sector.

Similarly, Murangi (2021) carried out a study to evaluate the effects of monetary learning on the performance of small and medium businesses in Windhoek. Data for the study were gathered from a sample of 100 registered small and medium enterprises, divided into two groups: 50 that had participated in financial literacy training and 50 that had not. The study employed stratified and simple random sampling methods and utilised structured questionnaires. The findings revealed that attending financial literacy training significantly enhances the composite score index of financial knowledge. Additionally, obtaining tertiary education markedly boosts the financial knowledge index. Hence, the study confirms that both participation in financial literacy programs and higher educational attainment improve the financial knowledge levels of SMEs. Although the present study does not focus specifically on conservation, it provides insights into the financial management of state-owned enterprises. These findings are consistent with those reported by Ephraim (2019) and Kinyondo (2018).

In addition, Clémençon (2021) explored four distinct definitions of sustainable development and examined how these different conceptual frameworks are utilised by political actors to pursue specific agendas. The analysis indicates that the conventional economic cost-benefit approach, often used to assign value to ecosystem services for conservation purposes, fails to adequately address the interchanges between immediate economic gains and lasting societal interests. The study contends that the general public has a limited understanding of what sustainable development truly means, typically associating it primarily with environmental protection, nature, and biodiversity conservation. These findings align with those of Harper-Simmonds et al. (2014), as both sets of research highlight the literacy and comprehension levels of the individuals involved.

A study by McNellie et al. (2020) explored the concepts of reference states and benchmarks to improve biodiversity conservation in modern ecosystems. They developed a conceptual framework designed to guide philosophical discussions and practical applications of these reference states. This framework offers policymakers and practitioners a practical means to conduct biodiversity valuations, aiming to optimise conservation and restoration results in today's biodiversity.

Similarly, Rushworth (2018) examined standardised reporting on costs associated with management interventions for biodiversity. The study established that effective conservation efforts must address threats and produce benefits within the constraints of limited budgets. Rushworth (2018) recommends that researchers and practitioners provide comprehensive contextual information along with cost data to ensure that it is interpretable by readers and future users. These recommendations align with the principles highlighted by McNellie et al. (2020), as both emphasise the importance of robust reporting systems. Olesniewicz (2020) proposed a model for managing natural environments within national parks in Poland, particularly in the face of growing tourist activity. The study's findings suggest that successful park management requires a well-crafted conservation plan. Additionally, accurate financial reporting depends on monitoring environmental conditions, the volume and trends of tourist traffic, and the impact of tourism on the environment.

Lastly, Miller-Rushing et al. (2021) took a different approach by investigating the impacts of the COVID-19 epidemic on preservation investigation, administration, and community assignation in United States protected areas. This study offers valuable observations and educations that could advance similar efforts in protected areas globally. The pandemic and post-pandemic periods present a unique opportunity to explore how shifts in management practices, research activities, visitation levels, and tourist’s assignation

influence the wellbeing of protected areas and experiences of both visitors and employees of the park. The gathered data can inform the development of more targeted and effective strategies for conservation research, area management, and community outreach initiatives in protected zones.

The researcher highlighted a significant evidence gap in previous studies concerning the influence of financial management on financial stability. While earlier research has explored various aspects of accountability regarding fund mismanagement and budget adherence (Harper-Simmonds et al., 2014; McNellie et al., 2020; Miller-Rushing et al., 2021) as well as profitability and the ability to meet short-term and long-term obligations (Kinyondo, 2018; Murangi, 2021; Rushworth, 2018), inconsistencies in the findings were identified (Miles, 2017). Financial stability in biodiversity conservation refers to the continuous and reliable availability of financial resources necessary to carry out conservation activities effectively. Empirical evidence suggests that sound financial management positively influences this stability through several mechanisms. Based on this understanding, the current study posits the following hypothesis:

H3: Financial management positively influences financial stability in biodiversity conservation within national parks.

2.4. 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:

H4: By promoting collaboration and finding mutually beneficial solutions, it may be possible to overcome these challenges and secure funding for conservation efforts.

2.5. 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 et al. (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 et al. (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 five, 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.

2.6. Conceptual framework

The conceptual framework depicted in Figure 2.1 illustrates the various types of variables used in the analysis, including independent variables that influence the outcome, dependent variables that are being measured, control variables that are held constant to ensure accurate results, moderating variables that alter the relationship between other variables, and mediating variables that transmit the effect of one variable to another. Independent variables are key variables adapted from the research questions, and the dependent variables are the measurable outcomes of administering biodiversity conservation funds, while the control variables include different regulations that influence both the independent and dependent variables (Dlamini & Masuku, 2013). According to Crompton (2015), there is a positive relationship between administering funds and generating funds. Crompton further argues that for effective sustainable finance, the high the fund generated, the more hectic it takes to administer it and the better the sustainability of financing. A robust and efficient legal framework will influence how effectively the available financial resources can ensure financial stability (Bor et al., 2018). The legal framework (see Figure 1), here entails adequate policies, guidelines, and regulations that govern the functioning of the sustainable financing for biodiversity conservation.

Figure 1 illustrates that sustainable theories impact the strength of the relationship between the dependent and independent. Example, for funding to lead to sustainability Namibia may look at how countries of the same class (peer emulation theory) are doing it and decide basing on that. The mediators (sustainable finance theories) explained the connection between variables.The study found one strong moderator which affects almost all the decisions involved and that variable is the socioeconomic variable. The socioeconomic variable acts as a moderator, shaping both the direction and strength of the connection

between each independent variable and the dependent variable. For example, socioeconomics is working as a moderator of the relationship between funding and source of funding. For funding to decide on the source of funding, the economic social class of the country must first be determined.

Therefore, the framework recommends effective financial management as an instrument for administering funds through the control variables. Effective administration of funding resources can enable the national parks to uphold financial stability of biodiversity conservation, which leads to sustainable financing. In summary, the constructed framework is an effort to support biodiversity to attract more funding to stimulate economic growth of Namibia. This study adapted the conceptual framework in Figure 2.1, for identifying dimensions of *Developing a Model for Sustainable Financing for Biodiversity Conservation in Namibian National Parks*. This framework was enhanced and verified by the researcher, for it to meet the context of the sustainable financing for biodiversity conservation.

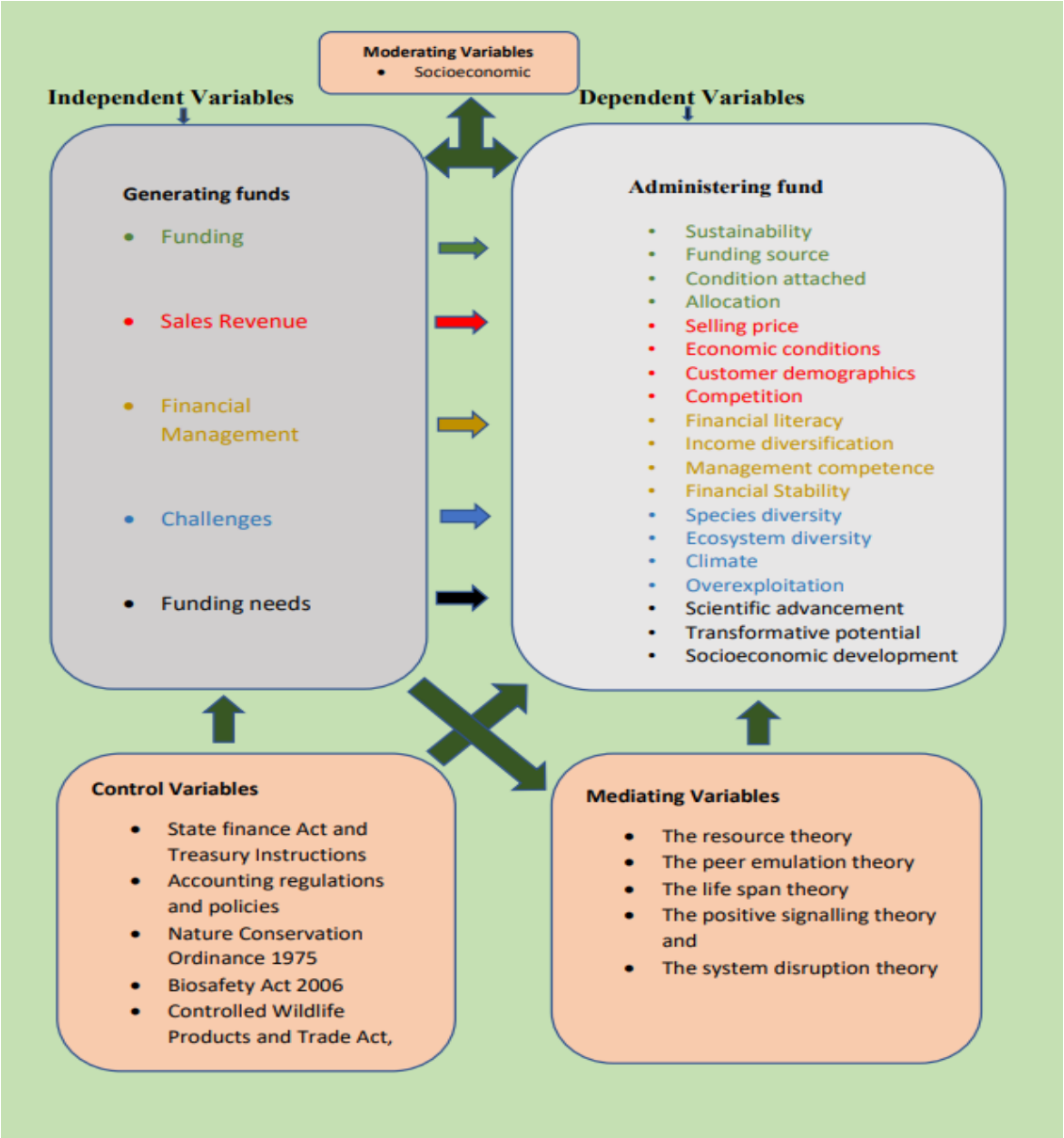

Figure 2.1: Conceptual framework of the study
Source: Own compilation (2023)

3. RESEARCH METHODOLOGY

This research was based on the pragmatism philosophy, which enabled the study to acquire diverse realities of the phenomenon that the study investigated. That is, realities in relation to the impact of funding on the financial stability of biodiversity conservation in Namibia, the effect of financial management on the financial stability of the biodiversity conservation in Namibia, the influence of sales revenue on financial stability of the biodiversity conservation, challenges that hinder the financing of biodiversity conservations, and strategies for addressing challenges that hinder financial stability of biodiversity conservation.

The exhaustive examination of the literature revealed that the inherent complexity of the subject under investigation cannot be adequately resolved using either the qualitative or quantitative approach alone. Therefore, this study used a mixed-methods research approach to examine the phenomena from both a quantitative and qualitative perspective. On one hand, the quantitative approach was used to assess the impact of funding on the financial stability of the biodiversity conservation in Namibian national parks, the effects of financial management on financial stability of the biodiversity conservation in Namibian national parks, and the influence of sales revenue on financial stability of the biodiversity conservation within Namibian national parks. On the other hand, a qualitative approach was used to explore the challenges that hinder the financing of biodiversity conservations, and devise strategies for addressing challenges that hinder the financial stability of biodiversity conservation. Moreover, the study also adopted this approach, as it aligns well with the pragmatism philosophy, which is employed in this study (Saunders et al., 2019). Lastly, a mixed method approach was used to address the limitations of one approach with the strengths of the other approach, thereby broadening the research's scope by examining various viewpoints and exploring the connections between variables (Kothari, 2020).

This research aimed to first examine the phenomena using quantitative methods and then supplementing the quantitative findings with qualitative data. Therefore, 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 (Creswell & Creswell, 2018; Saunders et al., 2019).

This study focused on the representatives of the national parks which are state-owned and whose management is mainly biodiversity conservation dominated. Although there are many stakeholders within the MEFT, for convenience purposes, only employees that are responsible for parks management were involved in the study. According to the Ministry of Environment, Forestry and Tourism database (MEFT, 2023), the total population that is responsible for parks management is sixty-three (63). Therefore, as a mixed-methods approach, the study's quantitative aspect targeted a population of all 63 employees responsible for national parks management in Namibia. The main categories of the staff in this study are classified as chief control wardens, chief wardens, accountants, park wardens and rangers.

Table 3.1 gives a full description of the population for the quantitative aspect of the study.

Table 3.1: Population description of the quantitative aspect of the study

Regions	Name of Parks	Thematic feature	Managers
Central	Waterberg Platea Park	Landscape (mountain)	8
	Namib Naukluft Park	Desert	9
Northern	Etosha National Park	games	11
Southern	Ai-Ais national Park	Desert	3
	Tsau/ Khaeb National Park	Desert	3

Western	Dorob National Park	Landscape (dunes)	4
	Skeleton Coast Park	Desert	4
North-East	Khaudum National Park	games	3
	Mangetti National Park	games	3
	Bwabwata National Park	River (Kavango)	9
	Mudumu National Park	River (Kwando)	3
	Nkasa Rupara National Park	River (Kwando)	3
Total			**63**

Source: Author's own construction (2023)

For the qualitative aspect, 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 qualitative aspect of the study was ten (10) directors. Therefore, this research made the sample size equal to the population size, resulting in a sample of 63 employees who manage the National Parks.

For the qualitative aspect, 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 60 and 9 for the qualitative and quantitative studies.

For the quantitative aspect, the study used an online structured questionnaire produced using Google Forms. In reference to the qualitative aspect, 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 and included three sections. Section A covered demographic data of the participants, such as gender, qualification, department and position. Section B focused on the funding needs of projects for biodiversity conservation. Section C focused on challenges that hinder the financing of biodiversity conservations, using open-ended questions, which enabled the participants to provide short answers and strategies for addressing challenges that hinder financial stability of biodiversity conservation, also using open-ended questions.

4. RESULTS AND DISCUSSIONS

4.1. Introduction

As a mixed method study, the chapter starts with quantitative data analysis then later interprets the qualitative data analysis.

4.2.1. Response rate

The sample targeted for the quantitative aspect was 63 employees of the National Parks in Namibia. However, the study received only 60 responses, accounting for 95% of the sample size. According to

Lambrecht (2022), a response rate that is 50% of the targeted sample is suitable, 60% is reliable, while 70% is excellent. Since the response rate of this study is 95%, the study considers it adequate for the analysis. To guarantee that the data was suitable for analysis, the study conducted a series of preliminary checks as outlined below, aiming to ensure that the data aligned with the proposed analytical framework.

4.2.2. Data scrutinising

In order to verify its suitability for analysis by identifying and addressing any missing values and non-response biases, the study scrutinised the data. To detect the missing data, the study applied the 'Count Blank' function in Microsoft Excel Sheet, where a non-zero value implies that there are missing data in the data. However, the screening reveals no missing data in dataset, because the study used an online instrument whereby all questions requirement was compulsory to prevent the respondents from continuing to the next questions before completing the prior ones. In terms of detecting unengaged responses, Standard Deviation of Sample (STDEV.S) was used in the study to function in Microsoft excel sheet, where a value of zero is an indication of an unengaged response, which should be removed from the dataset (Kline, 2011). Based on the results, the study found four unengaged responses which were removed from the dataset as recommended by Kline (2011). This did not affect the adequacy as it is still within the range of 0.01%. The next section focuses on the description of the respondents.

4.2. Quantitative data analysis

4.2.3. Description of the respondents

The study employed the 'Countif' function in Microsoft Excel Sheet to determine the occurrences of categorical data. In light of that, the results presented in Table 4.1 show that the data were collected from four national parks in Namibia. The Namib-Naukluft National Park received the highest representation rate of 30%, followed by Bwabwata National Park (25%), Etosha National Park (23.33%), and Waterberg Plateau Park (21.67%). Overall, the results demonstrate a fair representation of the parks, which implies the accuracy of the data, and the data did not exhibit a significant bias or skew towards any particular value park. This also enables the generalisations of the findings across the National Parks. Regarding gender, the results show that the majority of the respondents represented the male gender (66.67%), while the rest represented the female gender (33.33%). This is because the national parks have more male employees than females.

In terms of qualifications, the respondents had at least a national certificate, with those holding a bachelor's degree having the highest representation rate of 28.33% and master's degree holders having the lowest representation rate of 1.67%. These results demonstrate that the data were collected from people with an adequate educational background, which enabled them to comprehend the questions and provide accurate data.

In reference to the positions held, the results indicate that the study covered employees at different positions, which include ranger (48.33%), warden (23.33%), accountant (15%), control warden (6.67%), and chief warden (6.67%). The wider representation of employees at different levels signifies the accuracy of the data and enables generalisations of the findings across the national parks.

Finally, evidence of experience shows that the study collected the data from employees with experience ranging from less than 5 years to those with over 20 years of work experience. In that light, 71.28% of the respondents had at least 5 years work experience to over 20 years. These findings indicate that data were collected from employees with adequate experience, which enhances data accuracy.

Table 4.1: Description of the respondents		
	Frequency (N=60)	**Percentage (100%)**
Park Represented		
Waterberg Plateau Park	13	21.67
Namib-Naukluft National Park	18	30.00
Etosha National Park	14	23.33
Bwabwata National Park	15	25.00
Gender		
Male	40	66.67
Female	20	33.33
Qualifications		
National Certificate	16	26.67
Diploma	12	20.00
Bachelor's Degree	17	28.33
Honour's Degree	14	23.33
Master's Degree	1	1.67
Position		
Warden	14	23.33
Ranger	29	48.33
Accountant	9	15.00
Control Warden	4	6.67
Chief Warden	4	6.67
Experience		
Less than 5 years	17	28.33
5 to 10 years	19	31.67
11 to15 years	13	21.67
16 to20 years	4	6.67
More than 20 years	7	11.67

Source: Author's compilation (2024)

4.2.4. Descriptive analysis

The study utilised SmartPLS 4 software to conduct descriptive statistical analysis, which helped to uncover the key attributes of the ordinal data. Table 4.2 presents the findings of the research, revealing that all the variables yielded mean values clustered around 3, which implies that the respondents were mostly neutral in their responses to the measurement items of all the constructs. Furthermore, the standard deviation is also sufficiently low, indicating a reduced amount of variability in the dataset (Hair et al., 2011). Nevertheless, this analysis does not assess causation (Hair et al., 2011; Kline, 2018), which informs the study to perform inferential statistics.

Table 4.2: Descriptive data		
	Mean	**Standard Deviation**
Funding1	3.417	0.586

Funding2	3.517	0.532
Funding3	3.700	0.493
Funding4	3.533	0.562
Funding5	3.750	0.566
Sales Revenue1	2.817	0.604
Sales Revenue2	3.650	0.601
Sales Revenue3	3.667	0.675
Sales Revenue4	3.650	0.511
Sales Revenue5	3.817	0.641
Sales Revenue6	3.367	0.552
Sales Revenue7	3.133	0.585
Financial Management1	3.750	0.744
Financial Management2	3.850	0.628
Financial Management3	3.717	0.661
Financial Stability1	2.233	0.663
Financial Stability2	3.050	0.684
Financial Stability3	2.967	0.574

Source: The author's conclusions drawn from the data (2024)

4.2.5. Normality test

The study utilised skewness and kurtosis tests in SmartPLS 4 software to evaluate whether the data conformed to a normal distribution. Normality test is important for identifying and addressing any undesirable outliers, which must be dealt with to prevent multicollinearity (Field, 2018). Within this particular framework, according to the guidelines set forth by Field (2018) and Kline (2011), the data can be considered generally disseminated if their skewness and the kurtosis values are less than 3 in absolute value. As shown in Table 4.3, the skewness and kurtosis standards all lie within the interval of ±3, indicating that the data conform to a normal distribution, indicating that the data exhibits a normal distribution. This normality enables the application of structural equation modelling techniques.

Table 4.3: Normality test

	Skewness	**Kurtosis**
Funding1	-0.431	-0.661
Funding2	-0.409	-1.129
Funding3	-0.461	-0.786
Funding4	-0.135	-0.643
Funding5	-1.094	1.763
Sales Revenue1	-0.039	-1.095
Sales Revenue2	-0.607	0.383
Sales Revenue3	-1.470	1.368
Sales Revenue4	-0.256	-1.078
Sales Revenue5	-0.440	0.239

Sales Revenue6	-0.253	-0.506
Sales Revenue7	-0.245	-0.203
Financial Management1	-0.544	0.337
Financial Management2	-0.702	1.475
Financial Management3	0.037	-0.233
Financial Stability1	0.317	-0.480
Financial Stability2	-0.397	-0.257
Financial Stability3	0.280	0.523

Source: The author's conclusions drawn from the data (2024)

4.2.6. Factor loading and collinearity tests

This is a crucial technique that serves multiple purposes, including reducing complex data collection instruments into meaningful and relevant factors, verifying the clarity and coherence of categorisation systems, and identifying potential gaps or omissions in the data (Watkins, 2018). This research conducted exploratory factor analysis using SmartPLS 4 software, and the findings are shown in Table 4.4. Watkins (2018) states that for an item to be selected for analysis, it should have a loading of at least 0.70 on its relevant factor. Alternatively, any items that have a loading of less than 0.70 or cases with cross-loading should be eliminated from the dataset to maintain data integrity, as per Hair Jr et al. (2017)'s recommendations. The study commenced by examining the relationships between Financial Management and Financial Stability with three items each, Funding using five items, and Sales Revenue using seven items. However, Funding1, Sales Revenue4, Sales Revenue5, and Sales Revenue6, loaded with values that are less than 0.70, as shown in Appendix F. In accordance with the guidelines outlined by Hair et al. (2017), it is proposed that research omitted the said items from the data. This exclusion was done to guarantee that each of the items exhibited a significant correlation with of at least 0.70, as shown in Table 4.4, in order to fit the analysis.

The study also emphasised the importance of conducting a collinearity test to evaluate the degree of intercorrelation among the model's variables. Using SmartPLS 4 software, the study performed a variance inflation factor (VIF) analysis. A VIF score less than three indicates that the model is capable of effectively capturing variation and is free from multicollinearity, whereas a score exceeding three suggests that the model exhibits multicollinearity and is limited in its ability to account for variation, as per Hair Jr et al. (2017)'s guidelines.

The variance inflation factor values for each construct are all below three as revealed by Table 4.4, signifying a high level of tolerance for variation in the data. The collinearity test outcomes indicate that the model is not compromised by multicollinearity, thereby ensuring the reliability and accuracy of the results.

Table 4.4: Factor loading matrix and VIF

	Factor Loading				VIF
Financial Management1	0.901				2.025
Financial Management2	0.808				1.569
Financial Management3	0.785				1.581

Financial Stability1		0.792			1.336
Financial Stability2		0.880			1.970
Financial Stability3		0.795			1.807
Funding2			0.721		1.713
Funding3			0.812		1.859
Funding4			0.773		1.571
Funding5			0.858		2.017
Sales Revenue1				0.780	1.730
Sales Revenue2				0.740	1.682
Sales Revenue3				0.818	1.740
Sales Revenue7				0.832	1.667

Source: Author's extraction from the analysis (2024)

4.2.7. Model fit

A range of widely used indices, including standardised root mean square residuals (SRMR), squared Euclidean distance (d_ULS), geodesic distance (d_G), and normed fit index (NFI), were utilised to assess the model's goodness of fit in the study. According to Dash and Paul (2021) and Dijkstra and Henseler (2015), these indices should meet specific criteria. Specifically, the standardised root mean square residuals, should be less than 0.05 (Maydeu-Olivares et al., 2018; Shi & Maydeu-Olivares, 2020), squared Euclidean distance and geodesic distance should not be statistically significant at a 5% level (Dijkstra & Henseler, 2015), and normed fit index should exceed 0.90 (Dash & Paul, 2021). Table 4.5 reveals that all the indices have achieved the desired levels, demonstrating a strong fit between the model and the data.

Table 4.5: Model fit results

Fit indices	Suggested	Anticipated	Verdict
SRMR	<0.050	0.012	Accepted
d_ULS	>0.05	0.083	Accepted
d_G	>0.05	0.438	Accepted
NFI	>0.90	0.972	Accepted

Source: Author's extraction from the analysis (2024)

4.2.8. Reliability test

Cronbach's alpha was used as a measure of reliability in the study to determine the consistency of the scale scores and to assess the internal consistency of the measurement model. A commonly accepted benchmark of 0.7 or higher was applied to determine the model's reliability (as suggested by Hair Jr et al., 2017). Additionally, composite reliability measured by omega-a (rho_a) was also utilised, which should exceed 0.70 according to Chin (2010). The analysis revealed that the Cronbach's alpha and rho_a value, as presented in Table 4.6, all surpassed the threshold of 0.70, demonstrating that the measures used in the study exhibit strong cohesion and consistency.

Table 4.6: Reliability results

	Cronbach's Alpha	Composite Reliability (rho_a)
Financial Management	0.779	0.801
Financial Stability	0.764	0.784
Funding	0.804	0.816
Sales Revenues	0.807	0.832

Source: Author's extraction from the analysis (2024)

4.2.9. Validity test

This study evaluated the legitimacy of its measurements by examining equally convergent and discriminant validity. Convergent legitimacy is established when composite reliability surpasses 0.70 then average variance quarried is above 0.50, as recommended by Hair Jr et al. (2017). As revealed in Tables 4.5 above and 4.6 below, the study's outcomes demonstrate that all composite reliability values meet this threshold and Average Variance Extracted (AVE) values are also greater than 0.50, indicating that the measures converge and are reliable indicators of the underlying constructs. Findings for the study demonstrate that it has achieved convergent validity. To ensure discriminant validity, the study applied the Fornell-Lacker criterion and the Heterotrait-monotrait (HTMT) ratio of correlation. According to the Fornell-Lacker criterion, constructs demonstrated discriminant validity when the unique variation explained by each construct was significantly greater than its relationship with other constructs, as proposed by Hamid et al. (2017). As shown in Table 4.7, the bolded diagonal values, representing the square roots of average variance extracted, consistently outshine the corresponding correlation values, thereby ensuring that the study has established discriminant validity.

Table 4.7: Fornell-Lacker criterion

	AVE	1	2	3	4
Financial Management	0.694	**0.833**			
Financial Stability	0.677	0.597	**0.823**		
Funding	0.629	0.595	0.484	**0.793**	
Sales Revenues	0.629	0.571	0.638	0.446	**0.793**

Source: Author's extraction from the analysis (2024)

In addition to the Fornell-Lacker criterion, discriminant validity, based on the Heterotrait-monotrait (HTMT) ratio, is attained when the correlation coefficient between concepts is below 0.85 (Garson, 2016). In reference to the data shown in Table 4.8, the correlation coefficients for all the variables are lesser than the threshold of 0.85. The findings demonstrate that the study has established discriminant validity between the constructs, as evidenced by the Heterotrait-monotrait ratio, which confirms that the relationships between the constructs are distinct and not overlapping.

Table 4.8: Heterotrait-Mootrait ratio

	1	2	3
Financial Management	**1**		

Financial Stability	0.761	**1**	
Funding	0.722	0.595	**1**
Sales Revenues	0.693	0.755	0.536

Source: The author's conclusions drawn from the data (2024)

Structural equation modelling

Structural equation modelling (SEM) was utilised by the study through the SmartPLS 4 software that investigated the underlying relationships between funding, financial management, sales revenue, and financial stability, with a focus on their impact on biodiversity conservation efforts in Namibia. The research utilised 60 cases and the PLS-SEM algorithm option to estimate the structural model. The results depicted in Figure 4.1 indicate that funding, financial management, and sales revenue have positive impacts of 0.130, 0.280, and 0.420, respectively, on financial stability of the biodiversity conservation in Namibia. As Chin (2010) notes, the impact sizes of 0.02, 0.15, and 0.35 in absolute values represent weak, moderate, and strong influences, respectively, of the latent exogenous variable on the endogenous variable. Based on this framework, the research findings indicate that sales revenue takes significant and solid optimistic impact on financial stability ($\beta = 0.420 > 0.350$), financial management has a reasonable optimistic impact on financial stability ($\beta = 0.280 > 0.150$), whereas funding takes slight optimistic impact on financial stability ($\beta = 0.130 < 0.150$).

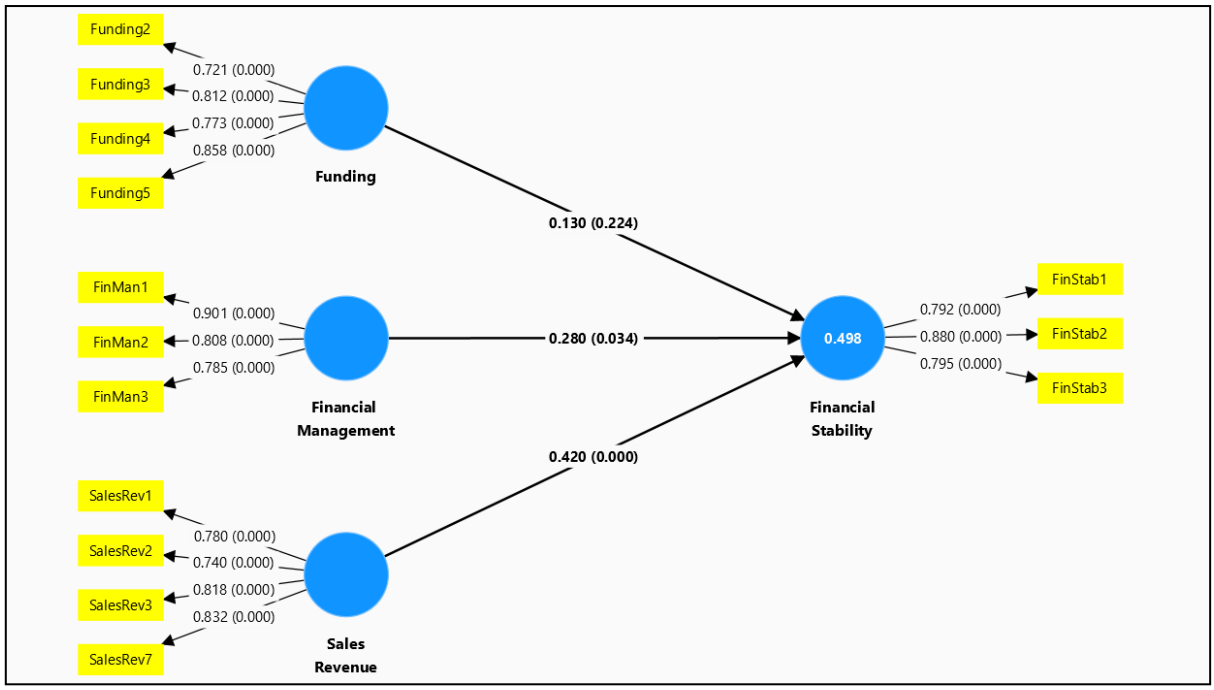

Figure 4.1: Structural model

Source: The author's conclusions drawn from the data (2024)

To determine the statistical significance of the results, the study conducted a statistical analysis, causal relationships between funding, financial management, sales revenue, and financial stability in Namibia's biodiversity conservation efforts, and the study employed the SmartPLS 4 software with bootstrapping, using 5000 subsamples and 60 cases. The bootstrapping method enabled the calculation of confidence

intervals and p-values for standard inference testing, as recommended by Becker et al. (2023). Specifically, the percentile bootstrap confidence interval was used, which is considered the most effective approach (Aguirre-Urreta & Rönkkö, 2018). The confidence interval bounds were set at 2.5% and 97.5%. The findings of the hypothesis testing are summarised in Table 4.8. Becker et al. (2023) posit that policymakers and managers may consider significant relationships as worthy of attention, whereas relationships lacking statistical significance may be deemed unworthy of such consideration.

RO1: Impact of funding on financial stability of the biodiversity conservation in Namibia

One of the purposes of this study was to examine the effect of funding on financial viability for biodiversity conservation initiatives. The results, as reported in Table 4.8, indicate that while funding has a small positive effect on financial stability, it is not significant at the 5% confidence level ($\beta = 0.130$; $t = 1.217 < 1.96$; $p = 0.224 > 0.05$; CI [-0.062, 0.362]). The results indicate that a 1% increase in funding could lead to a 13% boost in financial stability for biodiversity conservation in Namibia. However, this marginal effect is not substantial enough to warrant managerial attention. Consequently, the study failed to provide evidence to support the first hypothesis (H1) that funding contributes significantly to financial stability.

As emerged from the literature, there exists scanty evidence regarding the impact that funding has on financial stability of the biodiversity conservation. Therefore, by revealing that funding has a positive impact, which is however not significant on financial stability of the biodiversity conservation, the study aimed to fill a practical knowledge gap in the existing literature by addressing an identified knowledge void, as conceptualised by Miles (2017) in his framework for categorising research gaps.

Besides that, the literature underscores the need for bridging biodiversity financing gap through funding (Chausson et al., 2023; Ha, 2018; Hughes et al., 2022; Humavindu et al., 2016, 2018; Niesenbaum, 2019; Sravan & Paramita Mishra, 2024). As such, while institutions such as the European Union and Global Environment Facility have been committed to providing international financial support to enhance biodiversity conservation (Chausson et al., 2023; Niesenbaum, 2019) from the global perspective, it is evident from these findings that it fails to have a material influence on the financial stability of biodiversity conservation in Namibia. Therefore, Chausson et al. (2023) highlight the need to encourage private investment in nature-based solutions through novel market-based financing mechanisms, such as biodiversity credits, rather than being highly dependent of government funding's and donations. These mechanisms provide a means to overcome the funding imbalance, although they entail certain hazards, such as the possibility of greenwashing and an inequitable distribution of costs and benefits, which signify strict oversights to guarantee that they advance conservation objectives rather than impede them (Niesenbaum, 2019).

RO2: The effect of financial management on the financial stability of the biodiversity conservation in Namibia

Additionally, the findings of the study show that well-managed finances have a substantial and statistically significant positive impact on financial stability, thus suggesting that it plays a noticeable and measurable role in maintaining financial stability for biodiversity conservation in Namibia ($\beta = 0.280$; $t = 2.116 > 1.96$; $p = 0.034 < 0.05$; CI [-0.011, 0.509]). In brief, a 1% improvement in financial management results in a 28% enhancement in financial stability, according to these findings. The significance of this relationship indicates that this impact is worthy of managerial recommendations. The study thus provides support for hypothesis 2 (H_2).

In general, these findings are consistent with evidence from prior studies (Arhinful & Radmehr, 2023; Buchdadi et al., 2020; Otoo, 2024), and these results underscore the significance of effective financial

management in ensuring the long-term success of national parks. The findings emphasise the vital importance of financial management in driving national park's overall performance and success. In doing so, it builds on the concept of research gaps by Miles (2017) and the study also highlights the importance of financial management in Namibia's conservation efforts, showing that it has a moderate positive and statistically significant influence on the financial well-being of biodiversity conservation initiatives. Therefore, to ensure effective financial management, there is need for accountability and transparency in reporting, which potentially results in increased investment, company's standing, and the confidence of its stakeholders (Atkins & Maroun, 2018). Furthermore, there is need to harmonise financial management with policy frameworks that bolster biodiversity conservation to guarantee enduring sustainability and congruence with more extensive environmental objectives (Cintra et al., 2022). Thus, it is essential for organisations to prioritise the prominence of financial management through trainings like financial literacy and other educational means (Ephraim, 2019; Kinyondo, 2018; Murangi, 2021). When finances of the biodiversity conservation are well managed, it becomes feasible to effectively mitigate threats and deliver conservation outcomes while staying within budget constraints, thereby ensuring that limited financial resources are utilised to maximise conservation benefits (McNellie et al. 2020; Rushworth, 2018).

RO3: The influence of sales revenue on the financial stability of the biodiversity conservation

In relation to the influence of sales revenue on the financial stability of the biodiversity conservation, evidence indicates a strong positive and statistically significant influence ($\beta = 0.420$; $t = 4.346 > 1.96$; $p = 0.000 < 0.05$; CI [0.228, 0.615]). This indicates that a 1% increase in sales revenue may result in a 43.6% improvement in the financial stability of the biodiversity conservation in Namibia, which is worthy of managerial consideration, given its significance. As a result, the study supports hypothesis 3 (H_3).

Generally, the findings of this study align with the notion of early studies (Humavindu et al., 2018; Letley & Turpie; 2018; Naidoo et al., 2016; Turpie, 2018; Wassenaar, 2018) that recognise the significant influence that sales revenue has on the overall performance of biodiversity conservation. Nonetheless, the literature documents limited empirical evidence with a special reference to the magnitude to which sales revenue influences the financial stability of biodiversity conservation. Hence, by revealing that sales revenue has a strong positive influence relating to the financial security of biodiversity conservation in Namibia, a crucial knowledge gap is filled by the study as suggested by Miles (2017), which highlights the lack of research in this area.

Given these findings, Nguyen (2020) details the need for devising strategies and plans, which are essential in attracting more visitors to revisit the parks and boost their wishes to recommend to new visitors, which enhances revenues. In that view, Al-Msallam (2020) highlight that parks have a huge rule to play to ensure positive emotional responses towards a particular destination to maximise tourists' satisfaction and destination loyalty, which is key in maximising sales revenue that drives the financial stability of biodiversity conservations, as emerged from the findings of these study.

Table 4.9: Hypotheses results

	Estimate	**T-value**	**P-Value**	**CI = 2.5**	**CI = 97.5**
Funding → FinStab	0.130	1.217	0.224	-0.062	0.362
FinMan → Fin Stab	0.280	2.116	0.034	-0.011	0.509
SalesRev → FinStab	0.420	4.346	0.000	0.228	0.615

Source: Author's extraction from the analysis (2024)

4.3. Qualitative data analysis

As an explanatory sequential research design, this section focuses on data analysis for the qualitative aspect of the study. Qualitative data analysis is a critical tool in the quest to develop a sustainable financing model for biodiversity conservation in national parks. By leveraging diverse qualitative methods and comprehensive analytical frameworks, this research provided deep, actionable insights that not only advance academic understanding but also offer practical solutions to the pressing challenge of sustainable biodiversity conservation financing. The section aims to address the study's research objective that seeks to explore the challenges that hinder financing of biodiversity conservation and establish innovative strategies for addressing such challenges. The section further aims to address the needs for funding biodiversity conservation initiates. Having noted that, the following subsection details demographic data among the individuals who participated in the qualitative component of this study, their perspectives were sought to help achieve the research objectives.

4.3.1. Profiles of the participants

Table 4.10: 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)

4.3.2. 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 4.2 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 findings mirror the outcomes reported in 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 construction 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 also cited the 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 outcomes are consistent with the results obtained by Oktaviani et al. (2018), which postulate the need for biodiversity conservations' funding to address similar issues in Indonesia.

Figure 4.2: Funding needs of biodiversity conservation

Source: Author's extraction from the word cloud (2024)

4.3.3. 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 employed thematic analysis, utilising the software ATLAS.ti, to examine the reflexive nature of the data, comprehensive examination of the data revealed six distinct themes, which are illustrated in Figure 4.3.

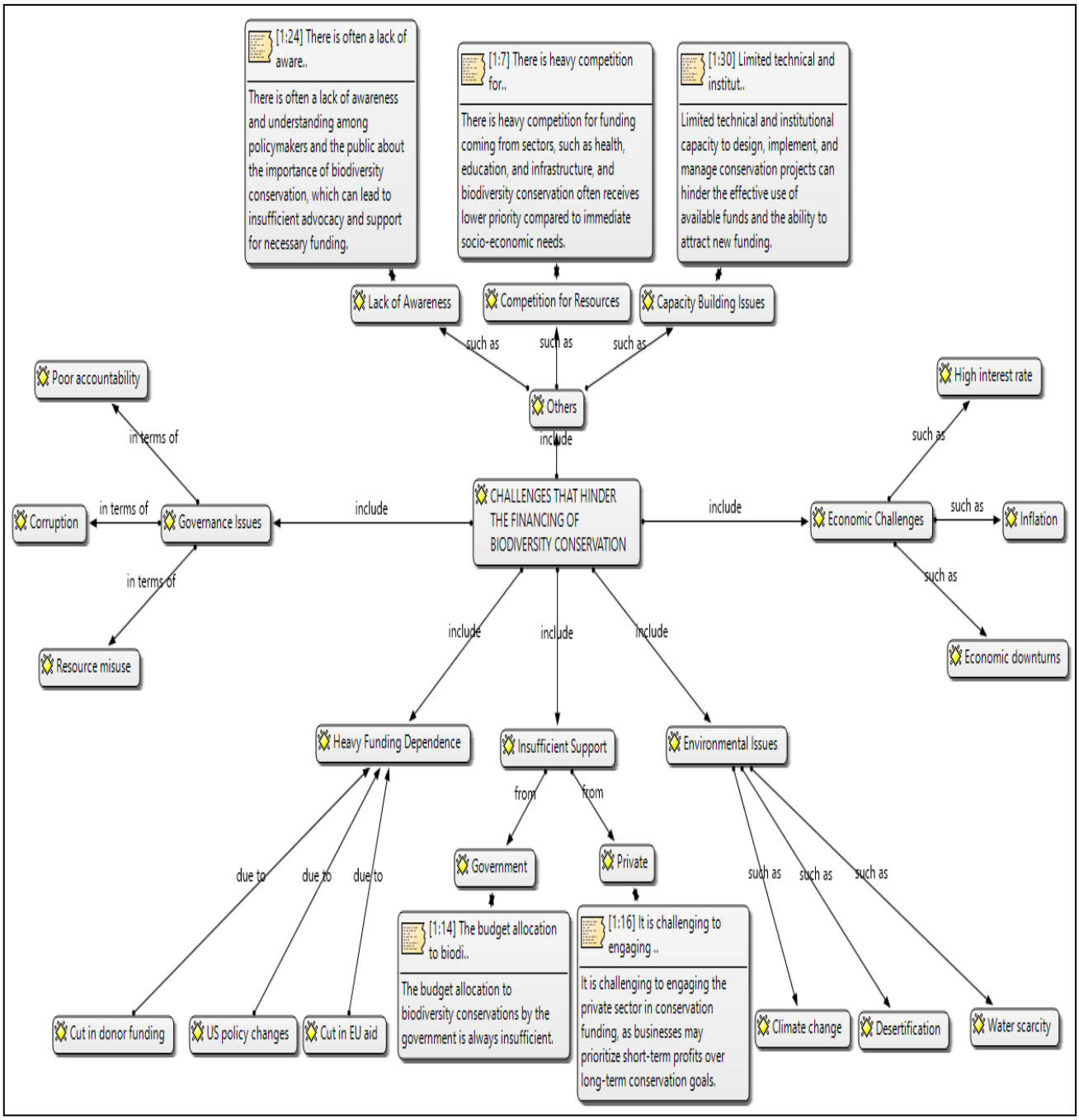

Figure 4.3: Challenges that hinder financing of biodiversity conservation

Source: Author's extraction from the word cloud (2024)

4.3.3. Strategies for addressing challenges that hinder the financial stability of biodiversity conservation

The study investigated the obstacles to achieving financial stability in biodiversity conservation, and then developed strategies to overcome these hurdles. To do this, the researchers gathered data from nine national park directors in Namibia and analysed it using a thematic analysis approach with ATLAS.ti software. The analysis yielded five key themes, which were supported by quotes and codes, and are presented in Figure 4.4. These themes offer strategies for addressing the financial challenges facing biodiversity conservation efforts.

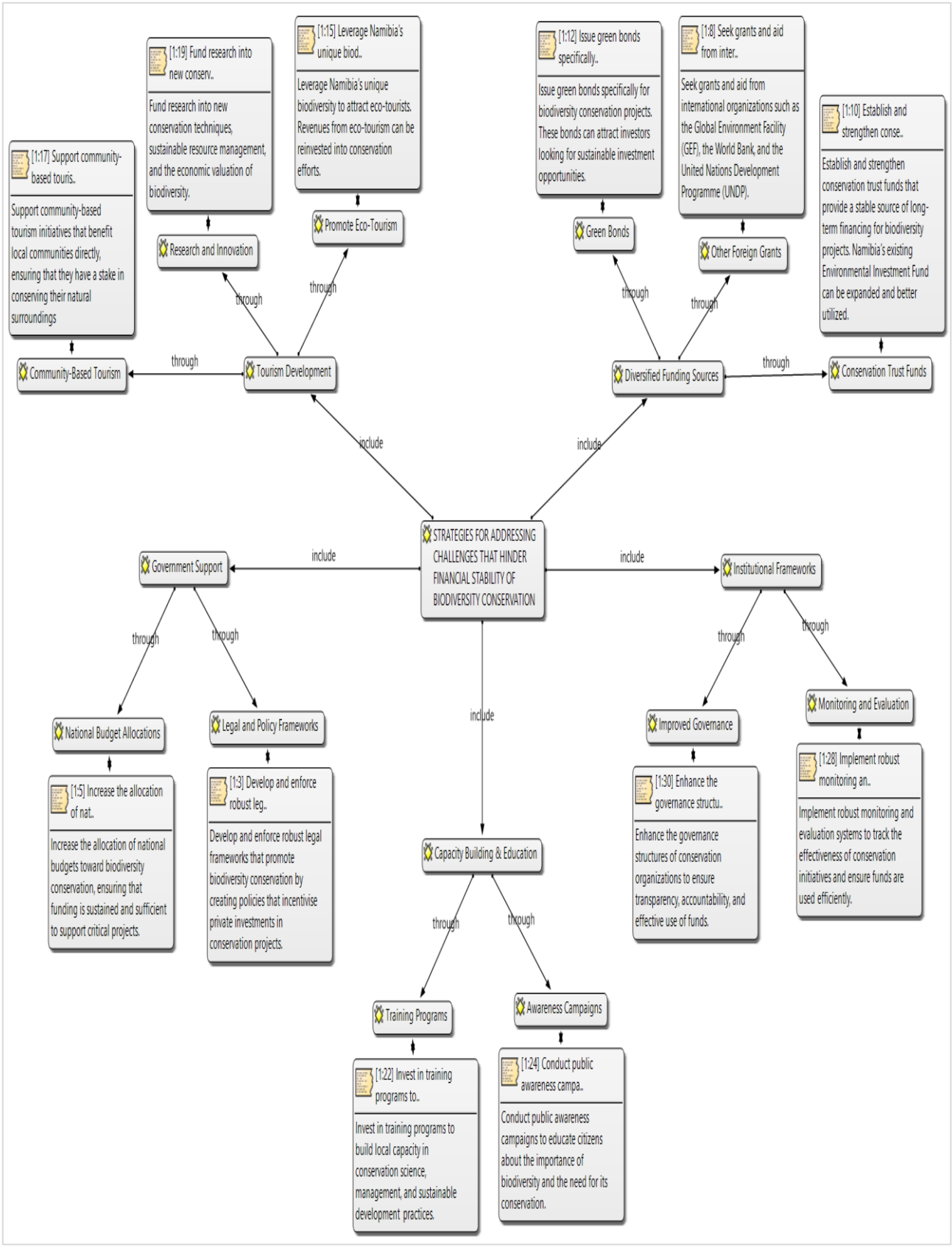

Figure 4.4: Strategies for addressing challenges that hinder financing of biodiversity conservation

Source: Author's extraction from the word cloud (2024)

4.4. A model for sustainable financing of biodiversity conservation in Namibia national parks

The end view for the study was to construct a particular procedure to sustainable financing of biodiversity conservation of Namibian national parks. Notably, figure 4.5 presents a developed model that is based on the outcomes of the study, incorporating both quantitative and qualitative findings. The study proposes a model for sustainable financing of biodiversity conservation in national parks, integrating multiple diversified funding sources, robust financial management practices, and community involvement. By adopting a comprehensive approach that encompasses government funding, contributions from international organisations and NGOs, philanthropic donations, private sector investments, and innovative financial mechanisms, this model seeks to build a resilient financial framework. The model aims to optimise resource allocation, minimise waste, and ensure the effective monitoring and evaluation of funded projects.

The model depicts the national parks' funding need to finance their activities like boreholes, equipment, the software needed for the park administration, fuel for anti-poaching patrols and for the fencing of national parks, as well as to implement strategies for addressing climate change and anti-poaching issues. In that light, the model suggests sources of funding the said needs of biodiversity conservation through the maximisation of sales revenue, increased government budget, investment, green projects, and aid and donors. The funding needs for biodiversity conservation are diverse and require a broad array of funding sources to address them effectively (Hughes et al., 2022). By understanding the strengths and limitations of each funding source and strategically aligning them with specific conservation needs, it is possible to create a more robust and sustainable funding ecosystem. Using the notion of Miles (2017), partnerships, innovative financing mechanisms, and integrated approaches are essential to bridging the gap between financial needs and available resources, thus ensuring the long-term success of biodiversity conservation efforts.

The financial resources required to effectively manage and conserve national parks often fall short of what is necessary (McNellie et al. 2020; Rushworth, 2018). Traditional funding models heavily reliant on fluctuating government budgets and sporadic donations prove inadequate in addressing the escalating costs and complexities associated with comprehensive conservation efforts (Sravan & Mishra, 2024). Thus, there emerges a pressing need for innovative and sustainable financing models that ensure a stable and continuous flow of resources, thereby enabling long-term conservation success.

When developing a model for sustainable financing for biodiversity conservation in national parks, several challenges must be overcome to ensure the effective mobilisation, allocation, and management of funds. These challenges can impede the ability to secure long-term and consistent financing, thereby threatening the sustainability of conservation. This requires effective strategies for addressing governance, heavy reliance on foreign funding, insufficient government and private sector support, environmental, economic, and other challenges that hinder the financing of biodiversity conservation. As proper funding is a forerunner of an effective biodiversity conservation and effectiveness of sustainable finance, instructional managers such as rangers must promote their respective parks to improve biodiversity conservation (Chausson et al., 2023; Ha, 2018; Hughes et al., 2022; Niesenbaum, 2019; Sravan & Mishra, 2024). Hence, the model suggests strategies for addressing the said challenges through tourism development, government support, capacity building and education, institutional framework, and diversified funding sources. By taking a holistic and flexible approach to address these challenges, it is feasible to create a sustainable financing mechanism that guarantees the long-term preservation of biodiversity in national parks.

The advantage of developing a model is to show that investment should be done on the national parks who are agents of natural resources in order to restore, rebuild and develop them for the future and long-term protection and conservation of natural resources (Cintra et al., 2022). This involves managing development in a way that benefits biodiversity, restoring degraded habitats or implementing sustainable conservation practices. Additionally, the proposed model creates a financial incentive for conservation and helps to ensure the long-term sustainability of biodiversity. It also recognises the strategies to address challenges that hinder financing for biodiversity conservation. By linking conservation efforts to economic benefits, the model can help fund biodiversity conservation projects and incentives, and the MEFT to protect and preserve natural habitats. Furthermore, the model provides a practical and sustainable way to manage the finance for biodiversity conservation by involving all stakeholders in the process and identifying the economic value of conserving natural resources.

Finally, certain financial management standards must be practiced when acquiring, managing, distributing, and utilising funds (Atkins & Maroun, 2018). Therefore, the model suggests effective financial management as a tool for administering funds through government accounting, budgeting, planning, financial literacy, standardised financial reporting, and public engagement. The effective administration of funding resources can enable the national parks to maintain financial stability of biodiversity conservation, which drives to sustainable financing. In a nutshell, the developed model is an effort to support biodiversity to attract more funding to stimulate the economic growth of Namibia. Consequently, though the model is massive, progress on this front can be politically delicate regardless of the economic impact.

The model illustrates a connection between managing funds and generating funds. The more funds national parks generate, the more the financial management needs to be contacted, and the more sustainable the financing is likely to be. This is a solid and efficient framework structured in determining how effectively the available financial resources can ensure financial stability.

In implementing this model, national parks can navigate financial uncertainties with greater confidence, secure ongoing support for essential conservation activities, and ultimately contribute to the preservation of biodiversity for future generations. This comprehensive model for sustainable financing promises to bridge the existing resource gaps and set a precedent for effective biodiversity conservation worldwide.

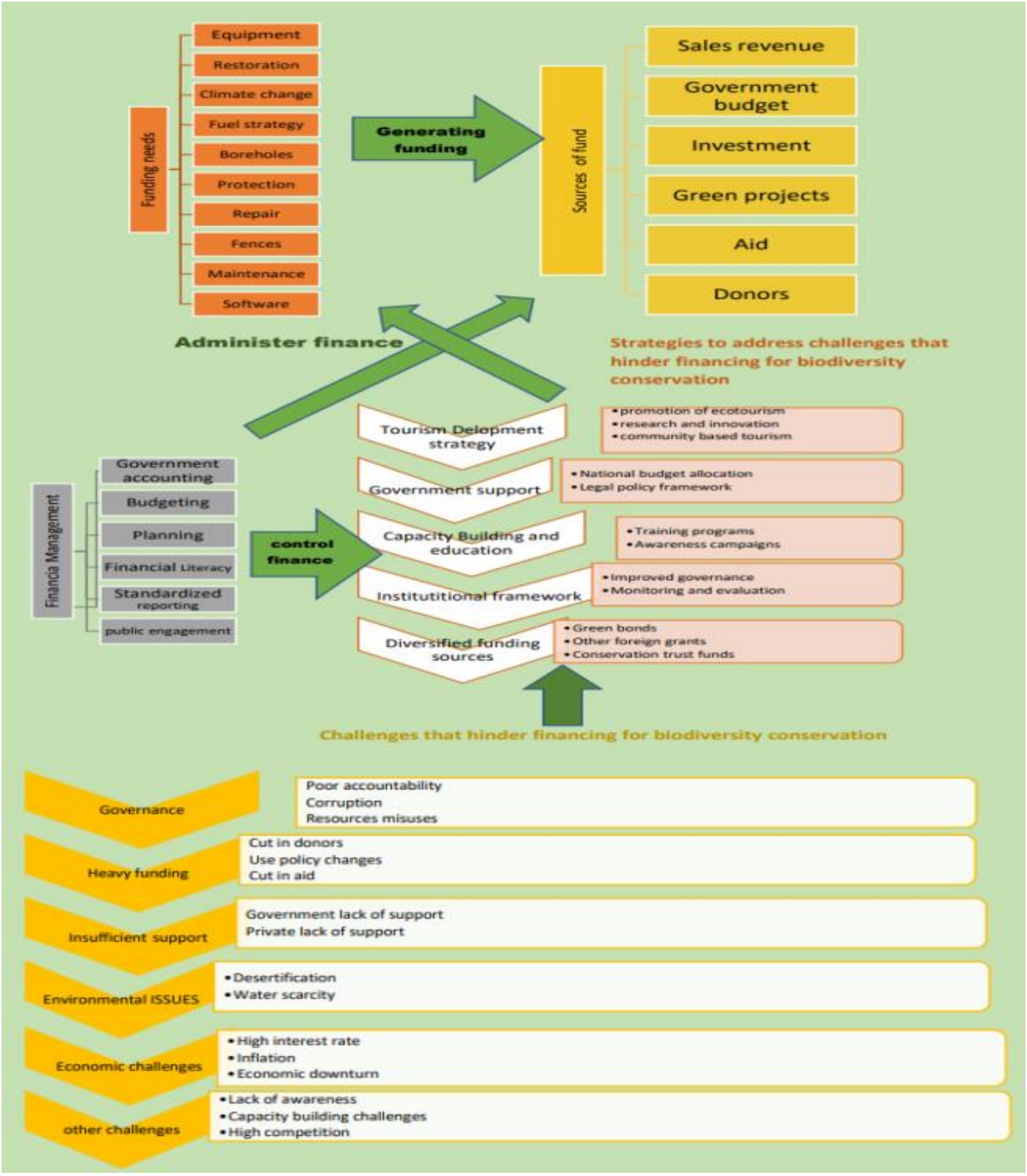

Figure 4.5: A model for sustainable financing of biodiversity conservation

Source: Author's own compilation (2024)

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The aim of this research was to create a model for sustainably financing biodiversity conservation efforts in Namibia's national parks. This final section summarises the study by highlighting the key contributions

made and offering recommendations, following the presentation of data analysis and findings in the previous chapter. Having underscored that, the following subsection presents the study's conclusions.

5.2. Conclusions

This study sought to address fivefold objectives using a mix of both quantitative and qualitative approaches: firstly, to assess the impact of funding on the financial stability of biodiversity conservations in Namibia; secondly, to analyse the effects of financial management on the financial stability of biodiversity conservations in Namibia; thirdly, to examine the influence of sales revenues on the financial stability of biodiversity conservations in Namibia; fourthly, to explore the challenges that hinder the financing of biodiversity conservation in Namibia; and finally, to devise strategies for addressing challenges that hinder the financial stability of biodiversity conservation in Namibia. The end view was to develop a model for sustainable financing of biodiversity conservations. This section identifies the main aspects learnt from the literature review and details how the study addressed each objective.

Research objective 1: The impact of funding on financial stability of biodiversity in Namibia national parks

The study addressed this objective quantitatively. Briefly, the study employed the data from employees of the National Parks in Namibia, which was examined using Partial Least Squares-based Structural Equation Modeling (PLS-SEM) in SmartPLS 4 software. This research aimed at explore how different types and sources of funding impact the financial stability of biodiversity conservation efforts in national parks. Funding is a critical component that is under the sustained efforts needed for effective conservation, from operational activities to large-scale ecological projects. The results demonstrate a small positive impact on financial stability, but not statistically significant. This enabled the study to fail to support the first hypothesis (H_1) to validate that funding has no significant impact of financial stability. While the literature calls for funding to bridge biodiversity financing gap (Chausson et al., 2023; Ha, 2018; Hughes et al., 2022; Humavindu et al., 2018; Niesenbaum, 2019; Sravan & Paramita Mishra, 2024), this study revealed that funding does not have a significant impact on financial stability. Therefore, this study concludes that funding for biodiversity is not worth the managerial attention in pursuit of financial stability. While government grants and subsidies form the bedrock of financial stability, diversified funding sources such as tourism revenue, philanthropic contributions, and corporate partnerships are crucial for flexibility and resilience. Strategic financial planning, efficient resource allocation, and strong stakeholder engagement are essential in providing this evidence, and as such, the study addressed the practical knowledge gap in the literature.

Research objective 2: The effect of financial management on the financial stability of biodiversity conservation in Namibian national parks

To address this objective, the study relied on the same data collected from 60 employees of the national parks in Namibia and analysed the data using PLS-SEM in Smart-PLS software 4. The research objective was to examine how effective financial management impacts the financial stability of biodiversity conservation efforts in national parks. Proper financial management is essential for ensuring that available funds are used efficiently and effectively, thereby maximising their impact on conservation objectives. The findings reveal that financial management has a moderate positive and statistically significant impact on the financial stability of biodiversity conservation in Namibia. This significant impact enabled the study to support hypothesis 2 (H_2). Hence, the study concludes that financial management is worthy of managerial attention in pursuit of the financial stability of biodiversity conservation in Namibia. In that

light, effective financial management requires capacity building, strategic financial planning, improving financial monitoring and reporting, engaging stakeholders, accountability and transparency (Maroun & Atkins, 2018) to attract more investors looking for sustainable investment opportunities and policy frameworks to complement financial management (Cintra et al., 2022). The importance of accountability, transparency, and policy frameworks are supported by the qualitative results. Effective financial management is pivotal to the financial stability of biodiversity conservation efforts in national parks. By ensuring optimal allocation and use of resources, robust financial controls, and strategic planning, parks can achieve sustained financial health and resilience. Proper financial management not only secures the necessary funds for current conservation projects but also builds a foundation for long-term ecological preservation and sustainability. Adopting best practices in financial management, enhancing capacity, and fostering transparent stakeholder relations will significantly bolster conservation efforts and ensure the protection of biodiversity in national parks for future generations. Finally, as the literature presents scanty empirical evidence regarding the impacts of financial management on financial stability of biodiversity conservation, this study bridges the practical knowledge gap in the literature.

Research objective 3: The influence of sales revenue on the financial stability of biodiversity conservation in Namibian national parks

The same as the first two objectives, the study relied on the data collected from 60 employees of the National Parks in Namibia, which were analysed using PLS-SEM in Smart-PLS software 4. The research objective was to evaluate how sales revenue, including entry fees, merchandise, concessions, and related tourism activities, influence the financial stability of biodiversity conservation efforts in Namibian national parks. Sales revenue is a critical component of the funding mix for conservation projects, and understanding its impact helps inform better financial and operational strategies for national parks. The findings indicate a strong positive and statistically significant relationship, which enabled the study to support hypothesis 3 (H_3). Therefore, the study concludes that in pursuit of financial stability, sales revenue is worthy of managerial consideration. The study further concluded that sales revenue plays a significant role in the financial stability of biodiversity conservation in national parks. While it offers a crucial funding source that can enhance conservation efforts and operational resilience, reliance solely on such revenue poses several risks. Parks must adopt a diversified and strategically managed approach to revenue generation, ensuring that financial stability supports and does not compromise conservation objectives. Effective integration of sales-driven activities with biodiversity goals, along with robust financial planning and community engagement, will enhance the sustainability and impact of conservation efforts in national parks. As such, there is need for devising strategies for attracting more visitors to revisit the parks and recommend others too (Nguyen, 2020). Given the limited empirical evidence regarding the influence of sales revenue on the financial stability of biodiversity conservation, thus this study bridges the practical knowledge gap in the literature.

Research objective 4: Challenges that hinder the financing of biodiversity conservation in Namibian national parks

The study addressed this objective qualitatively using the data sourced from nine directors of national parks in Namibia. In that frame of reference, the study employed reflexive thematic analysis in ATLAS.ti software to examine the data, thereby revealing several challenges, including: i) governance issues, such as poor accountability, corruption, and misuse of resources; 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 study concludes that the national parks in Namibia are faced with numerous challenges which hinder their ability to ensure financial stability. Addressing the financing challenges of biodiversity conservation in national parks requires a multi-faceted approach that includes enhancing government and private sector funding, developing innovative financial mechanisms, strengthening institutional capacities, and fostering greater community involvement. Policymakers and stakeholders must collaborate to create a conducive environment for sustained financial support, thereby ensuring the protection and preservation of biodiversity for future generations. Concerted efforts at local, national, and international levels are essential to overcome these barriers and achieve effective and sustainable conservation outcomes.

Research objective 5: The funding needs for conservation projects and initiatives for Namibian national parks

Finally, the study also addressed the last objective qualitatively using the data from the same nine directors of national parks in Namibia and was analysed using reflexive thematic analysis with ATLAS.ti. The research aimed to evaluate and understand the funding requirements necessary to support conservation projects and initiatives in national parks. Conservation is critical to maintaining biodiversity, preserving ecosystems, and ensuring sustainable tourism. Adequate funding is essential to accomplish these goals and to protect natural resources. 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 a legal policy framework; iii) capacity building and education through training programmes 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. The funding needs for conservation projects in national parks are substantial and diverse, thus requiring a multifaceted approach to ensure sustainability and effectiveness. By increasing government support, diversifying funding sources, and improving financial management and public engagement, national parks can better address their conservation challenges and secure the necessary resources to preserve these vital natural landscapes for future generations. Based on the findings from both the quantitative and qualitative aspects, the study developed a model for sustainable financing. The model highlights the sources of funding for biodiversity conservation, the strategies that can address the challenges that hinder funding, and financial management as a tool for administering the funds. Having noted that, the following section provides the contributions of the study.

5.3. Contributions

This study makes significant contributions to the body of knowledge. Firstly, the study contributes to the literature by documenting the impacts of funding, financial management, and sales revenue on the financial stability of biodiversity conservation, which is rarely presented by early studies. In brief, the results indicate significant impacts on financial management and sales revenues, which informs the managers of the national parks that these variables are of vital consideration as they pursue financial stability. Furthermore, the study also contributes to theory by developing a model for sustainable financing of biodiversity.

5.4. Recommendations

This section presents the study's conclusions and recommendations, which are grouped into two main categories: actionable suggestions and proposals for further research. First, we explore the actionable recommendations.

5.4.1. Actionable recommendations

These recommendations are of significant contributions to the practitioners, precisely the management personnel of the national parks, as well as the policymakers in ensuring the financial stability of biodiversity conservations. In so doing, the study recommends the following:

Firstly, quantitative evidence reveals that both financial management and sales revenue correspondingly have moderate and strong positive impacts on financial stability, which are proven to be statistically significant, while the positive impact of funding is not significant. Secondly, the study 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 management of the national parks to adopt the devised strategies. Finally, the study relied on the combined findings from both the quantitative and qualitative aspects and developed a model for sustainable financing of biodiversity conservations. Hence, the study recommends the management of the national parks to adopt the developed model to ensure the sustainable financing of biodiversity conservation.

5.4.2. Suggestions for future study

The study recommends exploring additional variables in future research. Furthermore, considering that the current study revealed a one-way relationship between sustainable finance and park funding, it is suggested that funding for park operations and development be made more targeted in order to better understand the specific impact of funding 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 research is suggested to improve the data once they become available.

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